The Distributional Impact of Tax-Benefit Systems in Six African Countries

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Background

- A growing number of African countries aim at improving the effectiveness of tax and benefit systems to reduce inequality and poverty levels of general population
- But informed policy decisions require:
  - The assessment on the distributional impact of public policies and the effects of measures on inequality/poverty
  - Ex-ante evaluation of reform ideas
  - An idea of the fiscal impact of public policies and potential reforms
  - Researchers/policy makers in developed countries make use of tax-benefit microsimulation models but few developing countries have access to such tools

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SOUTHMOD tax-benefit microsimulation models

- Developed by: UNU-WIDER (funder), Southern African Social Policy Research Insights (SASPRI), the EUROMOD team at the University of Essex together with local country teams.
- Freely accessible for non-commercial use through UNU-WIDER
- Based on EUROMOD a widely used tax-benefit model for the EU
  - Use of common platform and well-tested methodological approach
  - Flexible and freely-available EUROMOD software as a shortcut to the process of building tax-benefit models
- Analysis based on models for 3 Low-income sub-Saharan countries (Ethiopia, Mozambique, Tanzania), 2 Lower-middle income countries (Ghana, Zambia), 1 Upper-middle income country (South Africa)
- Simulation of cash benefits, in-kind benefits (in some countries), SIC, direct taxes and indirect taxes
- Make use of country specific household surveys

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The paper's contribution

- Vast literature on the distributional impact of taxes and benefits but very few studies focus on lower and middle-income countries (LMICs) in Africa (Inchauste & Lustig, 2017, Younger at al., 2016 & 2017)
  - First study where poverty and inequality estimates are measured in terms of income
  - Using the 6 state-of-the-art tax-benefit microsimulation models developed under the SOUTHMOD project
  - To assess the distribution and composition of incomes and the effects of taxes and benefits on poverty and inequality in these countries in 2015

Data & simulation challenges in brief

- Large number of individuals with zero or negative incomes
- Informality and information in the data
- Differences in the definition of household and household head
- Lack of comparative sub-population variables and consistent category definitions for available variables
- Consumption data not available for South Africa, available for Ethiopia but not sure about the quality
- Benefit non-take up or restricted roll-out
- Different data years → Income uprating using CPI
- Lack of external statistics for validation

- More details in: Barnes, H., Noble, M., Wright, G., Gasior, K., Leventi, C. (forthcoming) Improving the comparability of the SOUTHMOD tax-benefit microsimulation models. UNU-WIDER Technical Note.

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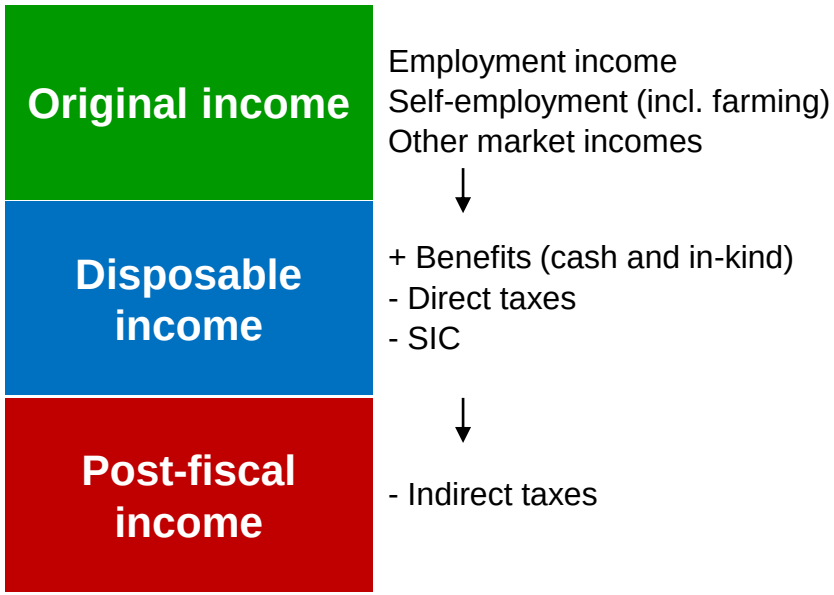
Applied income concepts



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Basic population characteristics

	ET	GH	MZ	SA	TZ	ZM
Average age	22	25	21	28	23	22
Average household size	5	4	5	4	5	5
Aged 0-14	45%	39%	49%	30%	44%	43%
Aged 15-59	55%	61%	51%	70%	56%	57%
Aged 60+	6%	7%	5%	8%	6%	4%
Single	17%	21%	13%	37%	18%	21%
Married/partnership	32%	32%	32%	26%	32%	29%
Separated/divorced	3%	4%	3%	2%	3%	3%
Widowed	3%	4%	3%	4%	4%	3%
% with earnings	4%	11%	6%	25%	6%	7%
% with self-empl. income	18%	25%	9%	6%	10%	17%

Note: Marital status does not include observations below the age of 15.

RESULTS (PRELIMINARY)

Results: Quintile shares (%), mean & median using disposable income

	ET	GH	MZ	SA	TZ	ZM
1st quintile share	1%	1%	2%	2%	0%	0%
2nd quintile share	3%	3%	3%	4%	1%	1%
3rd quintile share	5%	7%	5%	9%	4%	5%
4th quintile share	8%	14%	10%	19%	11%	14%
5th quintile share	84%	75%	80%	67%	84%	79%
Median	263	1,666	136	3,056	260	283
Mean	1,153	4,928	651	7,386	1,470	1,221

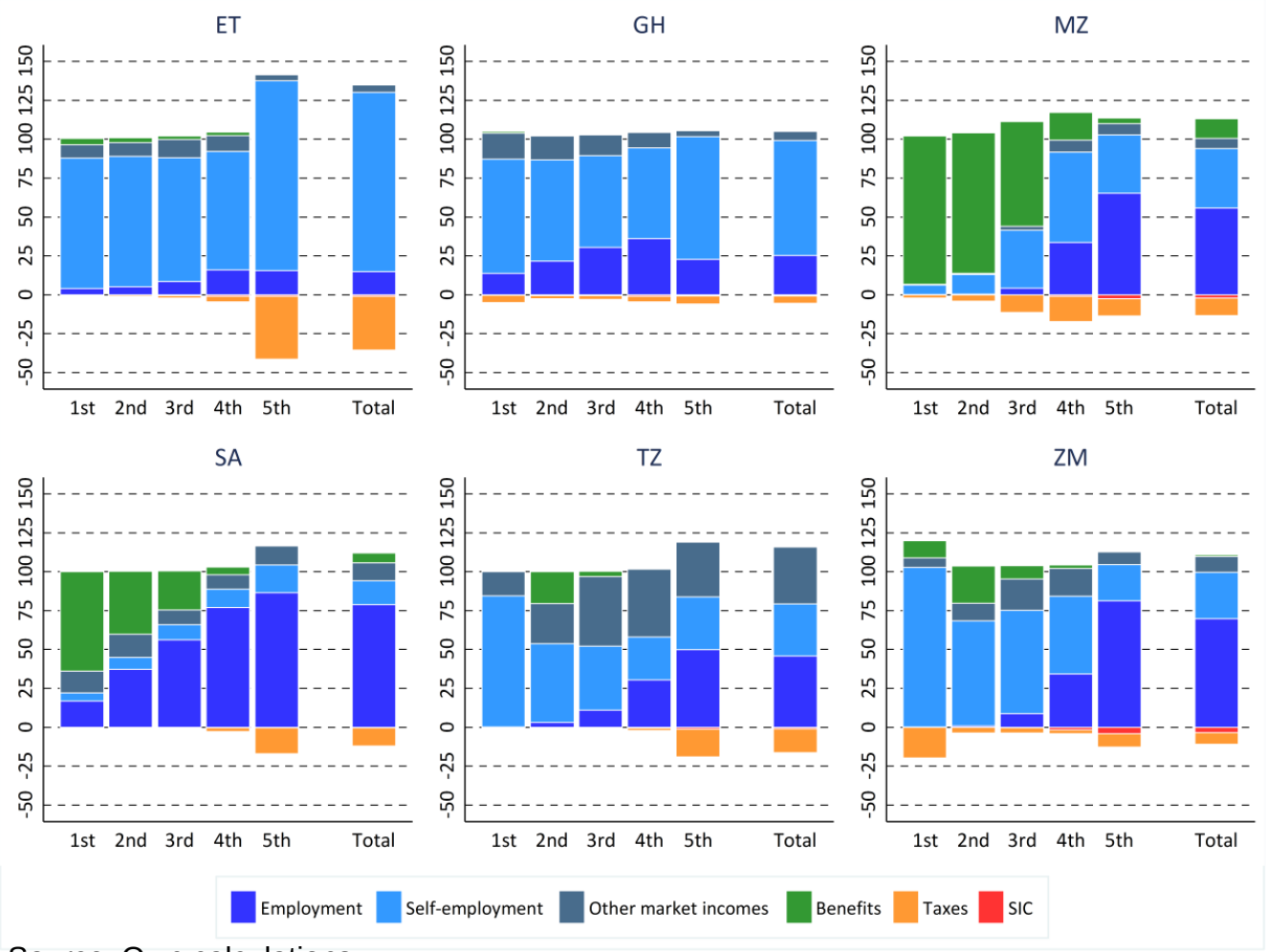
Source: Own calculations.
Notes: Annual values in international dollars; per capita incomes; household-level results.

Results: Gini coefficient using different income concepts

	ET	GH	MZ	SA	TZ	ZM
Orig. income	86.2	71.3	75.0	66.3	79.9	73.4
+ pensions	86.1	71.3	74.9	66.2	79.9	73.4
+ all benefits	86.0	71.3	75.8	65.2	80.0	73.4
+ all benefits - SIC	86.0	71.3	75.5	65.2	79.9	73.1
+ all benefits - taxes	81.8	70.8	75.1	62.4	77.7	72.5
Disposable income	81.8	70.8	74.8	62.4	77.6	72.0
Post-fiscal income	83.4	71.1	76.3	63.0	77.5	71.5
Consumption based	.	44.0	52.3	.	38.9	59.0
Consumption (WDI)	.	(42.4)	(54.0)	.	(37.8)	(57.1)

Source: Own calculations, World Bank (Gini WDI)
Notes: Household-level results, in per capita terms. Results for Gini (WDI) are based on national equivalence scales and refer to different years (2012 in Ghana, 2008 in Mozambique, 2011 in Tanzania and 2015 in Zambia).

Results: Decomposition of income sources by income quintiles



Source: Own calculations.

Note: Household-level results, in per capita terms. Vertical axis shows % of disposable income. Horizontal axis shows population quintiles based on disposable income.

Results: Poverty rates using different income thresholds

	ET	GH	MZ	SA	TZ	ZM
Disp. income < $1.9/day	**85.9**	**31.1**	**83.8**	**12.9**	**72.6**	**70.8**
Disp. income < $3.2/day	92.9	44.9	90.8	28.9	81.2	79.2
Disp. income < $5.5/day	96.7	60.6	95.4	46.6	89.0	86.2
Post-fiscal < $1.9/day	87.3	32.3	85.7	15.6	74.9	71.7
Post-fiscal < $3.2/day	93.5	46.4	91.9	31.5	83.0	79.7
Post-fiscal < $5.5/day	96.9	61.6	96.0	49.4	90.0	86.6
Consumption < $1.9/day	.	9.2	54.7	.	35.0	52.6
Consumption < $3.2/day	.	27.2	79.8	.	69.6	69.9
Consumption < $5.5/day	.	54.4	92.3	.	89.2	84.2
Consumption < nat. poverty	.	38.7	40.9	.	46.2	60.1
Consump. (NES) < nat. pov.	.	24.2	40.9	.	29.9	55.1
Consump. (WDI) < nat. pov.		(24.2)	(46.1)		(28.2)	(54.4)

Source: Own calculations, World Bank (*Consumption WDI*).
Note: All income-based results are in per capita terms; consumption-based results are presented both in per capita terms (PC) and using national equivalence scales (NES). Results for Consumption (WDI) refer to different years (2012 in Ghana, 2014 in Mozambique, 2011 in Tanzania and 2015 in Zambia).

Results: Poverty rates based on $1.9/day poverty threshold using different income concepts

	ET	GH	MZ	SA	TZ	ZM
Orig. income	85.0	30.7	83.2	35.1	72.5	70.1
+ pensions	84.9	30.7	82.8	27.9	72.5	70.1
+ all benefits	84.9	30.6	82.3	12.9	72.4	70.0
+ all benefits - SIC	85.0	30.7	82.5	12.9	72.4	70.2
+ all benefits - taxes	85.4	31.0	83.5	12.9	72.6	70.5
Disposable income	85.9	31.1	83.8	12.9	72.6	70.8
Post-fiscal income	87.3	32.3	85.7	15.6	74.9	71.7

Source: Own calculations.
Note: All results are in per capita terms.

Summary/Conclusion

- High concentration of incomes at the 5th income quintile
- Poverty & inequality indicators look much worse when taking an income- rather than an expenditure-based approach
- The (direct) tax-benefit systems do not achieve much in terms of inequality/poverty reduction (with the exception of SA)
- VAT is inequality-increasing in 4 out of the 6 countries
- SOUTHMOD tax-benefit microsimulation models provide a good basis for improving the tax-benefit systems in these African countries.
  - One example on Mozambique: SOUTHMOD Mini-documentary - Bridging the gap: policy and people (by UNU-WIDER), https://www.youtube.com/watch?v=Uoo0hK8ID4w&feature=youtu.be

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THANK YOU!

Further information:

Gasior, K., Leventi, C., Barnes, H., Noble, M., Wright, G. (forthcoming) The Distributional Impact of Tax and Benefit Systems in Six African Countries. UNU-WIDER Working Paper.

Barnes, H., Noble, M., Wright, G., Gasior, K., Leventi, C. (forthcoming) Improving the comparability of the SOUTHMOD tax-benefit microsimulation models. UNU-WIDER Technical Note.

EUROMOD: https://www.euromod.ac.uk/

SOUTHMOD: https://www.wider.unu.edu/project/southmod-simulating-tax-and-benefit-policies-development