

Kisanga, Elineema et al.

Working Paper

Assessing the distributional impact of lowering the value-added tax rate for standard-rated items in Tanzania and options for recouping revenue losses

WIDER Working Paper, No. 2021/38

Provided in Cooperation with:

United Nations University (UNU), World Institute for Development Economics Research (WIDER)

Suggested Citation: Kisanga, Elineema et al. (2021) : Assessing the distributional impact of lowering the value-added tax rate for standard-rated items in Tanzania and options for recouping revenue losses, WIDER Working Paper, No. 2021/38, ISBN 978-92-9256-976-1, The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki, <https://doi.org/10.35188/UNU-WIDER/2021/976-1>

This Version is available at:

<https://hdl.handle.net/10419/243364>

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WIDER Working Paper 2021/38

**Assessing the distributional impact of lowering
the value-added tax rate for standard-rated
items in Tanzania and options for recouping
revenue losses**

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February 2021

In partnership with



This publication results from [Sustainable development solutions for Tanzania—strengthening research to achieve SDGs](#), a collaborative project between the [UONGOZI Institute](#) in Dar es Salaam, Tanzania, and [UNU-WIDER](#) in Helsinki, Finland, with a main research objective of informing the development and implementation of policies aiming for economic transformation and sustainable development in Tanzania and the East African region. With financial support provided by the Ministry for Foreign Affairs of Finland, the joint project launched in 2018 with key questions giving the partners a framework for collaboration and the research work to be undertaken. The project focuses on macroeconomic perspectives, domestic resource mobilization, extractives, industrialization, sustainable livelihoods, and gender as a cross-cutting issue. The project provides local stakeholders a platform for research and policy discussions on Tanzania and bridges these discussions to the regional and international development debate.

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Abstract: This paper explores the distributional impact of lowering the value-added tax rate for standard-rated items in Tanzania Mainland. Using a static tax-benefit microsimulation model—TAZMOD—which is underpinned by data derived from the Household Budget Survey 2017/18, reductions in value-added taxes from 18 per cent to 17 per cent and 16 per cent are simulated. The revenue losses and impact on poverty are estimated. The rules for direct taxes are then modified in order to identify ways in which the revenue loss caused by the lowering of the standard rate of value-added taxes can be recouped.

Keywords: value-added tax, microsimulation, redistribution, revenue, Tanzania

JEL classification: H23, H53

Acknowledgements: This working paper received input from the UNU-WIDER activity [SOUTHMOD—simulating tax and benefit policies for development](#). The results presented here are based on TAZMOD v2.0. TAZMOD is developed, maintained, and managed by UNU-WIDER in collaboration with the EUROMOD team at ISER (Institute for Social and Economic Research, University of Essex), SASPRI (Southern African Social Policy Research Insights), and local partners in selected developing countries (Ethiopia, Ghana, Mozambique, Tanzania, Uganda, Zambia, Ecuador, and Viet Nam) in the scope of the SOUTHMOD project. The local partner for TAZMOD is University of Dar es Salaam. We are indebted to the many people who have contributed to the development of SOUTHMOD and TAZMOD. An earlier version of this paper was presented at the UNU-WIDER TAZMOD training event at the International Labour Organization offices in Dar es Salaam on 11 March 2020. UONGOZI Institute and Professor Jukka Pirttilä from UNU-WIDER are thanked for their helpful comments. The results and their interpretation presented in this publication are solely the authors' responsibility.

Note: list of acronyms at the end of the paper

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This study has been prepared within the project [Sustainable development solutions for Tanzania—strengthening research to achieve SDGs](#), funded by the Ministry for Foreign Affairs of Finland.

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ISSN 1798-7237 ISBN 978-92-9256-976-1

<https://doi.org/10.35188/UNU-WIDER/2021/976-1>

Typescript prepared by Luke Finley.

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1 Introduction

Most countries in sub-Saharan Africa (SSA) faced fiscal deficits during the economic crises in the late 1970s and early 1980s and, under the auspices of the World Bank and International Monetary Fund (IMF), were requested to undertake tax reforms as part of an economic recovery programme. Following the adoption of value-added taxes (VAT) by Western European countries in the 1950s, VAT was introduced in most SSA countries as a means of rationalizing their sales taxes and improving their revenues. Widely adopted in SSA and elsewhere, VAT has emerged as a very important fiscal tool in both developed and developing economies. It has been described as one of the most significant events in the evolution of tax structures in the second half of the twentieth century (Cnossen 1991).

Currently, more than 160 countries worldwide have adopted VAT policies (Gerald and Naritomi 2018). Approximately two-thirds of the least-developed countries have VAT policies (Annacondia and van der Corput 2012), and all but six of the 54 countries in Africa levy a VAT (Crowe Horwarth International 2016).

Unlike direct taxes, which are usually targeted at the higher-income groups in society, indirect taxes including VAT are potentially payable by all income groups and so are widely regarded as one of the more regressive instruments within a tax system. As VAT provides such an important source of revenue for governments, its regressive features are usually excused, especially when taken in combination with other more progressive tax policies (Mirrlees et al. 2011). However, in Tanzania there is an additional concern in some quarters that the VAT rate of 18 per cent is too high compared with that of its neighbour Kenya, which lowered its standard rate of VAT from 18 per cent to 16 per cent in 2003 (UNECA 2019). There is also concern among some businesses that the recent standard-rating of tourist services, financial services, and cargo in transit places Tanzania at a competitive disadvantage (e.g. Deloitte 2017; Nexia International 2017; TanzaniaInvest n.d.). Such debates have fuelled an interest in exploring options for reducing the standard rate of VAT.

In this paper the distributional impact of VAT in Tanzania Mainland is examined in order to explore whether there is any scope for reducing the standard rate of VAT in a way that is not only revenue-neutral (with the lost revenue sought from elsewhere within the tax-benefit system) but also poverty-neutral (that is, causing no increase in poverty). In Section 2 the literature on VAT in low-income countries is briefly reviewed, followed in Section 3 by a more detailed overview of the VAT reforms and resultant VAT performance in Tanzania. Section 4 sets out the methodological approach and assumptions that were implemented to explore different VAT reform scenarios. The results are presented in Section 5 and discussed in Section 6.

2 VAT in low-income countries

In principle, VAT has several advantages compared with other tax instruments prevalent in developing countries. It is broad-based, avoids cascading taxes (tax on another tax), and over-taxation. It is seen as superior to an import tax or a turnover tax in terms of ‘production efficiency’ (Keen 2016). This means it can avoid the typical distortions to firms’ production decisions caused by these tax instruments (although this is not the case if it is not applied equally across firms). It is also seen as superior to a retail sales tax in terms of revenue mobilization (Kopczuk and Slemrod 2006), as it features compliance incentives for business-to-business transactions and can generate revenue earlier in the supply chain, even if retailers fully evade their tax liabilities. It is also

considered to have an inherent self-checking mechanism, thereby improving tax compliance and minimizing the occurrence of tax avoidance, evasion, and fraud. It has also been argued that VAT revenue tends to be more stable over the economic cycle (Auerbach 2010; Ebeke and Ehrhart 2012). In view of these qualities, VAT is said to have great potential to raise a substantial amount of revenue even at moderately low rates and for countries that are in their early stages of development (World Bank 1991).

In low-income-country settings, indirect taxes make up a higher proportion of revenue than in high-income countries, making VAT a particularly important revenue stream (Decoster et al. 2019). Additionally, as the benefit systems in low-income countries are usually less comprehensive, reduced VAT rates are recognized as being an important mechanism for achieving redistribution and reducing the burden on poor people (Abramovsky et al. 2017).

In spite of these claims, the question has been raised as to whether VAT is indeed an effective form of taxation for SSA. There are particular challenges due to the existence of large informal and agricultural sectors (Gerald and Naritomi 2018). Also, the existence of a weak tax administrative capacity makes it difficult to address abuse associated with exemptions, zero-rated goods, and tax credit refunds, which are inherent in the structure and operation of VAT (Emran and Stiglitz 2005). In many African countries—including Tanzania, as will be seen in the next section—the number of zero-rated or exempted items is quite high, which, it is argued, makes the policy overly administratively complex and promotes economic distortions (Cnossen 2015). The point has also been made that the prices of some VAT goods may react more strongly to macroeconomic fluctuations, causing VAT revenue to be less stable than usually argued (Fricke et al. 2014). Lastly, it has been demonstrated that VAT is a blunt instrument for achieving redistribution, as higher-income groups that spend more tend to benefit most in absolute terms from zero-rating, whereas the revenue forgone by government could be more optimally directed towards low-income groups (Crawford et al. 2011; Harris et al. 2018; Keen 2013).

3 VAT in Tanzania: reforms, performance, and issues

Although the major tax reforms in Tanzania were carried out during the structural adjustment period from the mid-1980s onwards, several tax reforms were initiated prior to that period. These included: the introduction of a sales tax in 1969; new income tax legislation in 1973; the amendment of the existing tax legislation to revise the tax bases and rates; the abolition of some excise duties in 1979 and export duty in 1985/86; and the reintroduction of previously abolished excise duty in 1989 (Osoro 1992). The tax system during this period functioned poorly for a number of reasons. Widespread poverty, with about half the population below the poverty line and low per capita income, during this period meant that the scope for extensive reliance on personal income taxation was limited (Ferreira 1993). Another major challenge during this period was that the majority of the population (around 85 per cent) was engaged in agriculture, largely subsistence agriculture, and lived in rural areas where the transactions within this sector are generally hard to observe and therefore hard to tax (Newbery 1987). This was coupled with a relatively small ‘formal’ sector and a larger non-agricultural informal sector, which in general is difficult to tax as it comprises small retail establishments, self-employed businesspeople, professionals, and petty traders—the so-called hard-to-tax groups (Musgrave 1987, 1990).

As a result of the poor functioning of the tax system, the government suffered a serious fiscal deficit which was exacerbated by the economic crises of the early 1980s and therefore there was a need to look at the tax system as a whole. Hence, in line with the adoption of the World Bank/IMF-supported Economic Recovery Program in 1986, where the government undertook

various policy reform measures, the government appointed a Commission of Enquiry into Public Revenues, Taxation and Expenditure in October 1989. The Commission's primary task was to study and review the central and local government tax system and its administration and make recommendations to the government. Specifically, it was to recommend changes to the existing tax system to widen the tax base, enhance revenue collections, and promote greater efficiency of production in the economy. In addition to the need to increase revenue from taxation overall, there was a need to diversify revenue collection from a focus on large, often foreign, enterprises based in Dar es Salaam.

In 1991, the Tax Commission made a proposal to reform the Tanzanian tax system. On direct taxes, the Commission recommended broadening the tax base by taxing fringe benefits and improving compliance, aided by more effective enforcement and reducing the tax rates on individual and company income, but applying these rates on a broadened base and making some adjustments for the effects of inflation. On indirect taxes, the Commission recommended replacing the current multiple-rate structure of sales and excise taxes with VAT and a limited number of excise duties on traditional excisable goods and luxury items; and simplifying customs duties by reducing the number of rates and items. The Tanzania Revenue Authority (TRA) was formed in 1995 by Act of Parliament No. 11, following recommendations from the Mtei Commission Report.

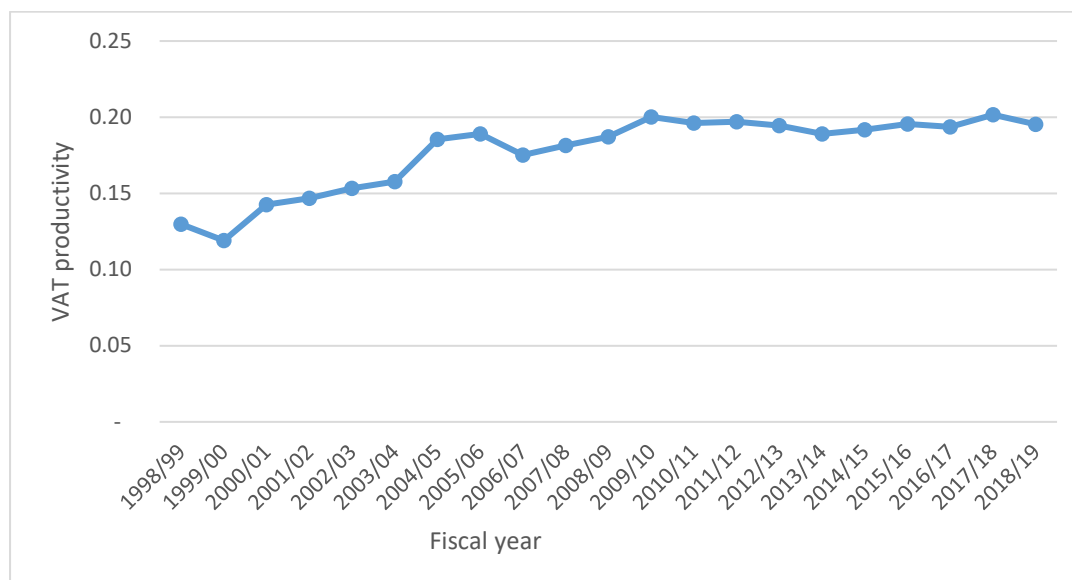
Although it is not entirely clear how the introduction of VAT became an issue in the Tax Commission's report, it appeared that the government and its representatives in the Commission were committed to the introduction of VAT, apparently on the basis that it would contribute to an overall increase in tax revenue for the state. Basu and Morrissey (1993) reported that it was clear that the IMF to some degree supported, if it did not actually initiate, this policy objective. This was despite the fact that several members of the Commission were opposed to introducing VAT, largely because it was seen as administratively difficult to implement with no obvious advantage over the existing system, but these reservations were not explicitly expressed in the report.

Though the government announced, in the 1992 Budget Speech, its intention to introduce VAT in January 1994, it was only officially adopted in July 1998. Initially, the standard rate of VAT was fixed at 20 per cent until June 2009. At first, only two items were zero-rated, four items were subject to special relief measures, and 12 items were exempted from VAT, in order to achieve as broad a base as possible. However, over time the three schedules to the VAT Act were amended. The First Schedule on zero-rated products was augmented to include 12 items by July 2009. The Second Schedule for exempted products increased to include 29 items, while the Third Schedule of special reliefs for persons and institutions increased to include 27 items. The schedule lists grew at a pace, eroding the VAT base by allowing non-standard exemptions.

In July 2009, the standard VAT rate was reduced by two percentage points from 20 to 18 percent. The decrease was primarily intended to improve administration and enhance voluntary compliance rather than to resolve any tax burden distribution issues. However, as can be seen in Figure 1, VAT revenue productivity improved only marginally between 2008/09 and 2009/10, from 0.19 to 0.20.

In July 2015, the Value Added Tax Act (1997) was replaced by the Value Added Tax Act (2014), with the main objectives being the removal of the long list of non-standard exempted items and to be more in line with internationally accepted best practice. The new VAT Act maintained schedules for zero-rated items and a few exempted items. The revenue performance analysis in 2015/16 shows that cutting down the long list of exemptions did not have a significant impact on revenue collection. As can be seen in Figure 1, there was only a small improvement in VAT revenue productivity between 2014/15 and 2015/16, again from around 0.19 to 0.20.

Figure 1: VAT productivity trend from 1998/99 to 2018/19



Note: the TRA assesses VAT productivity by dividing the VAT base by GDP.

Source: authors' compilation based on TRA data.

The standard practice in VAT systems worldwide is to exempt traders below a certain level of turnover (the threshold). The design issue advocates a reasonably high minimum turnover in order to relieve the tax administration from high administrative costs but at the same time avoid excessively undermining revenue through unduly high thresholds. Setting very low thresholds brings considerable pressure on the tax administration to administer a large VAT population, mainly with very low value addition to the government revenue. Conversely, excessively high thresholds unfairly favour small traders by exempting them from the tax. There is thus always a need to strike a balance between these variables.

In Tanzania, between July 1998 and June 2004, the VAT registration threshold was TZS 20 million. In July 2004, the threshold was raised to TZS 40 million, and in July 2015 it was again increased, to the current VAT threshold of TZS 100 million. The changes of VAT threshold were intended to reduce administrative costs by decreasing the number of VAT-registered tax-payers.

In terms of its performance, using the methodology of the CEQ (Commitment to Equity) Institute at Tulane University, Younger et al. (2016) highlight the way in which indirect taxes (including VAT) increase poverty in Tanzania but argue that this effect is more than counterbalanced by in-kind expenditure on health and education. They further describe VAT as 'moderately progressive', based on their calculation of the concentration coefficients of different policies (2016: 271).

Maskaeva et al. (2019a) use TAZMOD to explore the impact of increasing VAT and excise on alcoholic beverages and tobacco products in order to finance additional healthcare services. Although this resonates with a call from some quarters to increase tax revenues in Tanzania (e.g. World Bank 2015), the business community is calling for the rates to be reduced (see Section 1); Maskaeva et al. (2019b) accordingly also explore the impact of a partial reduction of the VAT rate on capital commodities using a computable general equilibrium model.

Overall, domestic VAT contributed 16.2 per cent of tax revenue in 2018/19, amounting to TZS 2,505,440 million (TRA 2019). Despite the VAT policy undergoing several reforms, such as reducing the VAT rate and cutting down the long list of exemptions, its performance is still unsatisfactory, indicating the possibility of other issues hindering the performance of VAT in

Tanzania. Cnossen (2015) categorizes Tanzania as a ‘low tax effort’ country with respect to VAT, defined as a country collecting ‘two-thirds or less of the revenue that [it] can be expected to raise in view of [its] institutional and economic circumstances’ (Cnossen 2015: 1078). UNECA (2019: 61) estimates that the VAT gap for Tanzania is 70.4 per cent.

An additional challenge faced by Tanzania is that with such a large number of small manufacturers having an annual turnover lower than the VAT threshold of TZS 100 million, there is a possibility that some traders with turnover above the VAT threshold are hiding within this group of taxpayers. In addition, some traders with large capital and turnover use *Machinga* (street traders) to sell their goods without VAT because *Machinga* are regarded as small traders. Fjeldstad et al.’s recent (2018) study of VAT in Tanzania concludes that there are still large challenges of compliance that require attention.

4 Methods

The analysis presented here uses a static tax-benefit microsimulation model called TAZMOD (Leyaro et al. forthcoming), 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). TAZMOD simulates the main taxes and benefits that apply to individuals in Tanzania Mainland, including VAT and (for alcoholic drinks, tobacco products, and vehicle fuel, including fuel levy) excise duty.

TAZMOD Version 2.0 was used, which contains tax-benefit systems for 2012 and for 2015 to 2019. TAZMOD 2.0 is underpinned by both the 2011/12 Household Budget Survey (HBS 2011/12; NBS 2014) and the 2017/18 Household Budget Survey (HBS 2017/18; NBS 2019). For simulations for 2018 and 2019, the underpinning dataset derived from the HBS 2017/18 is used as the default. The 2018 system is used for the analysis in this paper. TAZMOD 2.0 runs with EUROMOD software version EM V3.1.8 (University of Essex 2019).

Cleaning steps were undertaken on the HBS expenditure data to remove some obvious anomalies, prior to bringing the expenditure variables in to the model as part of the underpinning dataset (Leyaro et al. forthcoming). Information on expenditure is collected in the diary and main questionnaire, and for a number of items (identified by the Classification of Individual Consumption According to Purpose, or COICOP, code) there is information in both the diary and the questionnaire. Each expenditure item—with the exception of food items—was capped at the 95th percentile (of cases with a value for that COICOP code).

Following this cleaning stage, VAT and excise duty (where applicable) were removed from expenditure items so that expenditure could be brought into the model ex-VAT and ex-excise duty. This simplifies the modelling of indirect taxes in the model. Any cigarettes, tobacco, or petrol expenditure and quantity values were set to zero where the base expenditure, after having subtracted the quantity-based excise, yielded a negative figure. The amounts of VAT and excise duty that were removed during this preparatory stage were carried into the model as the variables for imputed VAT (*tvain*) and imputed excise duty (*texiv*), along with the 947 different expenditure items ex-VAT and (where appropriate) ex-excise duty.

Within TAZMOD, VAT policy is simulated at a fine level of detail as each of the 947 different expenditure items is separately defined as either standard-rated on the one hand or zero-rated or exempt on the other hand. For the items for which excise duty is modelled, VAT is payable on the expenditure amount including excise duty, and so within TAZMOD the excise duty amount is

calculated before the VAT calculation. A total of 227 expenditure items were listed in the Schedule to the 2014 VAT Act as zero-rated or exempt.

Field work for the HBS 2017/18 took place between December 2017 and November 2018. Income and expenditure was deflated to July 2018 using the CPI as part of the data preparation stage. Although the model further adjusts for inflation for subsequent years, a decision was made to undertake analyses on the 2018 system to minimize the impact of inflation/deflation.

The measurement of the distributional impact of VAT is rife with challenges, including under-reporting of expenditures, purchases made in the informal sector and the calculation of implicit tax rates, and the selection of welfare concept (Alavuotunki et al. 2019; Decoster et al. 2010, 2019). For example, in a large multi-country study that included Tanzania, Bachas et al. (2020) found that the budget share spent on expenditure in the informal sector is steeply and inversely correlated with income, and that in practice ‘the de facto exemption of the informal sector from taxes makes consumption taxes progressive’ (Bachas et al. 2020: 2). Their Tanzanian analysis is based on the HBS 2011/12 whereas the analysis presented here is based on a derived version of the HBS 2017/18, and so the two analyses cannot in any event be directly compared.

The modelled scenarios therefore involve several assumptions. First, total compliance is assumed with respect to taxes (including within the informal sector) and full take-up is assumed for the social benefits; the analysis is therefore conducted using the tax and benefit rules on a de jure rather than a de facto basis. Second, it is assumed that it is not necessary to inflate or deflate the VAT expenditure prior to conducting distributional analysis (on which more below). Third, it is assumed that VAT is carried in full by the end user. Fourth, there is an assumption that households consume a fixed share of their disposable income (constant budget shares; CBS) rather than that they consume the same types and quantity of items irrespective of the standard rate of VAT (constant consumption; CC). TAZMOD simulates a higher amount of VAT than is collected by the TRA: the amount of VAT simulated by TAZMOD for 2018 was TZS 3,343 billion, which was 135 per cent of the reported domestic VAT revenue (Leyaro et al. forthcoming). It is unusual for an excess amount of VAT to be simulated, as in most countries the amount of VAT simulated in models such as these is far lower than the actual reported VAT revenue. There are several possible reasons why the simulated amount of VAT could be greater than the reported amount of VAT received for that year, including: first, there may be some over-reporting of expenditure in the HBS (resulting in over-simulation of VAT, thereby inflating the numerator); second, there may be some non-compliance issues relating to VAT (resulting in government obtaining less VAT revenue than it ought to receive, thereby deflating the denominator—see Fjeldstad et al. 2015); third, the reported VAT figure may be reported on a cash flow rather than accrual basis, which limits the extent to which the accrual-based TAZMOD simulations of VAT can be compared; and fourth, the assumption of VAT being carried in full by the end user may result in anomalously high estimates of VAT for some reason particular to the Tanzanian context.

Importantly, although the actual reasons for the apparent over-simulation of VAT cannot be known for certain, they would impact on the interpretation of the analysis presented in this paper. For example, if in fact expenditure is over-reported and people are spending less on items than the HBS suggests, then the results would provide an exaggerated expectation of potential VAT revenue and, furthermore, would cause the amount of revenue lost due to the lowering of the VAT rate to be over-estimated.

Personal income tax is also over-simulated within TAZMOD, though to a lesser extent than VAT: for 2018, TAZMOD simulates 111 per cent of the published revenue from PIT (Leyaro et al. forthcoming). The over-simulation of personal income tax may reflect a number of different issues, for example, tax non-compliance or over-reporting of earned income (although extensive

checks and cleaning steps were also undertaken on the income data) or indeed the basis (cash flow for the administrative data versus accrual in TAZMOD) that the administrative data is measuring (Leyaro et al. forthcoming). The amount of simulated personal income tax was not constrained to the published revenue figure.

The main focus of the reform scenarios was to reduce the VAT rate, ideally to the same level as the rate in Kenya (where the standard rate of VAT is 16 per cent), while at the same time being revenue-neutral, and not increasing poverty (in other words, poverty-neutral).

The reform scenarios simulated in TAZMOD are outlined in Table 1.

Table 1: Summary of reform scenarios

System	Description
Baseline	Status quo (VAT at 18%)
Reform 1	Same as baseline but VAT at 17%
Reform 2	Same as baseline but VAT at 17% and final PIT band raised to 34%
Reform 3	Same as baseline but VAT at 17% and additional PIT band of 35% for individuals with taxable incomes above TZS 10 million per annum
Reform 4	Same as baseline but VAT at 16%
Reform 5	Same as baseline but VAT at 16%, PIT band 5 raised to 32% and additional PIT band of 38% for individuals with taxable incomes above TZS 10 million per annum

Note: CBS is assumed—that is, it is assumed that households consume a fixed share of their disposable income; PIT: personal income tax; PIT includes pay as you earn, presumptive tax, and tax paid by those who prepare accounts.

Source: authors' compilation.

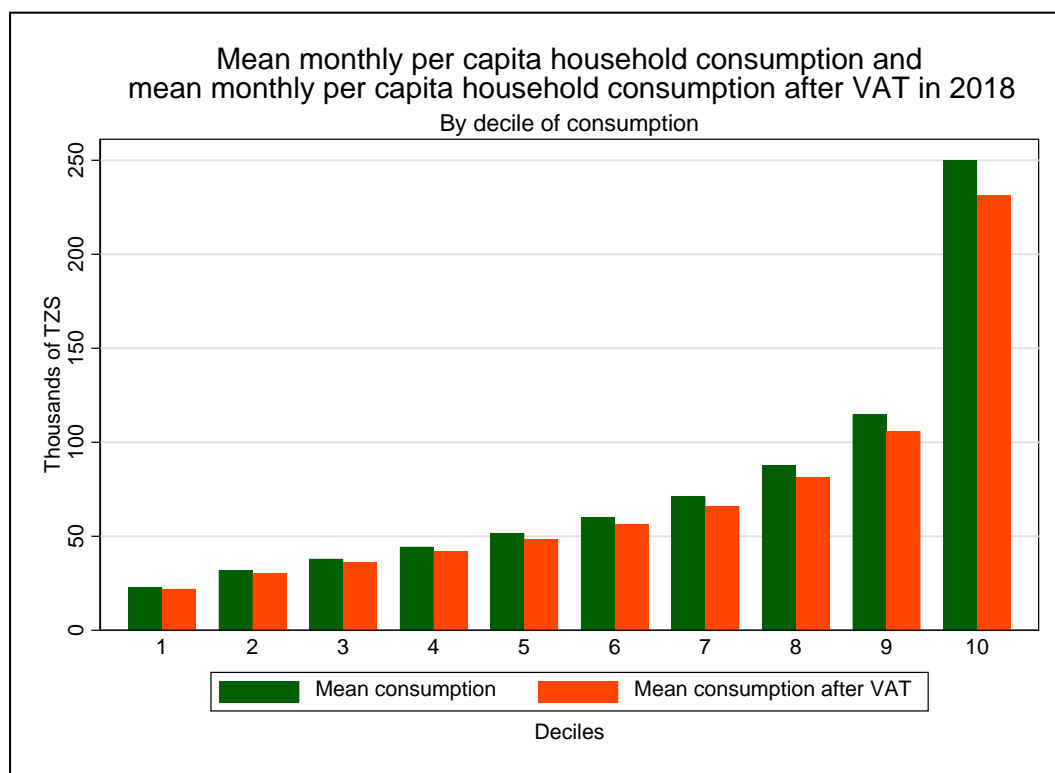
5 Results

5.1 The baseline

Before presenting the results of the reform scenarios, the characteristics of the baseline scenario or counterfactual are profiled. In the analysis that follows, reference will be made to the extent to which VAT is progressive or regressive in terms of vertical equity. A tax which is vertically equitable is one where the rich pay a greater share of their income in tax. In this analysis the focus is on consumption rather than income, but the principle remains the same. When examining the deciles of consumption, progressivity in VAT would be demonstrated by an increase in the share of consumption paid as VAT, as consumption rises. To account for variations in household size, the following analysis was undertaken using per capita monthly household amounts, and deciles of consumption were constructed on a per capita basis. In all cases, weights were taken into account.

Figure 2 shows the mean monthly per capita household consumption before deduction of VAT (in green) and after deduction of VAT (in red). The latter can be thought of as the consumption equivalent of post-fiscal income. From this figure, it is evident that the mean amount of VAT paid per month increases across the deciles of consumption, because the difference in height of the two bars increases by decile.

Figure 2: Mean monthly per capita household consumption before and after deduction of VAT by decile, 2018



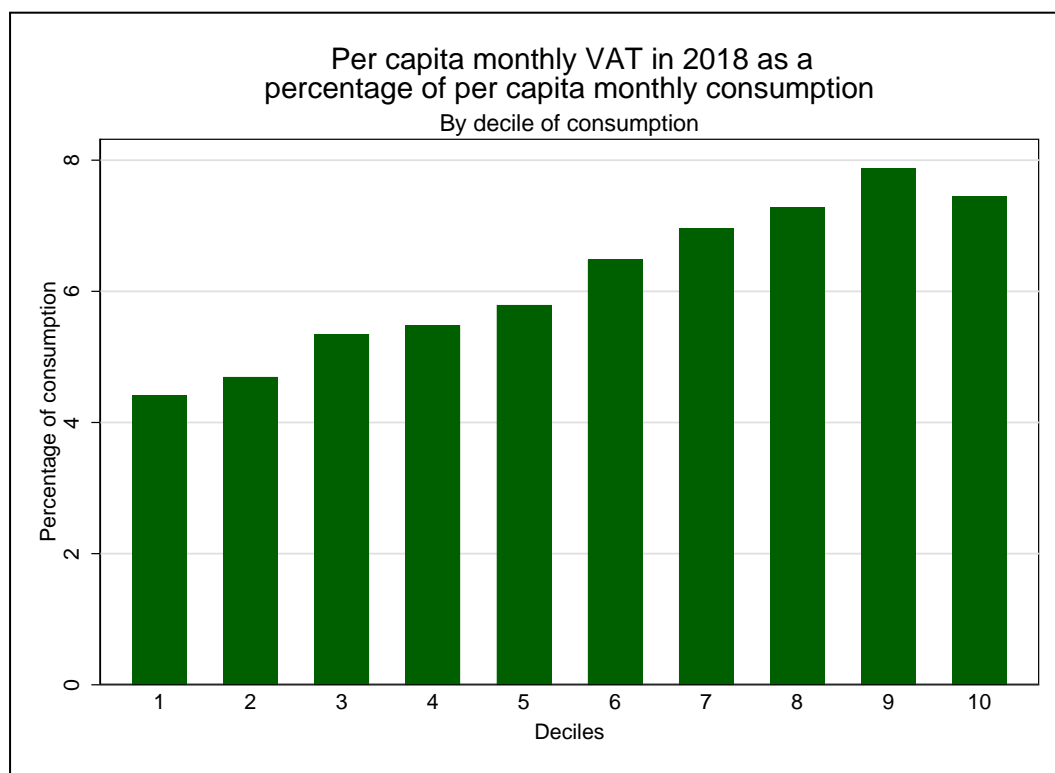
Note: the VAT rate is 18%.

Source: authors' compilation based on TAZMOD Version 2.0_vat.

Figure 3 presents the simulated amount of per capita monthly VAT paid as a percentage of monthly per capita household consumption. This demonstrates that there is a modicum of progressivity in VAT in that those in deciles 9 and 10 pay proportionately more VAT (7.9 and 7.5 per cent respectively) than those in decile 1 (4.4 per cent), and the increase in VAT paid as a proportion of consumption is linear until decile 9.

In Tanzania, most of the zero-rated goods are food items. The zero-rating of goods is often cited as a mechanism for easing the indirect tax burden on the poorest, recognizing the fact that the poor spend a disproportionate amount of their income on food. If zero-rating is performing correctly, the expectation would be that the share of total expenditure on zero-rated goods would decrease by decile of consumption. Figure 4 shows the share of zero-rated items by expenditure decile in Tanzania. There is very little difference across the deciles in expenditure on zero-rated goods until decile 10. In deciles 1–9 the share of expenditure on zero-rated items is between 41 and 45 per cent. This share falls to 35 per cent in decile 10. This is an important finding, as it suggests that zero-rating is not targeted only at the very poorest.

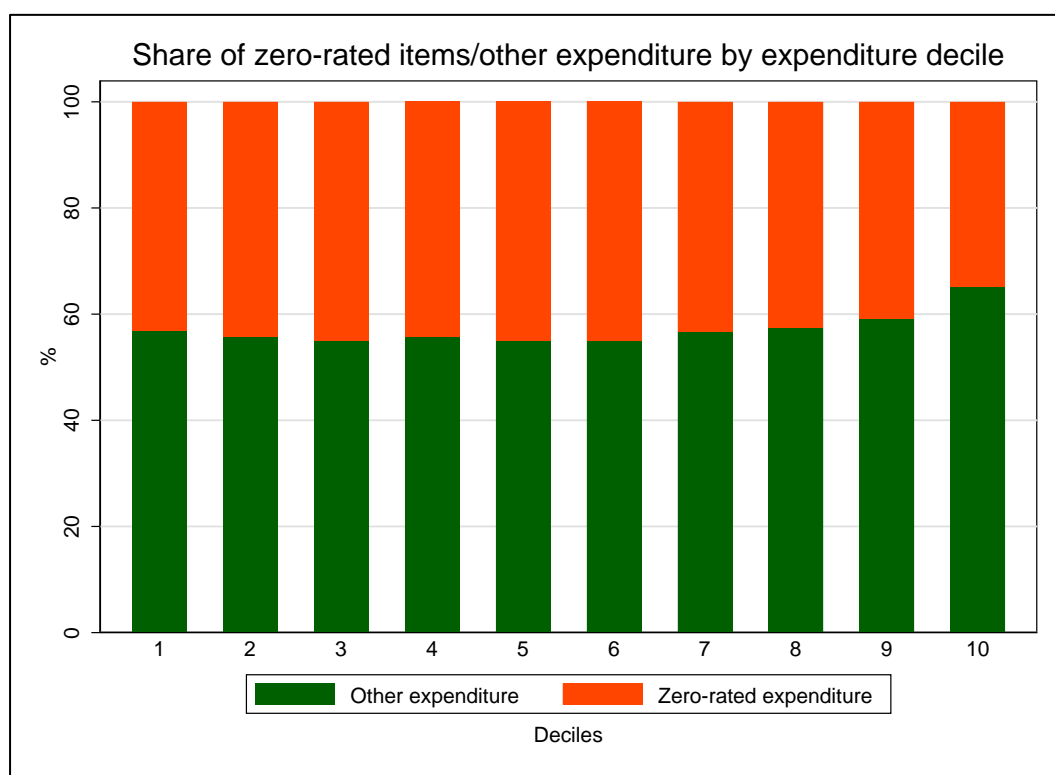
Figure 3: Per capita VAT as a percentage of per capita consumption by decile, 2018



Note: the VAT rate is 18%.

Source: authors' compilation based on TAZMOD Version 2.0_vat.

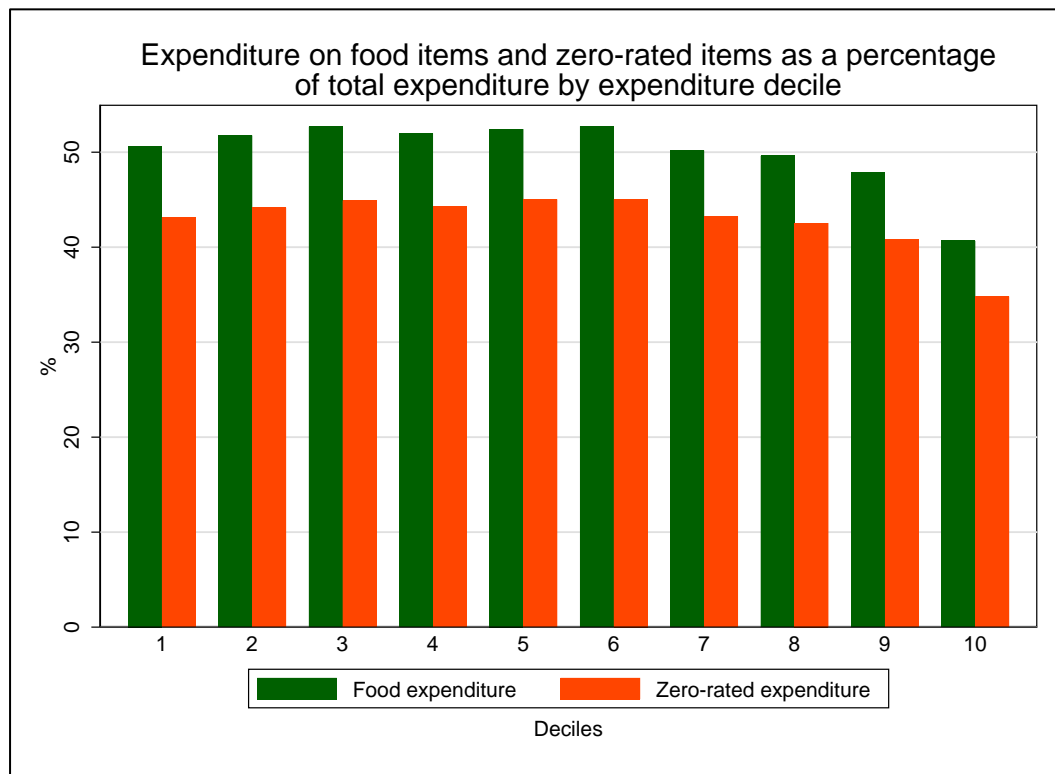
Figure 4: Share of expenditure on zero-rated items by decile, 2018



Source: authors' compilation based on TAZMOD Version 2.0_vat.

This finding is explained by the fact that there is a similar pattern of expenditure on food across the deciles, and even those in the tenth decile of expenditure spend a large proportion of their outgoings (over 40 per cent) on food, as Figure 5 illustrates graphically.

Figure 5: Percentage of expenditure on food items and zero-rated items as a percentage of total expenditure, by expenditure decile, 2018



Source: authors' compilation based on TAZMOD Version 2.0_vat.

The same results are shown in Table 2, in which it can be seen that the proportion of expenditure on food remains stable between deciles 2 and 6, fluctuating slightly around 52 per cent. After decile 6, the proportion of expenditure on food begins to fall gradually, from 50 per cent in decile 7 to 41 per cent in decile 10.

Given the extent to which those in the least poor expenditure deciles benefit from the zero-rating of certain items, abolition or partial abolition of zero-rating might be thought of as a possible way of funding a reduction in the standard rate of VAT, and this is touched on (though not pursued, for reasons explained) in the next section.

Table 2: Expenditure on food and on zero-rated items as a percentage of total expenditure by decile, 2018

Expenditure decile	Food expenditure as % of total expenditure	Expenditure on zero-rated items as % of total expenditure
1	50.65	43.13
2	51.77	44.16
3	52.69	44.90
4	51.99	44.32
5	52.44	45.04
6	52.74	45.07
7	50.18	43.25
8	49.62	42.54
9	47.82	40.77
10	40.67	34.81

Source: authors' compilation based on TAZMOD Version 2.0_vat.

Given the extent to which those in the least poor expenditure deciles benefit from the zero-rating of certain items, abolition or partial abolition of zero-rating might be thought of as a possible way of funding a reduction in the standard rate of VAT, and this is touched on (though not pursued, for reasons explained) in the next section.

5.2 Reform scenarios: reducing the standard rate of VAT to 17 per cent

Results for the following reform scenarios are presented in this section:

- reform 1: same as baseline but VAT at 17 per cent
- reform 2: same as baseline but VAT at 17 per cent and final PIT band (band 5) raised from 30 per cent to 34 per cent
- reform 3: same as baseline but VAT at 17 per cent and additional PIT band of 35 per cent for individuals with taxable incomes above TZS 10 million per annum

Table 3 shows the simulated annual revenue collected by government from direct taxes, indirect taxes, and social security contributions for the baseline, and for reforms 1–3, which all involve a change in the standard rate of VAT to 17 per cent. The baseline revenue amount for 2018 is TZS 7,065 billion; this falls to TZS 6,879 billion under reform 1 (in which the only change is that the standard rate of VAT is reduced to 17 per cent)—a revenue loss of TZS 186 billion.

In exploring ways to recoup the shortfall, two further reform scenarios were simulated. In both these scenarios the PIT bands for the highest earners were adjusted, as well as the standard rate of VAT being reduced to 17 per cent. In reform 2, the final PIT band was raised to 34 per cent, generating a net revenue gain sufficient to cover the shortfall caused by reducing the VAT rate to 17 per cent. Similarly, in reform 3, a net revenue gain is achieved by retaining the baseline's tax bands and rates but also introducing a new PIT band of 35 per cent for the highest earners (above TZS 10 million per annum).

Table 3: Annual government revenue under baseline and reform scenarios 1–3, 2018

Annual government revenue, TZS billions	Baseline (2018)	Reform 1	Difference between baseline and reform 1	Reform 2	Difference between baseline and reform 2	Reform 3	Difference between baseline and reform 3
Total taxes, social security contributions, and indirect taxes	7,065	6,879	–186	7,099	34	7,125	60
... direct taxes	2,882	2,882	0	3,119	237	3,148	266
... indirect taxes ¹	3,387	3,201	–186	3,184	–203	3,182	–205
... social security contributions ²	796	796	0	796	0	796	0

Note: ¹ indirect taxes comprises VAT and excise duty; however, excise duty remains constant throughout the different reform scenarios, meaning that the change to indirect taxes is attributable to VAT; ² employer, employee, and self-employed contributions: these remain constant throughout the different reform scenarios.

Source: authors' compilation based on TAZMOD Version 2.0_vat.

Reform 3 generates a slightly larger amount of direct taxes (i.e. PIT and presumptive tax) than reform 2 (TZS 3,148 billion compared with TZS 3,119 billion) but a slightly smaller amount of indirect taxes (TZS 3,182 billion compared with TZS 3,184 billion). Indirect tax revenue changes between reform scenarios 1 and 3 because of the assumption of CBS in the model rather than CC.

The poverty rate and poverty gap for the baseline and reforms 1–3 are shown in Table 4. The reduction of the standard rate of VAT to 17 per cent (reform 1) makes very little difference to the poverty rate—a drop of 0.22 percentage points below the baseline's poverty rate. The poverty rate is the same under all three reform scenarios, which is unsurprising as the changes to the VAT rate are the same and the changes to the income tax policy affect only the highest earners. The poverty gap is very similar in all three reform scenarios and only approximately half a percentage point below the baseline figure. Inequality was also analysed (the results are not shown) and again the impact of the three reforms is minimal.

Table 4: Consumption-based poverty after taxes and transfers, net of indirect tax, 2018

	Baseline (2018)	Reform 1	Difference between baseline and reform 1	Reform 2	Difference between baseline and reform 2	Reform 3	Difference between baseline and reform 3
Poverty rate (%)	26.47	26.26	–0.22	26.26	–0.21	26.26	–0.21
Poverty gap (FGT(1))	6.10	6.04	–0.06	6.07	–0.03	6.07	–0.03

Note: the basic needs poverty line (TZS 559,740 per annum in 2018 prices) and Tanzanian calorie-based equivalence scale were used; arithmetic differences in poverty rates are due to rounding.

Source: authors' compilation based on TAZMOD Version 2.0_vat.

Given the fact that the zero-rating of food items advantages those in the upper consumption deciles, it could be argued that the lowering of the standard rate of VAT might most easily be financed by reducing or abolishing zero-rating. Preliminary analysis, however (not presented here), suggests that this would be inappropriate, as it raises poverty significantly (by around six percentage points). As the amount of revenue raised by eliminating the zero-rating of certain items (TZS 2,762 billion) significantly exceeds that required to finance the reduction of the standard rate of VAT rate, it might instead be possible to consider abolishing the zero-rating of certain items but compensating poor people by the introduction of a cash benefit. Such an approach would be

consistent with the literature (e.g. Keen 2013; Mirrlees et al. 2011) and has been discussed in relation to South Africa (e.g. Gcabo et al. 2019). However, this is outside the scope of this paper and the initial objectives of the TRA.

5.3 Reform scenarios: reducing the standard rate of VAT to 16 per cent

Results for the following reform scenarios are presented in this section:

- reform 4: same as baseline but VAT at 16 per cent
- reform 5: same as baseline but VAT at 16 per cent, tax band 5 raised from 30 per cent to 32 per cent and additional PIT band of 38 per cent for individuals with taxable incomes above TZS 10 million per annum

The impact of reducing the standard rate of VAT to 16 per cent (reform 4) is shown in Table 5. The overall loss in revenue is double that of reform 1, at TZS 371 billion. An option to recoup the shortfall is also presented in Table 5 (reform 5), which involves raising tax band 5 to 34 per cent and adding a new PIT band for individuals with taxable incomes above TZS 10 million per annum, with a tax rate of 38 per cent.

Table 5: Annual government revenue for baseline and reform scenarios 4 and 5, 2018

Annual government revenue, TZS millions	Baseline (2018)	Reform 4	Difference between baseline and reform 4	Reform 5	Difference between baseline and reform 5
Government revenue through taxes, SSC, and indirect taxes	7,065	6,694	-371	7,100	35
... direct taxes	2,882	2,882	0	3,319	437
... indirect taxes ¹	3,387	3,016	-371	2,985 ³	-402
... social security contributions ²	796	796	0	796	0

Note: ¹ indirect taxes comprises VAT and excise duty; however, excise duty remains constant throughout the different reform scenarios, meaning that the change to indirect taxes is attributable to VAT; ² employer, employee, and self-employed contributions: these remain constant throughout the different reform scenarios; ³ this figure is slightly lower than indirect taxes in reform 4 because indirect taxes are calculated in terms of CBS.

Source: authors' compilation based on TAZMOD Version 2.0_vat.

As Table 5 shows, reform 5 covers the revenue shortfall occasioned by the reduction of the VAT rate from 18 per cent to 16 per cent. This reform is slightly better than 'poverty-neutral' in that there is a small reduction in poverty from 26.47 per cent to 26.20 per cent.

6 Discussion

VAT is an important revenue stream in low-income countries. Indirect taxes, including VAT, may be paid by all income groups and so can be considered regressive, though this feature is often excused because of the revenue gains from VAT.

Based on the assumptions set out in Section 4, results from TAZMOD show a certain amount of progressivity with VAT in Tanzania. The mean amount of VAT paid per month increases across the deciles of consumption (Figure 2), and VAT paid as a percentage of consumption increases with each decile, with the exception of decile 10 (Figure 3).

In many African countries, including Tanzania, extensive use is made of zero-rating or exemption of items, which results in administrative complexity and, potentially, economic distortions. Analysis of output from TAZMOD shows that zero-rating is not targeted just at the very poorest, thus easing their tax burden: there is little difference across the deciles in expenditure on zero-rated goods until decile 10, and there is a similar pattern of expenditure on food (many of the zero-rated items are food) across the deciles, with even those in the tenth decile of expenditure spending a large proportion of their outgoings on food (Table 2).

In some circumstances it has been argued that reducing VAT rates is an important means to reduce the burden on poor people, in the absence of comprehensive benefit systems. There has also been interest in Tanzania in reducing the standard rate of VAT for reasons of parity with neighbouring countries and of businesses wishing to remain competitive. This paper has explored a reduction in the VAT rate from 18 per cent to 17 per cent and then to 16 per cent, assuming CBS. Crucially, any reduction needs to be both revenue-neutral (with the lost revenue recouped from other areas of the tax-benefit system) and also poverty-neutral (that is, not resulting in an adverse change in poverty).

Simulations using TAZMOD reveal that a reduction from 18 per cent to 17 per cent for the standard rate of VAT would result in a revenue loss of TZS 186 billion per year (reform 1), and a reduction to 16 per cent would result in a revenue loss of TZS 371 billion per year (reform 4).

As zero-rating advantages those in the least poor expenditure deciles, abolition or partial abolition of zero-rating could be used to fund a reduction in the standard rate of VAT. However, TAZMOD simulations show that while the elimination of zero-rating can make up for the revenue shortfall from reducing the standard rate of VAT, it is not possible to do so and remain poverty-neutral. If such a change to the VAT policy were to be considered, there would need to be a way of compensating poor people. One option might be a cash benefit, which could be paid for with the excess revenue from the abolition of zero-rating.

Instead, additional simulations using TAZMOD show that it is possible to be both revenue-neutral and poverty-neutral when reducing the standard rate of VAT, with lost revenue recouped through reforms to the personal income tax schedule that are not too extreme, affecting only the highest earners.

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Acronyms

CBS	constant budget shares
CC	constant consumption
CPI	Consumer Price Index
EUROMOD	European Union Tax-Benefit Microsimulation Model
HBS	Household Budget Survey
IMF	International Monetary Fund
NBS	National Bureau of Statistics
PAYE	pay as you earn
PIT	personal income tax
SSA	sub-Saharan Africa
TRA	Tanzania Revenue Authority
TZS	Tanzanian shilling
VAT	value-added tax