

Session 8.1: Data for Ex-Post Evaluation of TEs I

Amina Ebrahim

Follow-up Technical Meeting on Tax Expenditures
6-8 December 2023 | Dar es Salaam, Tanzania

Which Tax data are useful?

Almost everything!

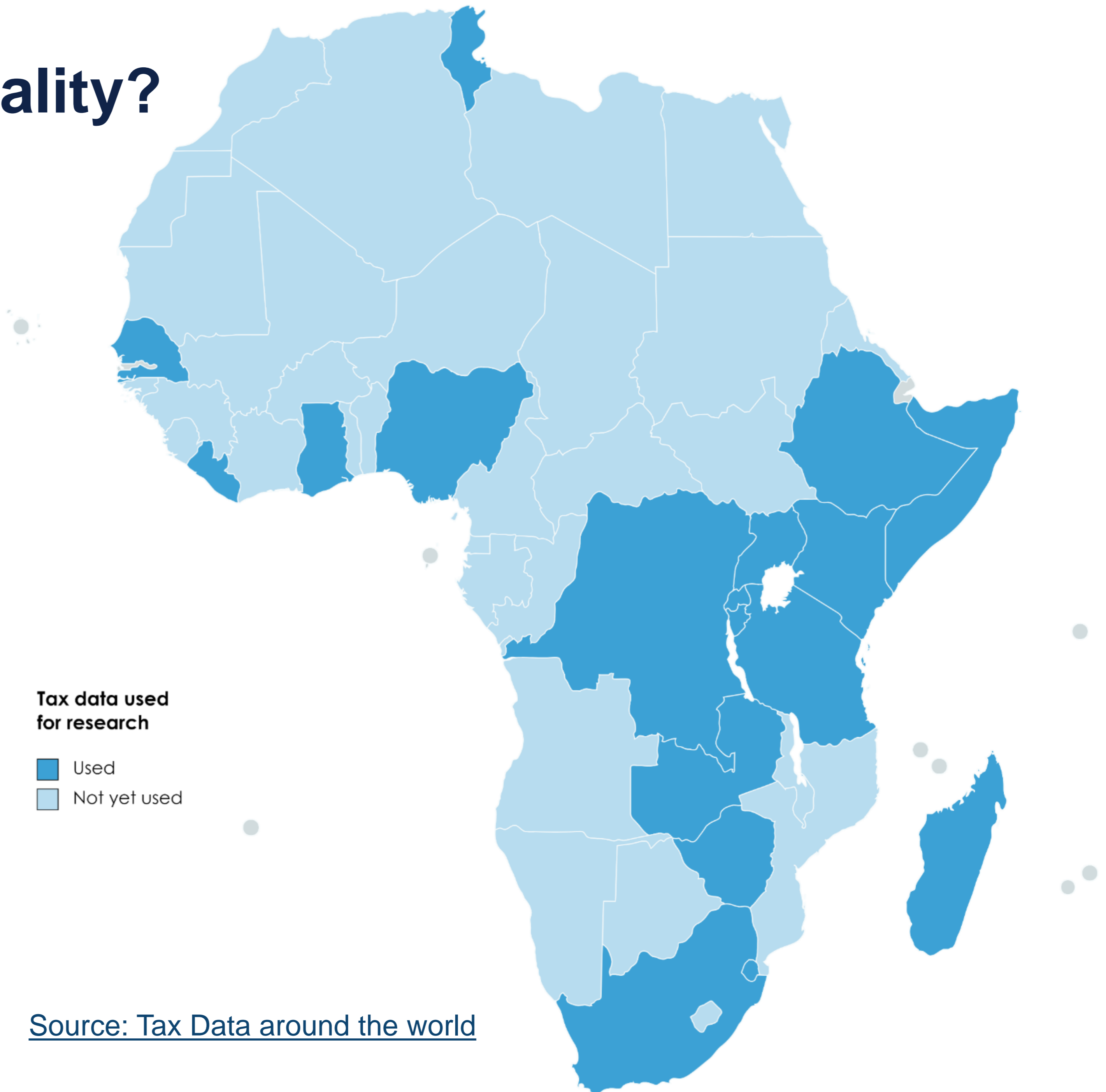
More detailed, the better. Aggregate data is less useful

PAYE, VAT, Customs transactions, CIT, Monthly reporting, Audit data, LTD data...the list goes on!

 How many tax forms does your revenue authority have?

Is the use of tax data a reality?

- YES!
- East Africa does well to use tax data for research.



Identifying the data you need

What?

- Benchmark
- TE Costing
- Tax Expenditure
 - Direct vs Indirect taxes

How?

- Estimation methods
- Context
- Has this been done before?

Data needs!

- Frequency: Obligations to file
- Detailed tax data
- Digitization
- Quality
- Accessibility

Identifying the data you need

Tax data can be used to measure to evaluate a Tax Expenditure.

Direct taxes

CIT & PIT returns contain annual taxpayer-level declarations, including income, sales, sectors & location

Indirect

VAT declarations contain regular (monthly, quarterly) taxpayer-level information on VAT due, exempted sales, zero-rated sales, exports, sector, legal status, location, turnover, etc.

Customs declaration includes import and export data at transaction-level information on import tax payable, CIF value of imports, customs duty payable, VAT payable, surtax payable, HS code of the shipment, Customs Procedure Code (CPC), etc.

Challenges and ways to overcome them

1. Data collected to calculate tax liability – not always for reporting or research.
 - Data for 2023 is only available in 2024.
2. Data teams are really busy!
 - Identify precisely what you need: Highlight the fields on your Tax forms, make it easy for them
3. Explain the importance/relevance: Required by law, the possibility to improve revenue collection
4. Data Security – Anonymisation, deidentification (See 5 Safes of Sharing Sensitive Data)
5. Lack of governance (coordination, data sharing protocols)

The **ELEPHANT** in the room - the lack of an e-system to file and process the data.

- Digitization of paper records is second best.

Ex-Post Evaluation of TEs I

A microsimulation approach

IMF: Evaluation methods (1/2)

Tool	Basic Description	Areas Commonly Assessed	Examples
Survey-based qualitative analysis	Provide a descriptive profile of beneficiaries, self-reported impacts, and experience.	Targeted TEs with narrow group of beneficiaries.	Department of Finance (2012) review experience with the Film Tax Credit in Ireland.
Effective tax rate measures ¹	Summarize combined impact of statutory tax rates, tax incentives, and features of the tax system on the effective tax burden.	Assessment of relative impact of different TE investment incentives on tax liabilities. Average effective tax rates are commonly used to assess tax incentives' impact decisions to locate FDI activities.	Botman, Klemm, and Baqir (2010) compare investment incentives for seven East Asian economies.
Interrupted Time Series Analysis	Seek to identify impact of a TE by comparing the pre- and post-implementation outcomes of interest.	Used where incentives apply broadly and no suitable comparison group of taxpayers who did not qualify is available.	Canadian Department of Finance uses administrative data to assess impact of TE on R&D expenditures.
Quasi-experimental econometric methods: (DID) analysis, statistical matching methods, and regression discontinuity designs	Compare relevant outcomes for beneficiaries (or eligible taxpayers) to those of a comparison group of non-beneficiaries (or ineligible taxpayers).	Whenever suitable comparison groups can be identified based on eligibility criteria of the incentives.	Department of Finance (2019) uses trade data to estimate impact of TE on export performance of beneficiaries in Ireland.

Tomorrow

IMF: Evaluation methods (2/2)

Example from South Africa

Tool	Basic Description	Areas Commonly Assessed	Examples
Static simulation models: MSM and models based on I-O data and S-U tables	Compute the impact of tax incentives on the tax liabilities of a representative sample (or, in some cases, the entire population) of taxpayers. Other models can be based on household survey data, for example, to evaluate targeting of VAT exemptions and reduced rates.	When seeking to assess distribution of TE benefits across income groups (among individual taxpayers) or by size and sector (among corporate taxpayers).	The U.S Office of Tax Analysis (2016) uses administrative data to measure distribution of retirement savings. Hutton (2010) presents a microsimulation framework for evaluating VAT TEs.
Overlapping generations models	Study long-run life-cycle behavior (for example, retirement savings) and resource allocation across generations.	Impact of TEs affected by demographic trends, such as education, health, and retirement incentives.	Crivientes (2005) on retirement savings incentives in Chile.
Structural modeling: CGE models and DSGE models	Used to account for spillover effects of TEs on employment, capital investment, productivity, and income and induced (multiplier) effects brought about through increased consumption.	To evaluate TEs intended to promote substantial indirect benefits.	Copenhagen Economics (2007) evaluate the impact of VAT rate reduction in the European Union.

Note: CGE = computable general equilibrium; DID = difference-in-differences; DSGE = dynamic stochastic general equilibrium; FDI = foreign direct investment; I-O = input-output; MSM = microsimulation model; R&D = research and development; S-U = supply-use; TE = tax expenditure.

¹See IMF and others (2015) for a more detailed discussion of effective tax rate measures.

Retirement contribution deductions

- 7 million taxpayers claimed Retirement contribution deductions = R275 billion
- Close to 48% of taxpayers with taxable income contributed towards retirement.
- Tax expenditure cost amounted to R91 billion or 17% of total final tax liability.
- The benefit of a tax deduction at a marginal tax rate of 45% (SA top tax rate) is high in relation to taxpayers who contribute closer to the average retirement contribution deduction at a marginal tax rate of 26% - a regressive outcome.
 - The lower the income, the lower the % of the contribution
 - The higher the income, the higher the % of the contribution.

Method: Microsimulation Model “PITMOD”

- The PITMOD microsimulation model is a static microsimulation model using anonymized South African PIT data provided by the South African Revenue Service (SARS).
- The retirement contribution reform options are simulated based on the 2019/20 tax year (latest tax administrative data available).
- The distribution of registered individuals with income below and above the minimum tax thresholds is included in the analysis.

Some notes about the model:

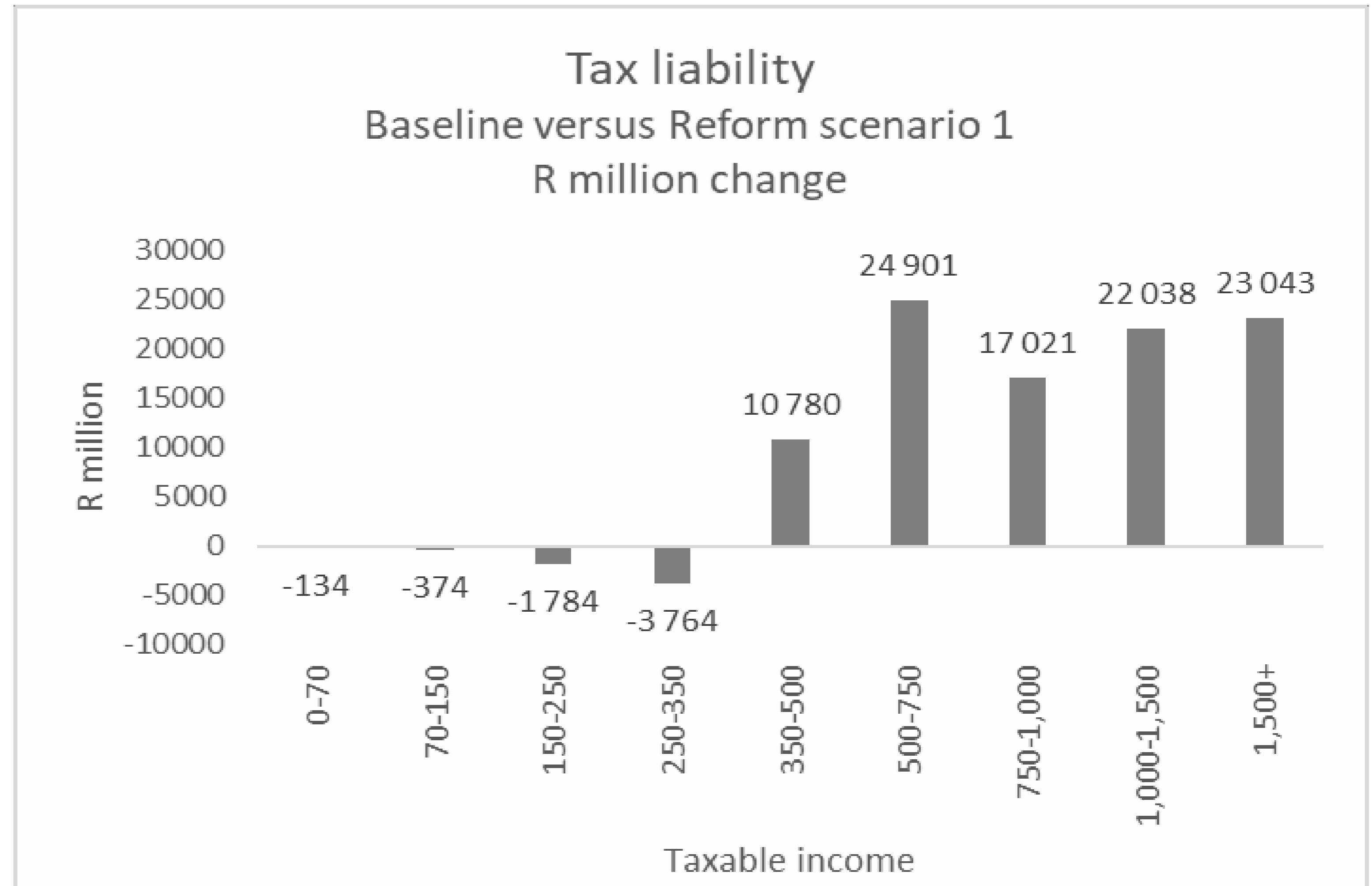
- Developed through a collaboration between SARS, SASPRI and UNU-WIDER
- Policy and system functions are defined, and each function is divided into parameters.

Policy change options -

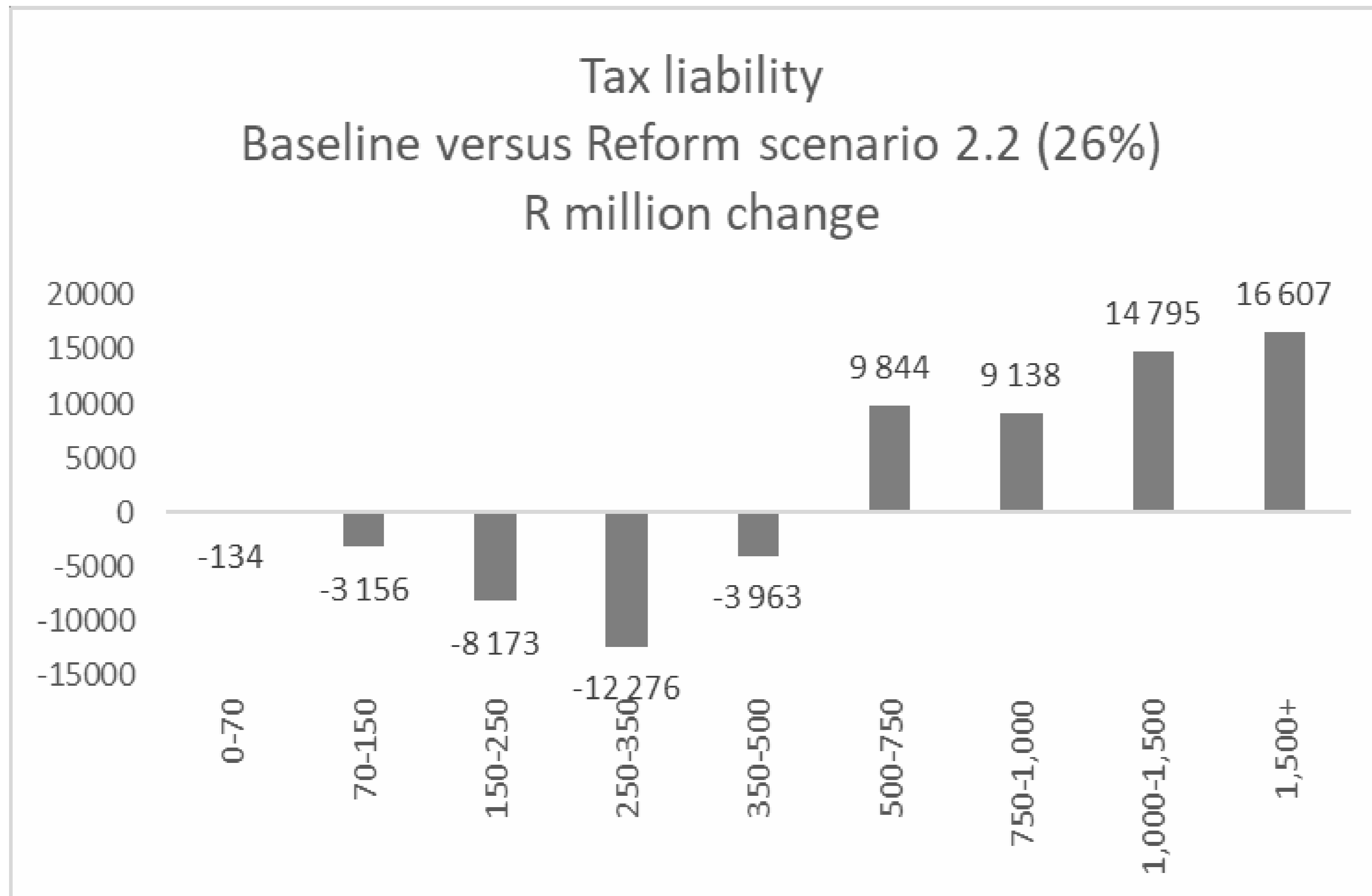
- Reform scenario 1: Abolishment of retirement contribution tax deductions
- Reform scenario 2: Conversion of retirement contribution tax deductions to tax credits.

Results from Scenario 1: Abolish the deduction

- There is an upward shift of taxpayers on the taxable income scale
- Taxable income increases by R274.8 billion.
- For those earning R500k-R750k, taxable income increased by 2.1 percentage points.
- Final tax liability increases by 16.9%.



Results from Scenario 2: From Deduction to Tax Credit



- Total taxable income increases by R274.8 billion and final tax liability by 4.2%.
- The average final tax liability is reduced for taxpayers with taxable income less than R500 000 annually.
- Most of the increase in average tax liability is borne by taxpayers earning more than R1 million
- In this reform scenario, the PIT system becomes more progressive, increasing the GINI coefficient from 85.2 to 85.5.

1

The tax deduction benefits higher-income earners taxed at higher marginal tax rates.

2

Switching to a tax credit system is more effective

Take-aways

- Tax systems are designed to **raise revenues** efficiently to finance government spending.
- Nonetheless, the tax system is used to attain socio-economic objectives such as a more **equitable** distribution of income or to incentivise specific outcomes.
- Tax expenditures are used to achieve such goals and refer to the preferential treatment of such expenditures in the tax system.
- The government's indirect approach to incentivise the provision for old age by allowing a tax deduction for retirement contributions may seem **costly** in terms of tax revenue forgone of R91.7 billion
- We may be tempted to say that all Tax Expenditures are bad or that we should remove or reduce them, but in this case, it may be justified given the shallow savings rate and potential burden on the state to provide for many more citizens in their old age.

Thank you!

Amina Ebrahim
Research Fellow | UNU-WIDER
amina@wider.unu.edu

Tax Expenditure example from South Africa: Retirement contributions

The allowable PIT tax deduction is the lesser of the following options:

- R350 000; or
- 27.5% of the greater of
 - remuneration (excluding benefits) or
 - taxable income (including passive income and taxable capital gains), but excluding benefits or
 - taxable income (excluding any taxable capital gain and benefits).