

# The macroeconomics of establishing a basic income grant in South Africa

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Roy Havemann<sup>1</sup>   Hylton Hollander<sup>2</sup>   Daan Steenkamp<sup>3</sup>

<sup>1</sup>Krutham & Stellenbosch University Research Fellow

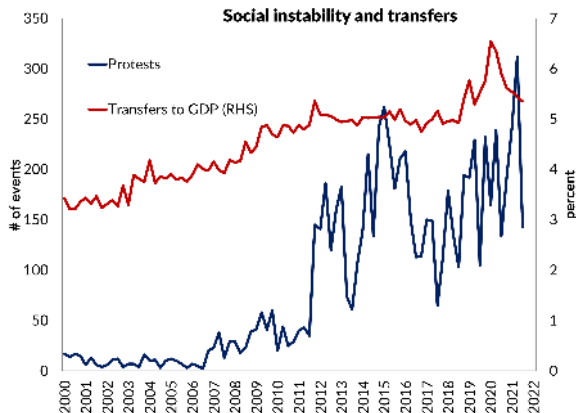
<sup>2</sup>Stellenbosch University

<sup>3</sup>Codera Analytics & Stellenbosch University Research Fellow

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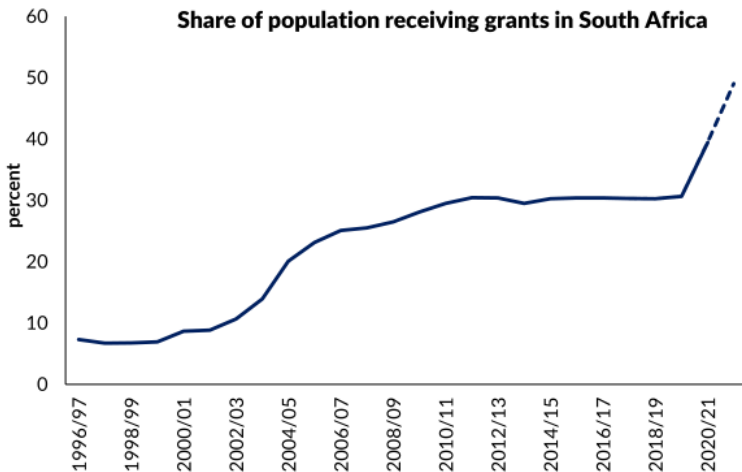
- 1 Motivation & Contribution
- 2 Main findings
- 3 Stylised facts
- 4 Our Approach
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# Motivation: transfers and social instability



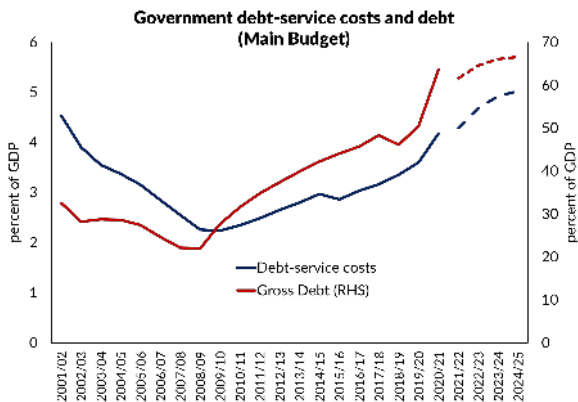
- There have been calls for a basic income grant (BIG) in South Africa (COVID-19 social relief of distress grant (SRD) [extended](#) to 31 March 2024)

# Motivation: Almost 50% of South Africans receive some form of grant



Source: National Assembly Internal question paper number 50-2020, SASSA 2020/21 Annual Report, SASSA March 2021. Includes COVID-19 grant recipients, which may overstate the 2021/22 figure.

# Motivation: fiscal sustainability



Source: National Treasury Budget Review. Dotted lines indicates projections.

- Rising debt and rising debt-service costs a major concern

# Contribution to the literature

- Literature focuses on cost estimations and static revenue raising calculations or redistribution effects (See Appendix slides)
- Existing studies do not assess dynamic effects of higher taxes, higher debt, or expenditure impacts of BIG options
- We study the effect of fiscal transfers on the trade-off between social relief and debt accumulation (fiscal sustainability), and estimate the economic growth and fiscal implications of different combinations of expanded social support and funding choices

We model income support measures under alternative fiscal scenarios using a dynamic stochastic general equilibrium (DSGE) model

- #1 Should a BIG be universal or targeted?
- #2 What are the optimal funding options for social transfers?
- #3 Given identified optimal policy options, what are the fiscal and economic implications of expanding social transfers?

# Main findings

- The opportunity to fund a BIG through reallocation of public expenditure, higher tax or higher debt is extremely limited
- 'First best' solution to reduce poverty, inequality and unemployment is to undertake economic reforms that enhance economic growth and employment
- Among 'second best' policy options
  - Converting social relief of distress (SRD) grant into permanent BIG is the least costly option
    - Requires  $\uparrow$  debt and taxes, which  $\downarrow$  economic growth
    - After 5 years,  $\downarrow$  70k jobs
  - BIG at food poverty line (R624, 2020 rands) for 10.5mil people
    - $\uparrow$  8% debt-to-GDP,  $\uparrow$  0.5%p VAT,  $\uparrow$  5%p PIT,  $\uparrow$  0.5%p CIT, approx 200k fewer jobs
  - BIG at R840 for 33mil people
    - $\uparrow$  40% debt-to-GDP,  $\uparrow$  2.5%p VAT,  $\uparrow$  12%p PIT,  $\uparrow$  1%p CIT, approx 1mil fewer jobs



- Targeted transfers produce better outcomes than universal transfers in terms of fiscal sustainability and poor households' welfare
- Tax financing through consumption (value added) taxes preferable, but crowding-out of private consumption and investment is substantial and required increase in tax rates unrealistically high
- CIT tax financing is the least preferable form of tax financing
- Government investment stimulus can improve fiscal outcomes, but broader macro effects still negative

We cast our analysis within the context of stylized facts on socioeconomic developments and the fiscal framework:

- #1 South Africa has high levels of poverty, inequality and unemployment
- #2 South Africa has a highly redistributive fiscal system
- #3 The COVID-19 SRD grant has reached a quarter of adults and reduced poverty
- #4 South Africa has a small tax base
- #5 South Africa has a relatively high sovereign risk premium related to a weak fiscal position

# Scenarios benchmarked to current public proposals

**TABLE 2** Scenarios considered in this paper (sizes are per annum).

	Size of intervention	VAT	PIT	CIT	Debt
<b>Scenario 1</b>					
Expand social transfers <i>with baseline values</i>	R44 bn to R332 bn (SRD to Universal)	✓	✓	✓	✓
<b>Scenario 2</b>					
Expand social transfers <i>with tax financing</i>	~ R74 bn (FPL)	✓	✓	×	×
<b>Scenario 3</b>					
Expand social transfers <i>with tax &amp; iG</i>	~ R74 bn + R60 bn	✓	×	✓	×
<i>with tax, iG &amp; efficiency gains</i>	~ R74 bn + R15 bn	✓	×	✓	×
<b>Alternatives not considered</b>					
Employment tax incentive	×				
Work-linked intervention	×				

*Note:* Baseline denotes estimated model where all fiscal instruments adjust based on historical sample at different levels of income support. Tax financing denotes tax instrument optimised to stabilise the trade-off between debt and output. Tables in the paper provide more details on each scenario and their outcomes.

Abbreviations: CIT, corporate income tax; FPL, food poverty line; iG, public investment stimulus; iG & efficiency gains, public investment stimulus with efficiency gains for private investment; PIT, personal income tax; SRD, social relief of distress; VAT, value added tax.

*Source:* Authors' calculations.

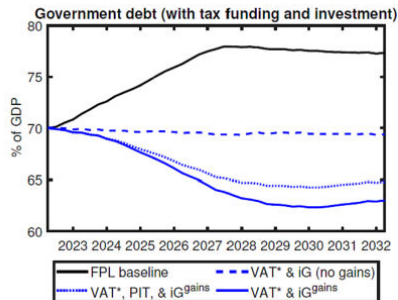
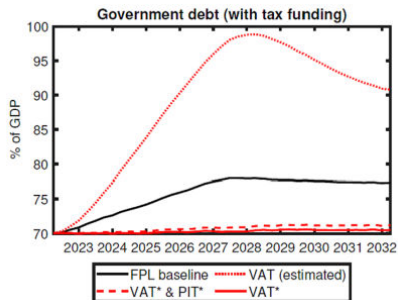
# Summary of Results

**TABLE 3** Impact of income support after 5 years for alternative scenarios.

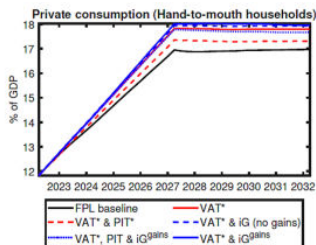
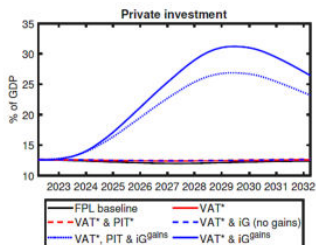
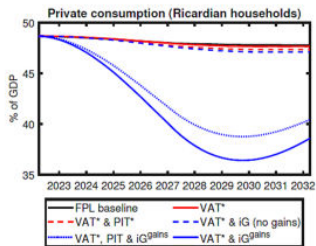
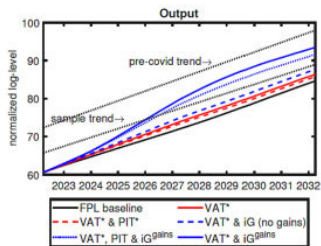
	Grant		Cost		Fiscal variables			Social variables		
	<i>rand</i>	<i>no.</i>		<i>Debt-to-GDP</i>	<i>VAT</i>	<i>PIT</i>	<i>CIT</i>	<i>Poor cons.</i>	<i>Jobs</i>	
	(pppm)	(m)		(%pt)	(%pt)	(%pt)	(%pt)	(%)	(no.)	
Scenario 1: Mix of fiscal instruments										
Social relief of distress	350	10.5	44	2.87	0.23	2.07	0.25	16.4	-69,000	-0.5
Food poverty line	624	10.5	79	7.72	0.56	5.33	0.53	43.3	-198,000	-1.3
Upper-bound poverty line	1335	10.5	168	17.37	1.21	11.84	1.09	96.9	-455,000	-3.0
Targeted at poor	840	33	333	41.6	2.59	28.51	1.5	188.2	-914,000	-6.1
Scenario 2: Tax financed (balanced budget, at food poverty line)										
VAT only	624	10.5	79	0.21	7.17	0.09	0.38	50.7	84,000	0.6
VAT and PIT	624	10.5	79	0.76	4.05	3.4	-0.04	46.7	-9000	-0.1
Scenario 3: Alternative policy: government investment and structural reform and balanced-budget grant										
VAT and gov. investment	624	10.5	79	-0.64	9.01	0.39	1.25	51.6	182,000	1.2
VAT, gov. invest. and reform	624	10.5	79	-5.79	5.17	-0.05	5.32	52.3	1,010,000	6.7

*Note:* Poor cons. is the consumption increase for non-Ricardian (poor) households. Scenario 1 results are based on the estimated parameters from South African data. Scenarios 2 and 3 are based on the estimated model with an 'optimised' tax instrument response. The model and paper is in 2020 prices. Here, the results are scaled to current prices for expositional purposes. The number of recipients has been modelled at 10.5 million reflecting budget take up.

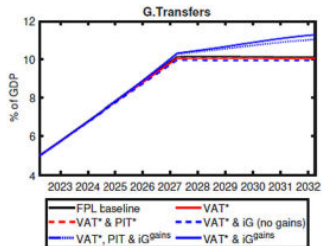
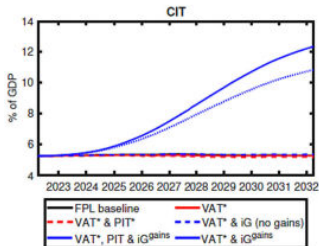
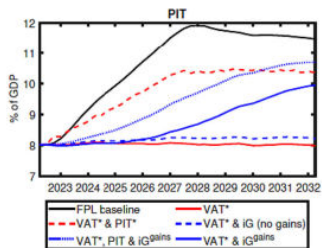
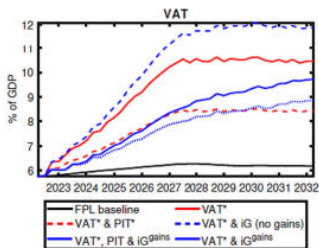
# Lack of fiscal space implies trade-off between increased re-distribution and fiscal sustainability



# Large transfers would increase consumption for poor but crowd-out other investment and taxpayer consumption



# Large transfer increases require unprecedented increases in tax



# Implications

- BIG trade-offs between expanding the social safety net and unintended consequence of decreasing employment
- South Africa's debt position plays a crucial role: without fiscal space for expansionary policies and with a small tax base, stimulus is impotent as borrowing costs crowd out other spending and the tax burden rises
- Given negative implications for economic growth and constrained fiscal position, the model suggests that much higher transfers are only feasible if economic growth rises sustainably
- This necessitates, for example, increased government infrastructure investment, expansion of employment programmes and, critically, growth-enhancing economic reforms that leverage the private sector (e.g. removing constraints on electricity availability)



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# A.0: The macroeconomic literature on a BIG in South Africa

Study	Cost	Grant Value	Funding	Impact
Department of Social Development (2021)	R200B	R585	PIT	
Deloitte (2021)	R143-R521B	R350-R1268	T,G,D	0.5% GDP, 4% empl
Institute for Economic Justice (2021)	R239B-R1.4T	R518-R3500	T,G,D	
Expert Panel on Basic Income Support (2021)	R137B-R534	R350-R1300	T,D	-7-6.2% long term
Applied Development Research Solutions (2021)	R408-R985B	R350-R1268		+ve GDP & empl
van Seventer et al. (2021)	R29-R84B		T,G,D	-0.7 to 2% growth
Intellidex (2022)	R252B-R2.5T	R350-R3500	T,G,D	-ve GDP

*Note:* In Column two, 'B' denotes Rand Billion and 'T' Rand Trillion. In Column four, 'T' denotes higher taxes, 'G' denotes lower government expenditure, 'D' denotes higher debt, 'PIT' denotes personal income taxes.

- Existing studies do not assess dynamic effects of higher taxes, higher debt, expenditure impacts of such a programme, or interaction between fiscal settings

## A.1: Overview of the NT-DSGE model

- DSGE models have advantages and disadvantages that must guide inference
- As an internally consistent system, these models incorporate several key channels and feedback effects for policy to influence and be influenced by macroeconomic dynamics
- Notably, DSGE models take into account the expected behavioural responses of households and firms to changes in economic conditions (for example, income, interest rates or effective tax rates)
- These features make DSGE models particularly well-suited to analyse counterfactual policy scenarios
- This complements alternative BIG projections to date that are based on static, deterministic and/or time inconsistent estimates

## A.1: Overview of the NT-DSGE model

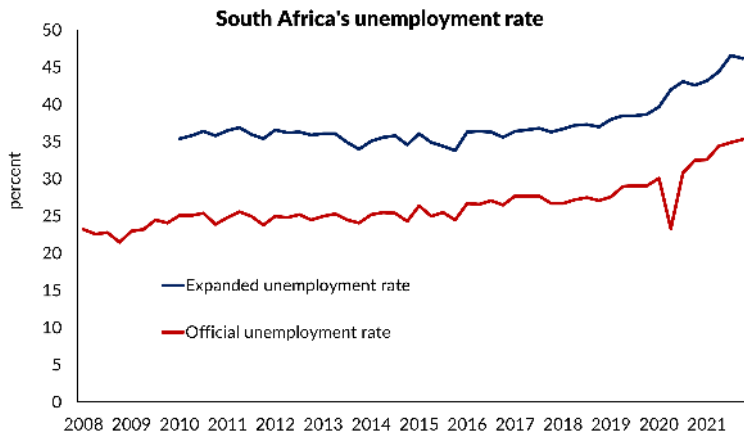
- Developed for National Treasury for fiscal policy analysis ([Kemp and Hollander \(2020\)](#), [Hollander \(2021\)](#), [Havemann and Hollander \(2022\)](#))
- Dynamic (multi-period), stochastic (includes uncertainty) and general equilibrium (captures interaction of supply and demand in key markets)
- Distinguishes between 2 types of households (poor and rich) allowing for macroeconomic and redistributive analysis
- Firm and household behaviour guided by forward-looking expectations
- Relative impacts of different tax policy mixes (VAT, PIT and CIT) and adjustments to composition of public expenditure (consumption, investment and transfers)
- Simultaneous reactions of fiscal and monetary policy to economic outcomes
- Includes channels for domestic economy to be affected by foreign trade and capital markets

## A.1: Limitations of our approach

- Unprecedented policy changes (particularly if they create a non-linear debt profile) and unprecedented economic circumstances (particularly in the context of political and social instability) are very difficult to model accurately
- Lack of empirical evidence of effects of social policies and their fiscal ramifications
- That said, this paper is unique in the literature on the impacts of different fiscal strategies to accommodate a BIG

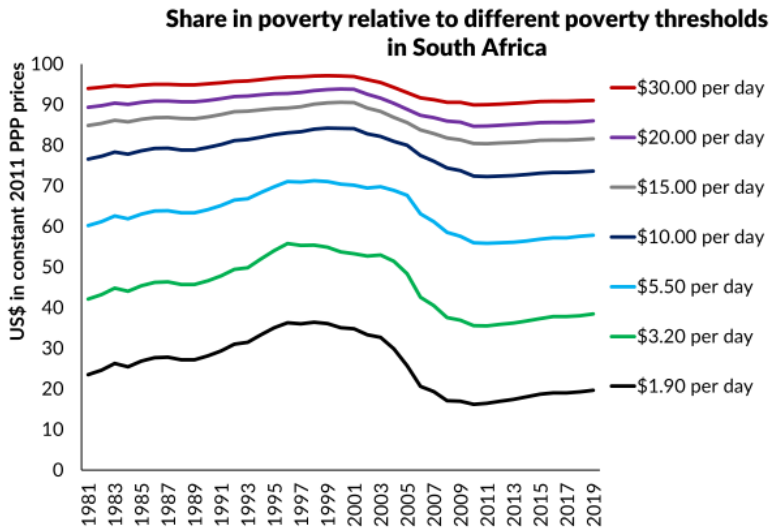
# Extra slides 1

# Stylised fact 1: South Africa has high levels of poverty, inequality and unemployment



Source: Statistics South Africa, EconData. Both series expressed as proportion of labour force aged 15 to 64 for both sexes.

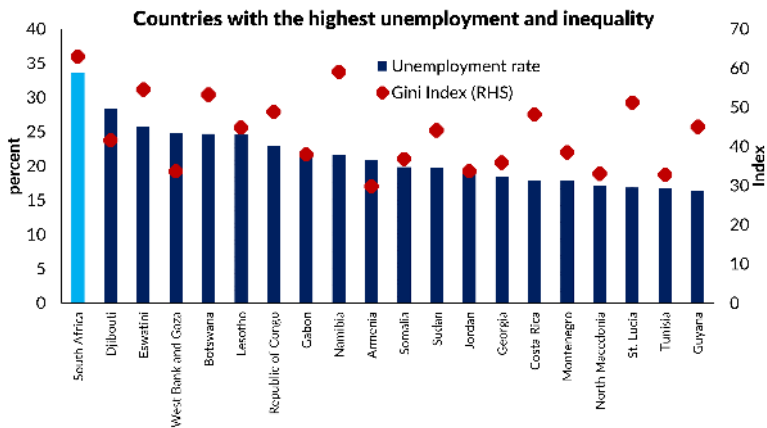
# Stylised fact 1: South Africa has high levels of poverty, inequality and unemployment



Source: PovCal (2021), Our World in Data.

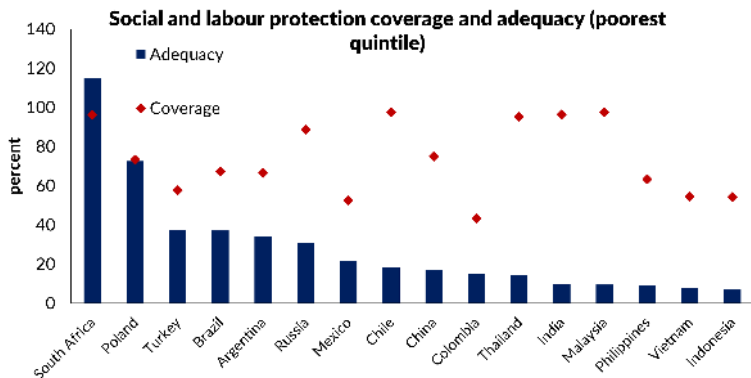


# Stylised fact 1: South Africa has high levels of poverty, inequality and unemployment



Source: World Bank, ILO. Latest data. Unemployment rate is percent of total population ages 15-64. Gini index measures the extent to which the distribution of income among individuals or households within an economy deviates from a perfectly equal distribution. A Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality. St. Vincent and Libya not shown as Gini index estimates are not available.

## Stylised fact 2: South Africa has a highly redistributive fiscal system



Source: World Bank ASPIRE, World Social Protection Report 2020–2022, ILO, World Bank World Development Indicators. Estimates for latest available year (2014 for South Africa) and calculated post transfer. Coverage reflects the percentage of population participating in Social Protection and Labour programs (includes direct and indirect beneficiaries). The indicator is reported for the entire population and for the poorest quintile of the post-transfer welfare distribution. Specifically the indicator is computed as (Number of individuals in the quintile who live in a household where at least one member receives the transfer)/(Number of individuals in that quintile). Adequacy refers to the total transfer amount received by all beneficiaries in a quintile as a share of the total welfare of beneficiaries in that quintile. The indicator includes both direct and indirect beneficiaries and is reported for all population and the poorest quintile.

## Stylised fact 2: South Africa has a highly redistributive fiscal system

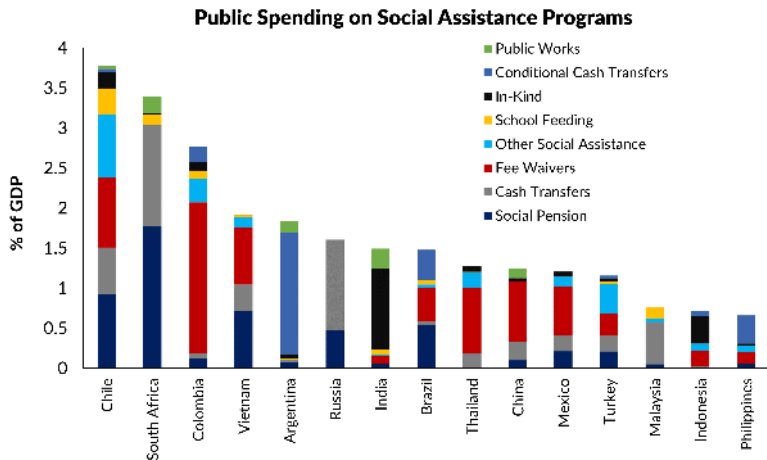
**TABLE 1** The South African grant system.

Grant	Recipients	% population	Cost (R bn)	% spending	% GDP
Child support	13.2	22.1%	73.32	3.5%	1.1%
Old age	3.7	6.3%	86.49	4.2%	1.3%
Disability	1.0	1.7%	23.58	1.1%	0.4%
Foster care	0.3	0.5%	4.34	0.2%	0.1%
Care dependency	0.2	0.3%	3.66	0.2%	0.1%
SRD-350	10.5	17.6%	31.56	1.5%	0.5%
Total	28.9	48.4%	222.94	10.7%	3.5%

Abbreviation: GDP, gross domestic product; SRD, social relief of distress.

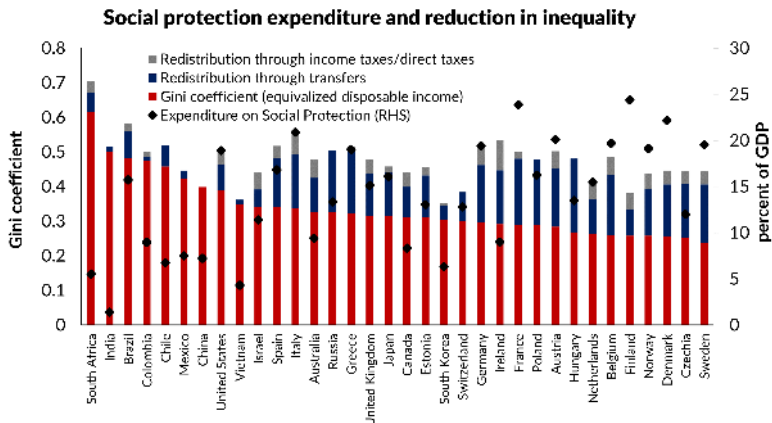
Source: National Treasury (2021, 2022), StatsSA population data (<https://www.statssa.gov.za/>) and authors' calculations.

## Stylised fact 2: South Africa has a highly redistributive fiscal system



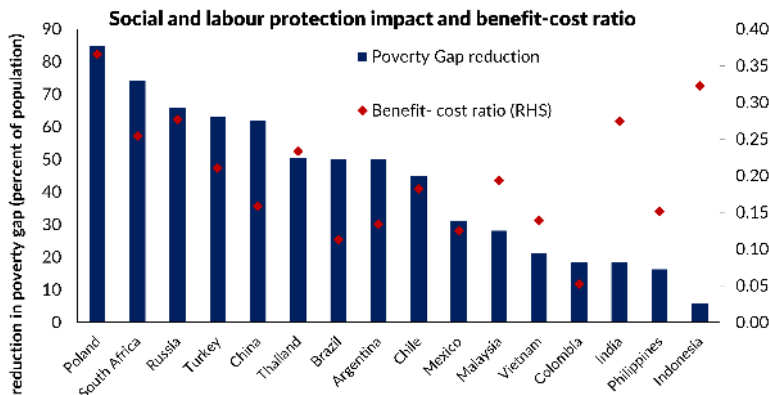
Source: World Bank, Aspire dataset. Latest data for each country.

# Stylised fact 2: South Africa has a highly redistributive fiscal system



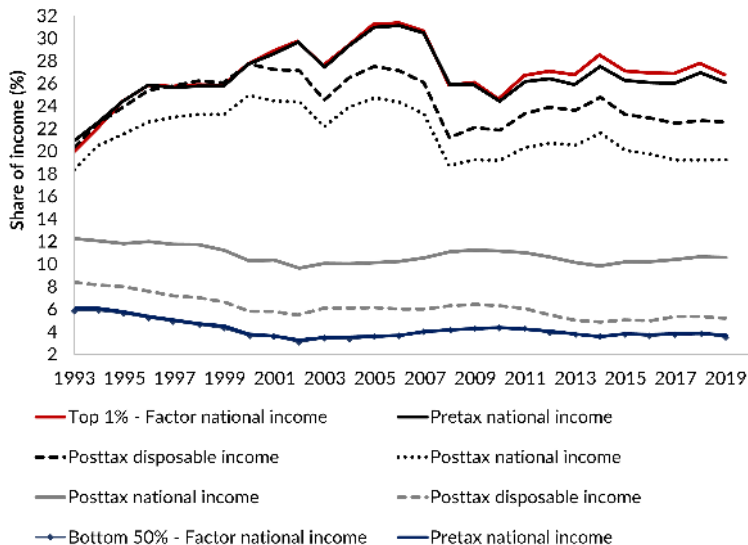
Source: World Social Protection Report 2020–2022, ILO, World Bank World Development Indicators. Estimates for 2020 or latest available year. Public social protection expenditure excludes health. The Gini coefficient is calculated for the complete population.

## Stylised fact 2: South Africa has a highly redistributive fiscal system

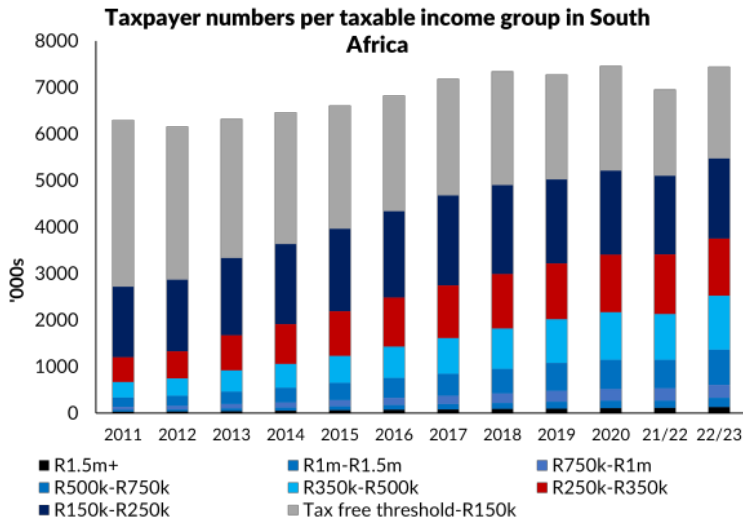


Source: World Bank ASPIRE. World Social Protection Report 2020–2022, ILO. World Bank World Development Indicators. Estimates for latest available year (2014 for South Africa) and calculated post transfer. Poverty Gap reduction attributable to social protection and labour programs as % of pre-transfer poverty gap. Poverty Gap reduction is estimated as  $(\text{poverty gap pre-transfer} - \text{poverty gap post-transfer}) / \text{poverty gap pre-transfer}$ . Benefit-Cost Ratio is the % reduction in poverty gap obtained for each \$1 spent in social protection and labour programs. Benefit-cost ratio is estimated as  $(\text{poverty gap pre-transfer} - \text{poverty gap post-transfer}) / \text{total transfer amount}$ .

## Stylised fact 2: South Africa has a highly redistributive fiscal system



# Stylised fact 4: South Africa has a small tax base



Source: National Treasury, SARS, Budget Reviews, excluding tax free threshold at R150k. Taxable income groups not adjusted for inflation.

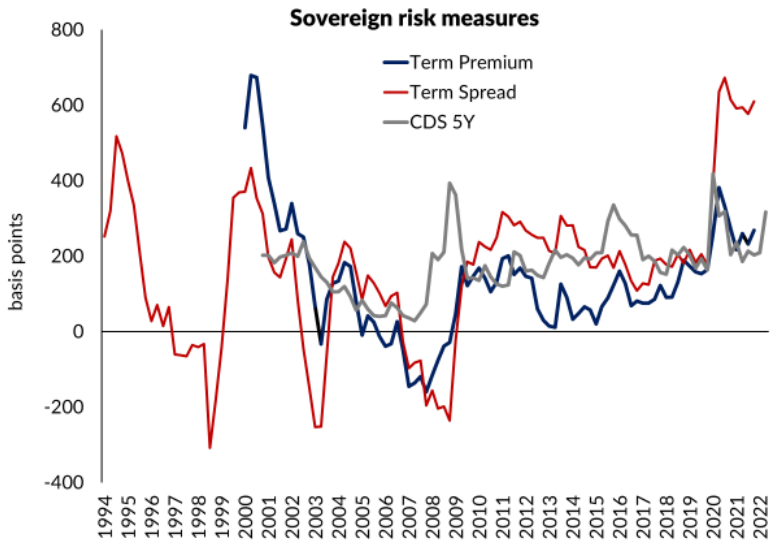


## Stylised fact 4: South Africa has a small tax base

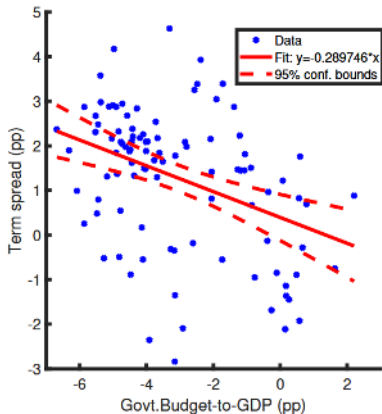
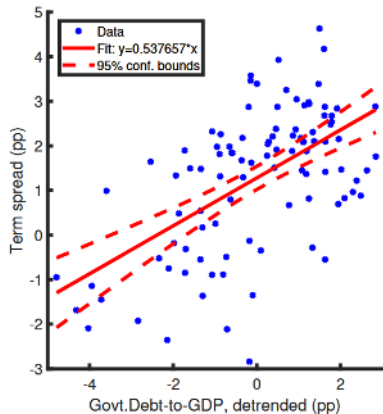
Tax bracket	Current income tax	Share PIT paid (%)	Taxpayers (number)	Average tax	Additional tax required			increase %
					Total R billion	Per taxpayer per annum	per month	
R0 - R91								
R91 - R150		2.5	1,973,185	7,404	3.13	1,587	132	21.4%
R150 - R250	26.8	4.6	1,717,760	15,584	5.74	3,340	278	21.4%
R250 - R350	48.3	8.2	1,231,672	39,174	10.34	8,396	700	21.4%
R350 - R500	83.6	14.2	1,158,117	72,212	17.92	15,476	1,290	21.4%
R500 - R750	104.6	17.8	756,629	138,284	22.42	29,637	2,470	21.4%
R750 - R1 000	66.3	11.3	274,963	241,123	14.21	51,676	4,306	21.4%
R1 000 - R1 500	75.3	12.8	199,837	376,707	16.13	80,737	6,728	21.4%
R1 500 +	168.4	28.7	133,230	1,264,280	36.10	270,962	22,580	21.4%
<b>Average</b>	<b>587.9</b>	<b>100.0</b>	<b>7,445,393</b>	<b>78,963</b>	<b>126.00</b>	<b>16,923</b>	<b>1,410</b>	<b>21.4%</b>

**Table:** Distribution of cost of R1,000 basic income grant across different tax brackets

# Stylised fact 5: South Africa has a relatively high sovereign risk premium

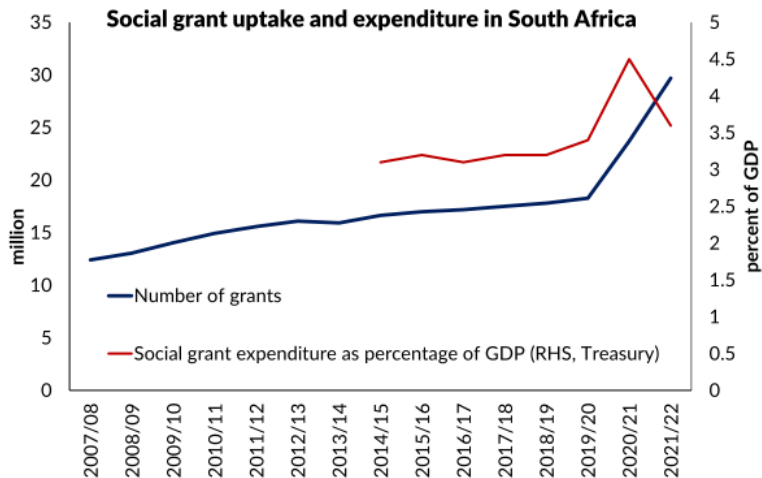


# Motivation: Government debt and interest rates



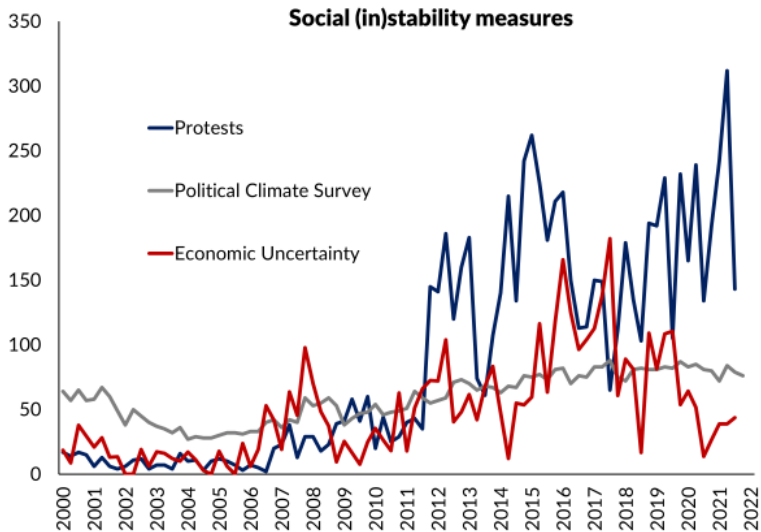
# Extra slides 2

# Social grant recipients and total cost

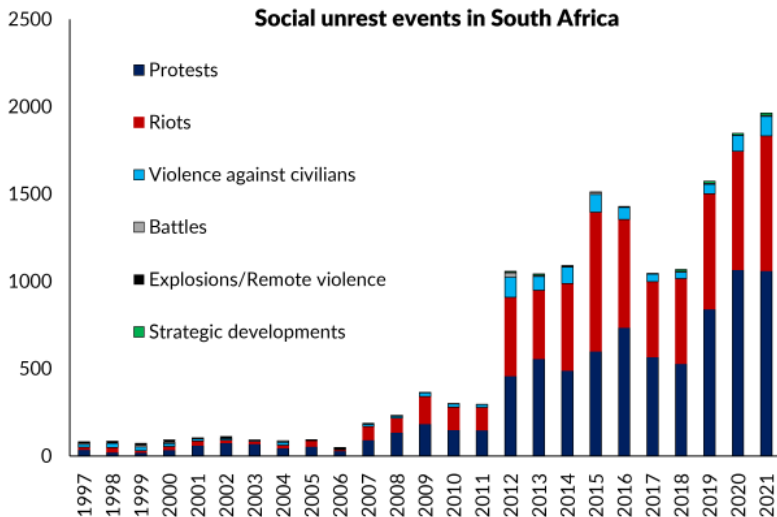


Source: SASSA 2020/21 Annual Report, SASSA March 2021, National Treasury Budget Reviews. Recipient numbers include COVID-19 grants.

# Social (in)stability measures

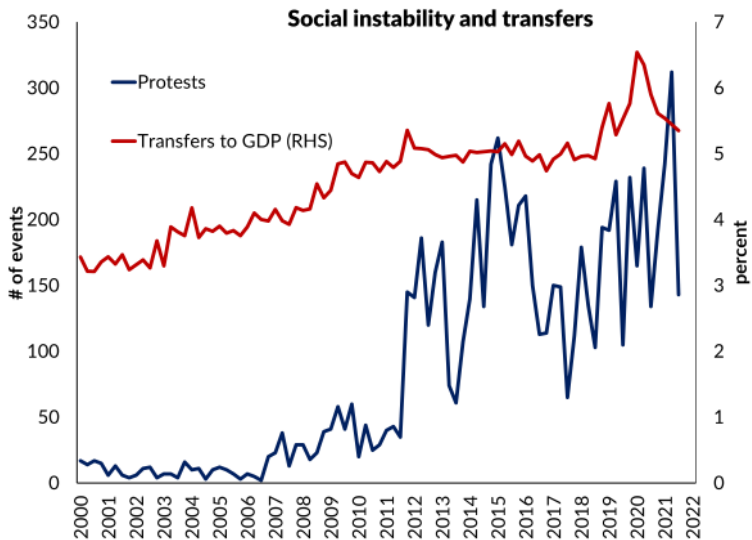


# Social unrest in South Africa



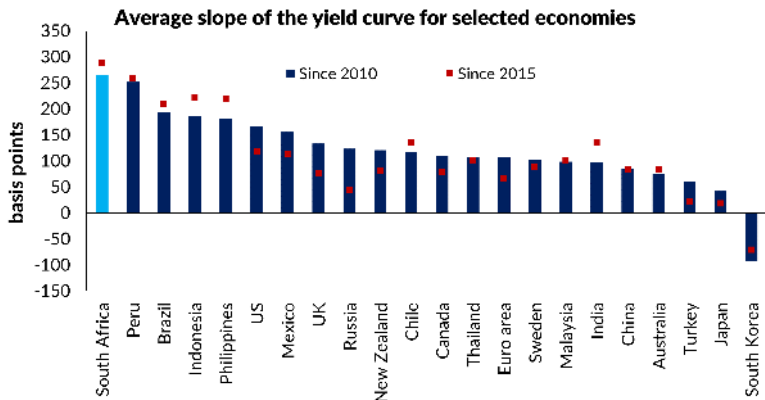
Source: ACLED

# Transfers and social (in)stability



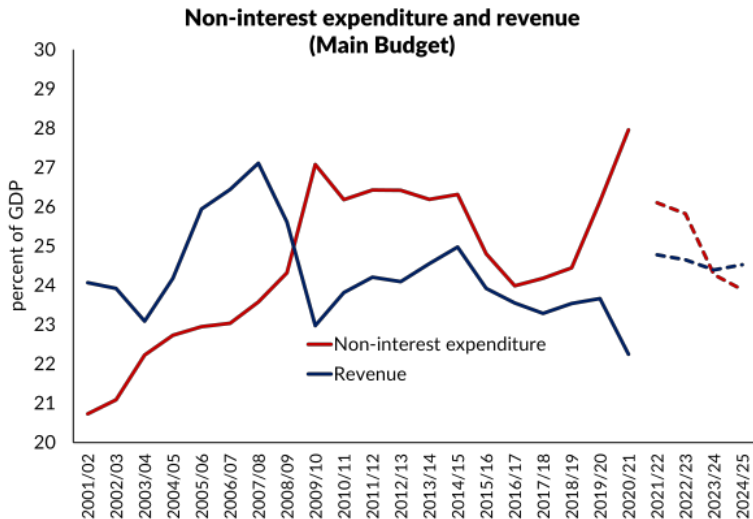


# Comparative yield curve slope



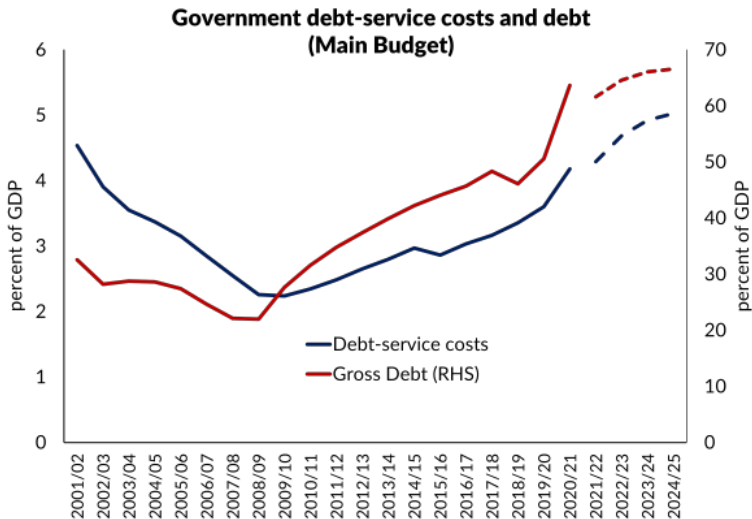
Source: Bloomberg, Codera Analytics. Yield curve slope measured using the difference between monthly 10 year government bond and 3 month Treasury bill yields, Russian yields for 2022 sourced from Russian Central Bank. Turkish 3 month Treasury bill yields taken from Investing.com and missing values are excluded from the calculation. Vietnam and Columbia do not have 3 month Treasury bill rates available over the sample.

# Fiscal Sustainability Charts



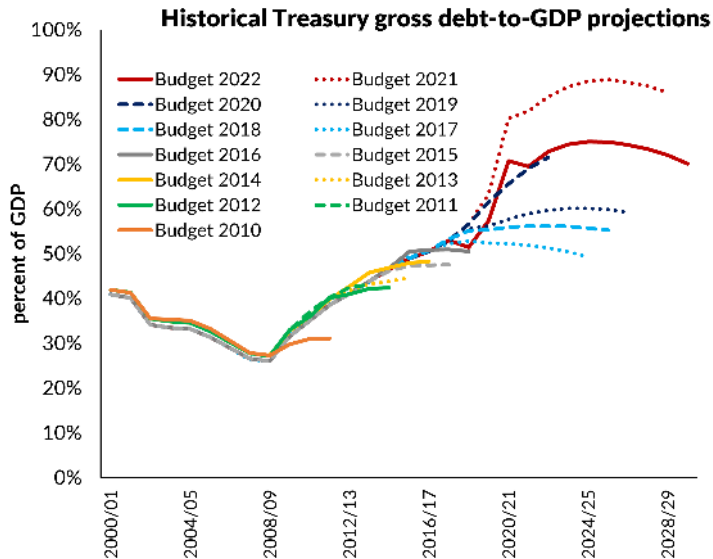
Source: National Treasury Budget Review. Dotted lines indicates projections.

# Fiscal Sustainability Charts



Source: National Treasury Budget Review. Dotted lines indicates projections.

# Upward drift in expected debt path



Source: National Treasury Budget Reviews.