

Modelling the impact of **tiered** beer taxes on consumption and revenue in South Africa

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Outline

1. Brief background
2. Alcohol consumption in SA
3. Excise tax burden
4. Modelling beer tax tiered taxes on consumption & revenue
 - Beer market in SA
 - National Treasury proposal - Beer tax tiers
 - REEP proposal
 - Model assumptions
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5. REEP recommendations
6. Limitations and future work

About REEP

- We are a research unit based in the School of Economics at the University of Cape Town.
- REEP comprises a group of researchers with extensive experience in the economics of tobacco and alcohol control.
- We aim to promote public health by providing independent and rigorous research.
- We are funded by international organisations such as the Bill & Melinda Gates Foundation, Cancer Research UK, and Vital Strategies.



Research Unit on the Economics
of Excisable Products

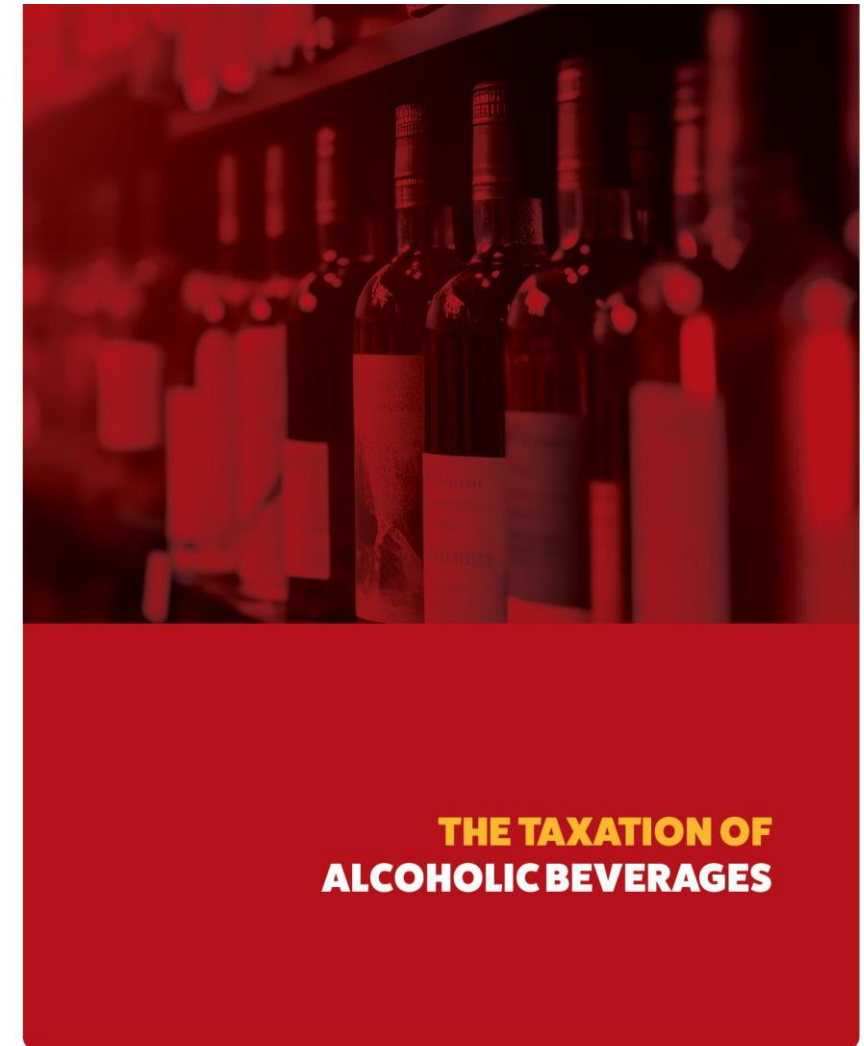


Current situation in alcohol sector

- [‘Taxation of Alcoholic Beverages’](#) discussion paper published by National Treasury on **13 November 2024**
- Submissions were due on **14 February 2025**
 - REEP submitted comments on discussion paper
- National Treasury first workshop on **06 November 2025**

REEP recent research on alcohol

- **August 2024:** [‘A review of alcohol excise taxation in South Africa’](#)
- **September 2025:** [‘Modelling the impact of **tiered** taxes on consumption and revenue in South Africa’](#)



Department:
National Treasury
REPUBLIC OF SOUTH AFRICA

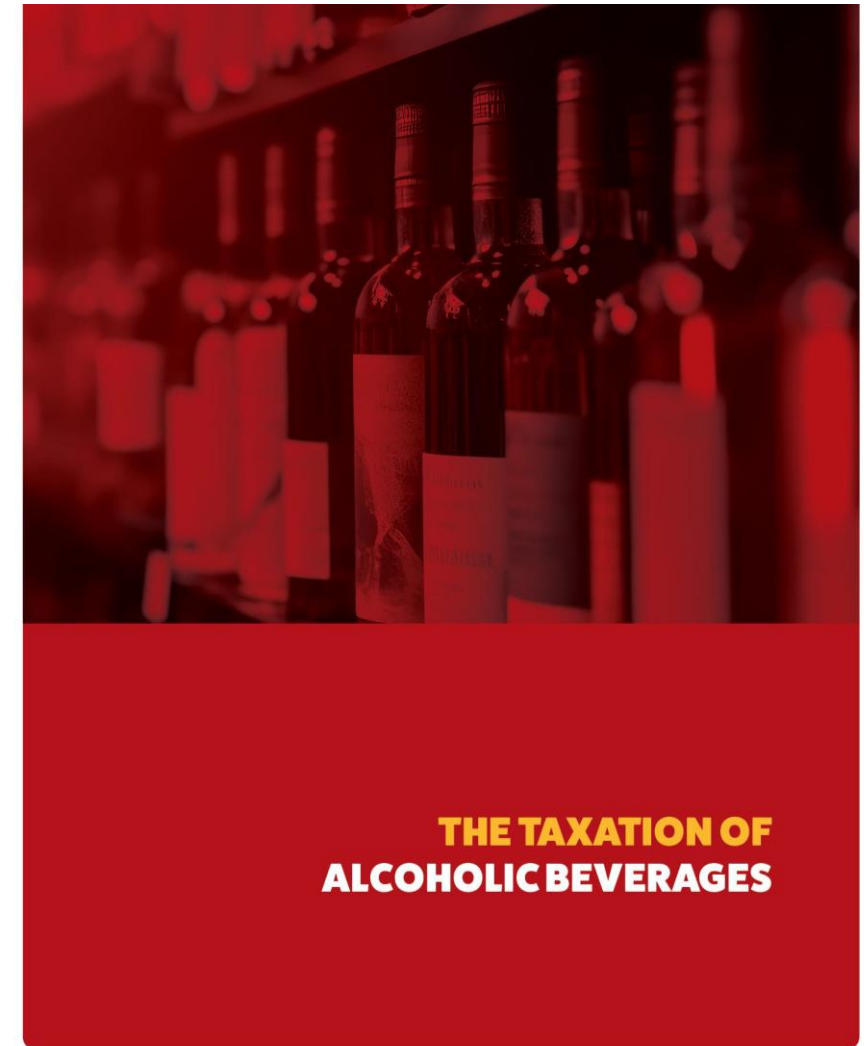


National Treasury discussion paper

Proposed Framework Changes

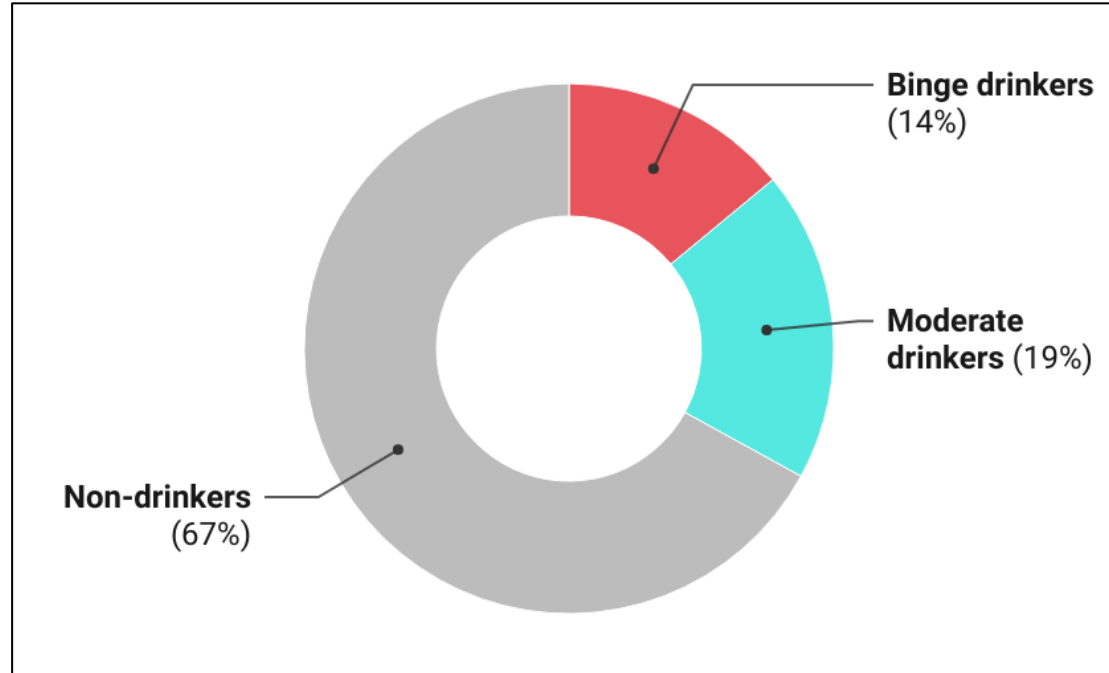
The document recommends aligning excise duties more closely with public health objectives, rather than revenue generation:

- Adjusting Excise Tax Policy Excise tax increases (inflation + 4%)
- Revising tax incidence targets (*currently 11%, 23%, 36% for wine, beer, and spirits*).
- Shift from a **flat-rate** to a **tiered excise structure** based on alcohol by volume (ABV) for beer and wine.
- Addressing illicit trade (enforcement; T&T system)
- Explore Minimum Unit Pricing (MUP) to complement excise policy by setting a floor price per unit of alcohol.

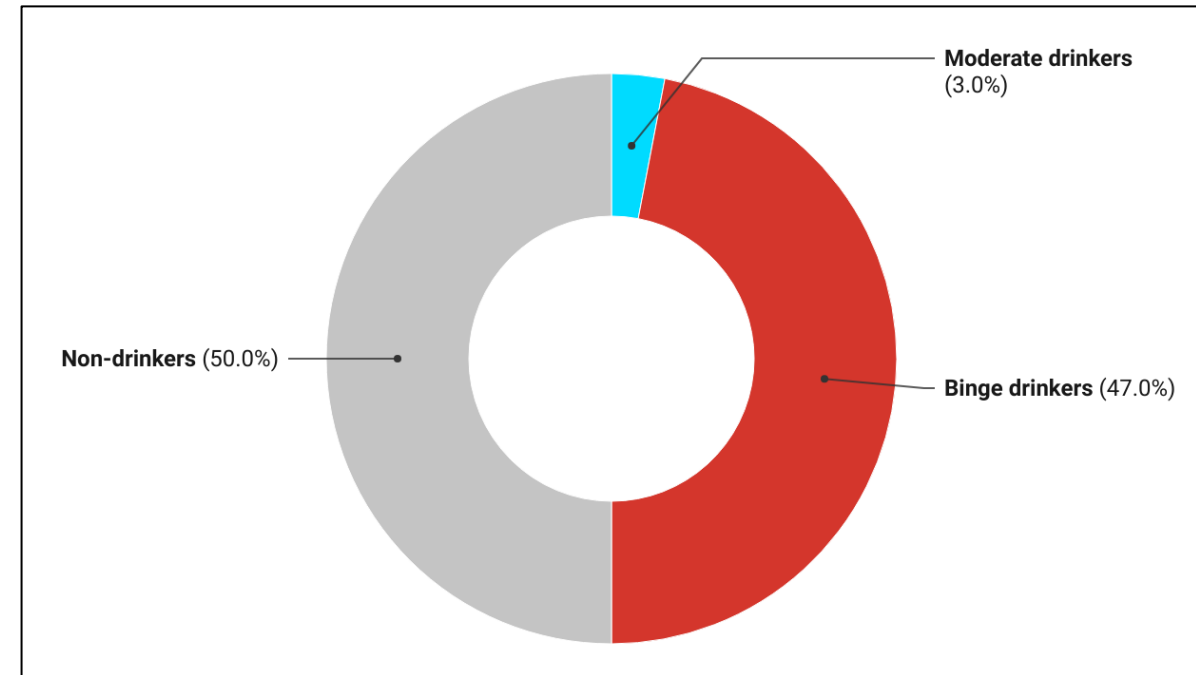


Prevalence of alcohol use in SA

National Income Dynamics Survey: 2015



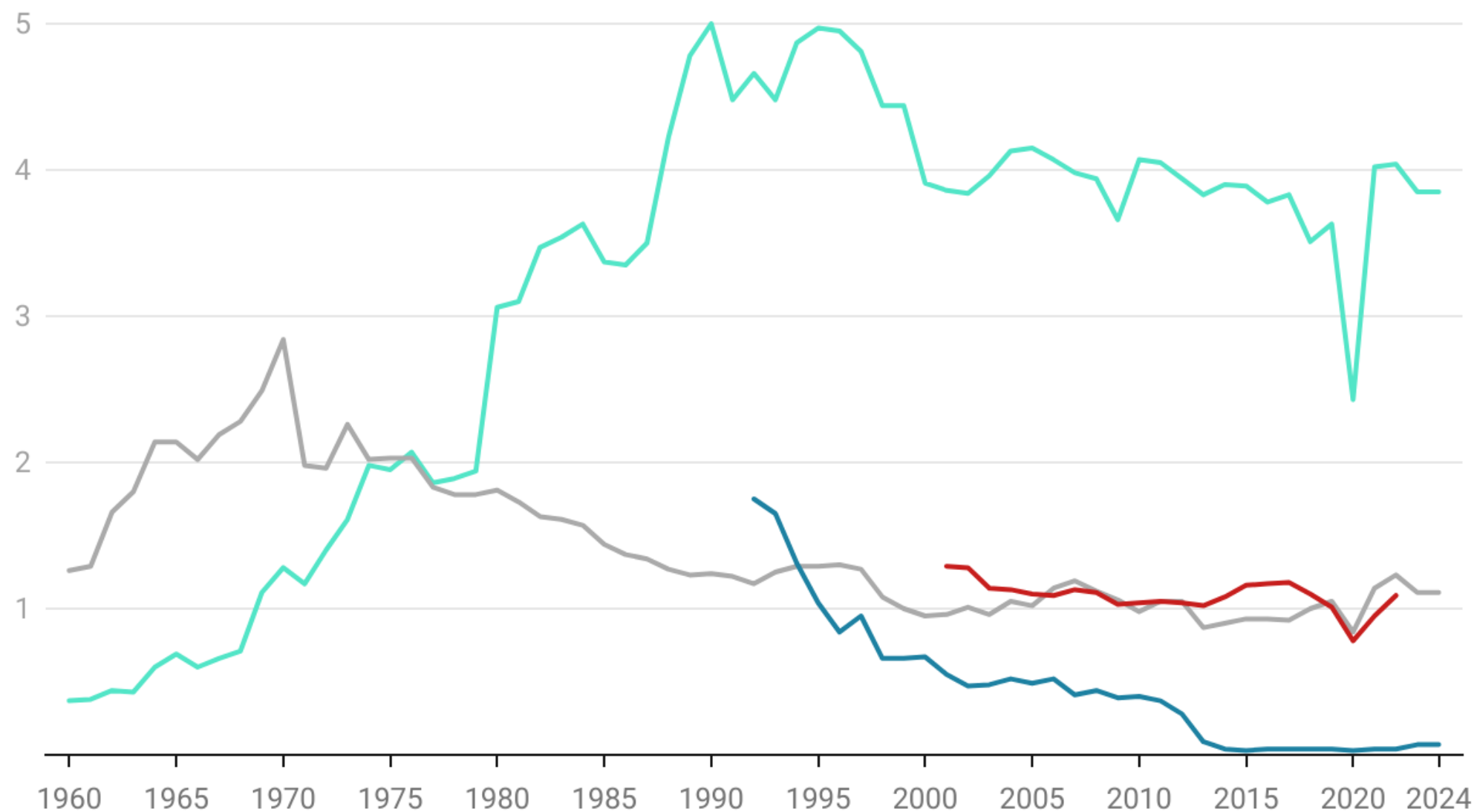
National Dietary Intake Survey: 2022



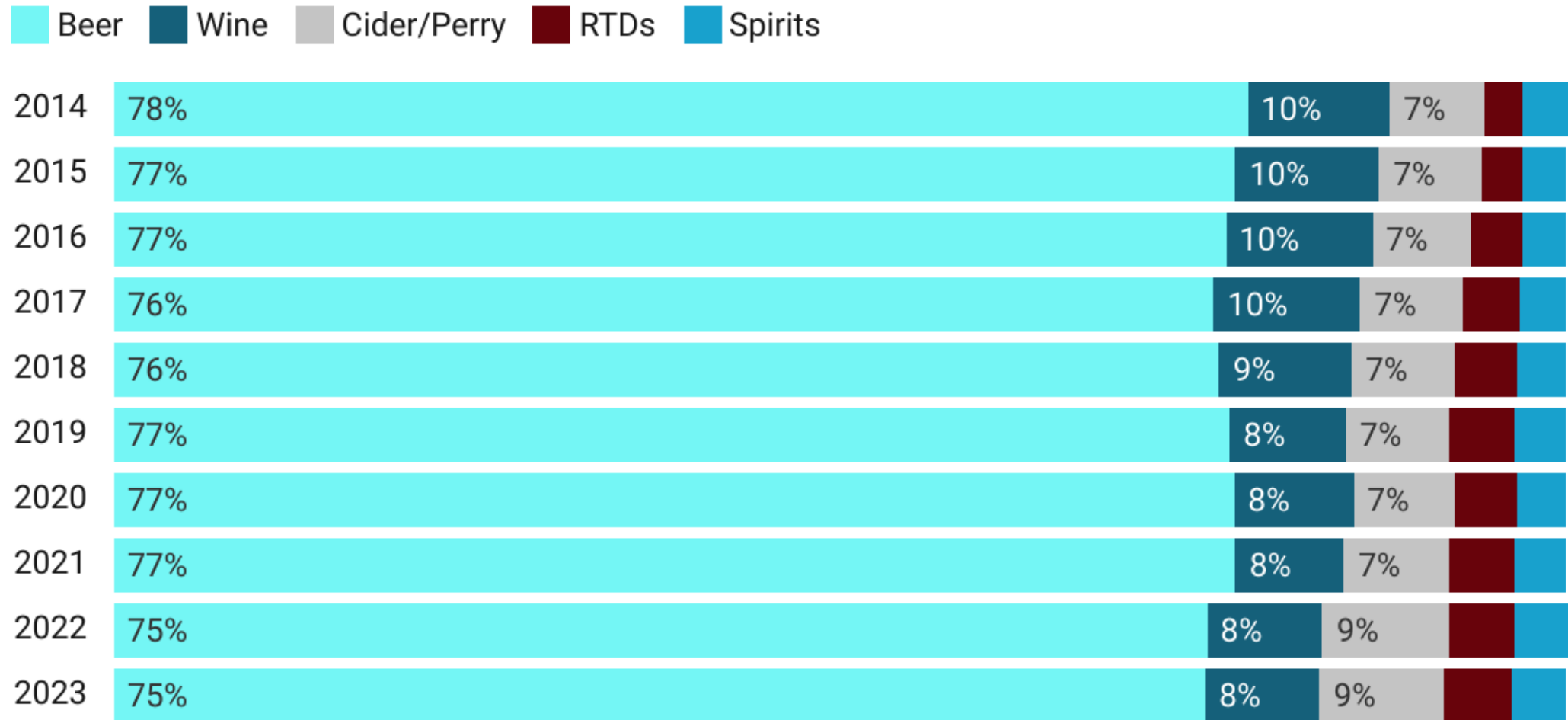
Annual per capita (age 15+) alcohol consumption

Litres of pure alcohol

Beer Sorghum beer & sorghum flour Spirits Wine



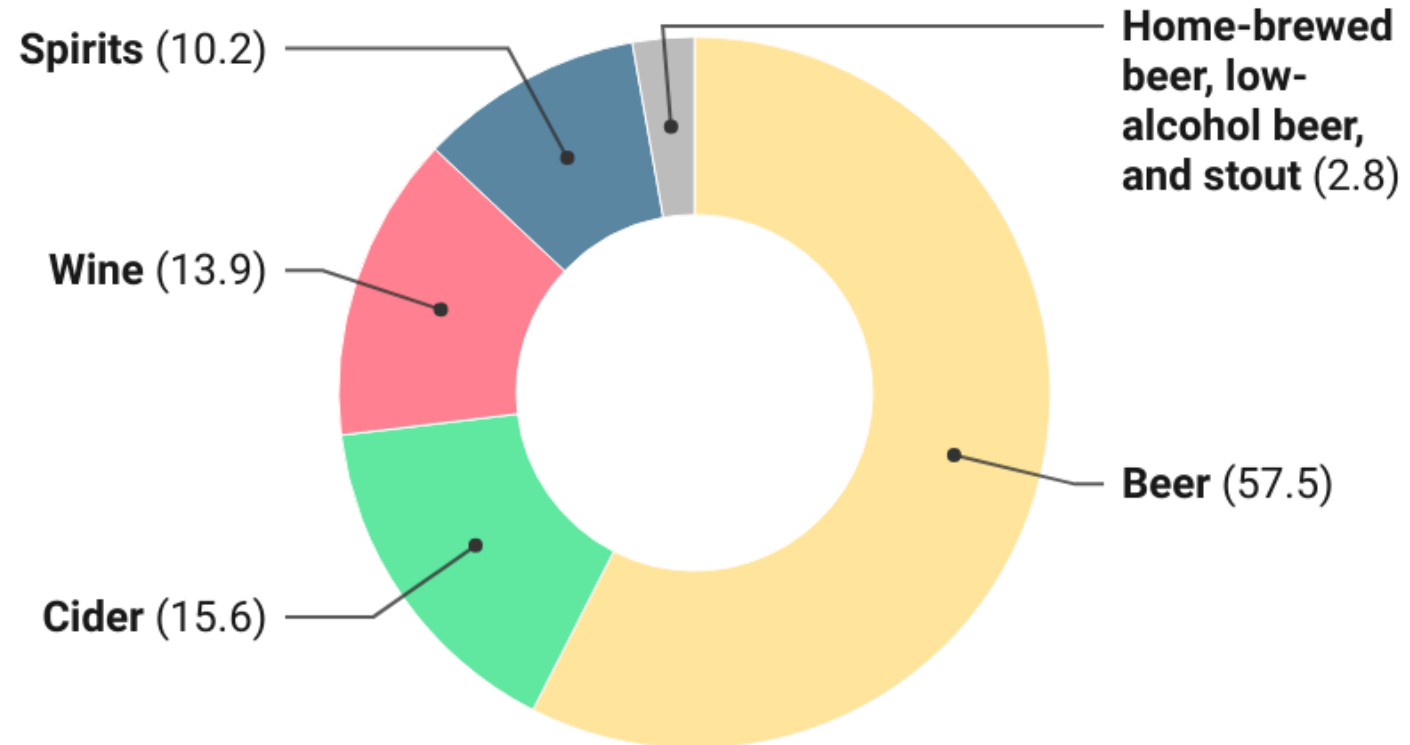
Consumption of alcoholic drinks (by volume of beverage)



Source: Euromonitor International. Alcoholic drinks in South Africa, 2014-2023 • Created with Datawrapper

What do heavy drinkers drink?

- A central question to determine the appropriate tax policy design is which alcoholic drinks are causing the most harm. Excise taxes should be aligned to the externalities caused by alcohol harm.
- 2014 Tshwane survey: Among heavy drinkers, beer is most commonly reported primary beverages consumed at primary drinking location.

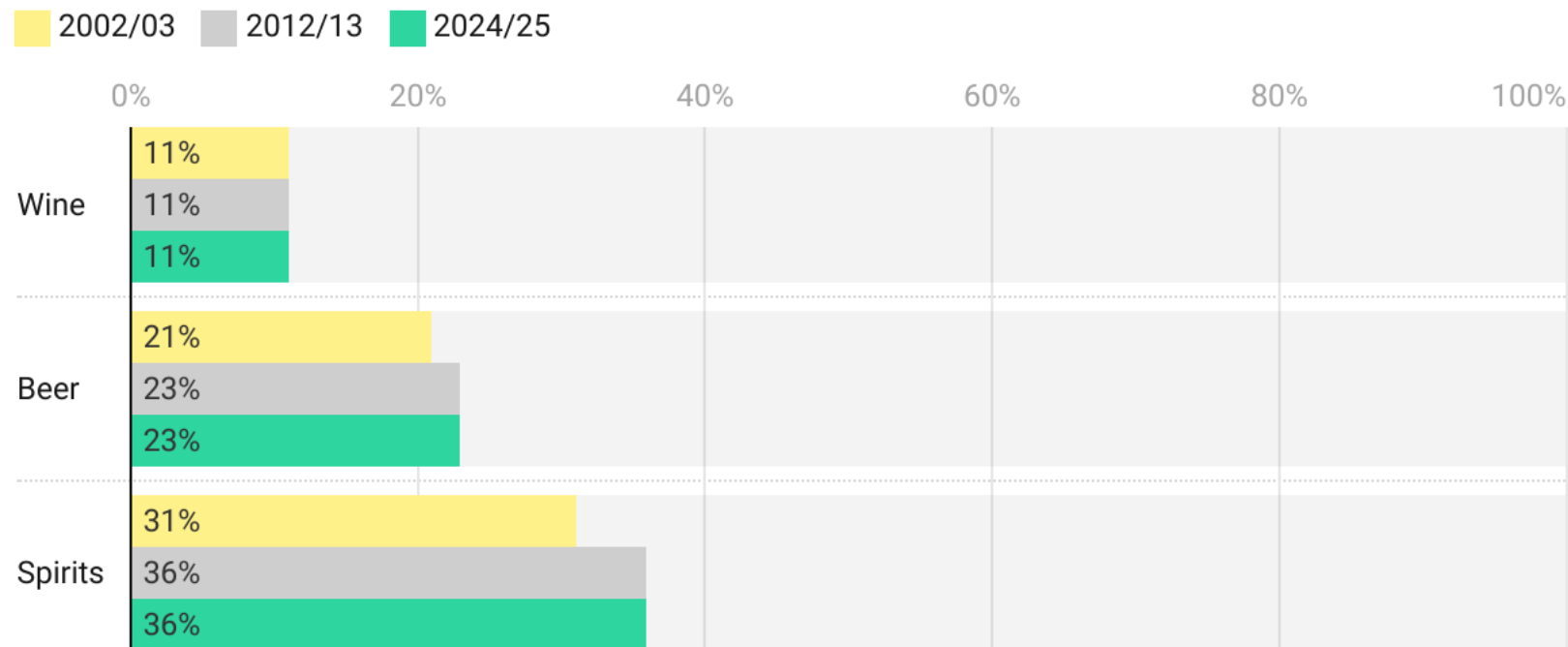


Alcohol excise taxes

How NT determine taxes - excise tax burden

$$\text{Tax burden} = \frac{\text{excise tax}}{\text{retail price}} * 100$$

- Current guideline excise tax burdens: wine 11%, beer 23%, & spirits 36% of the weighted average retail price
- **Option 1:** Keep and increase to: wine 16%, beer 28%, & spirits 42%
- Excise tax share (excise tax / retail price) is an imperfect and contradictory measure because it relies heavily on price (denominator), which is determined by industry



Source: (1). Republic of South Africa: National Treasury. A review of the taxation of alcoholic beverages in South Africa: A Discussion document. May 2014. (2). Republic of South Africa: National Treasury. Budget Review. 2024 • Created with Datawrapper

Excise tax burden varies by packaging type:



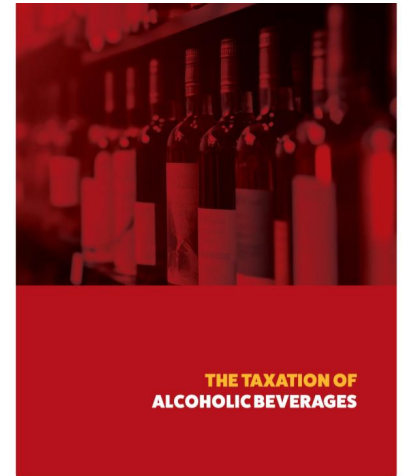
3. Excise taxes burden

	Total ml	Retail price on 4 March 2024	Excise tax	Excise tax share of retail price	Retail price /L of beverage	Excise tax /L	Cost /L of pure alcohol
Castle Lager (5%)							
1 X 330ml (bottle)	330	14.99	2.24	15.0%	45.42	6.79	908.48
24 X 330ml (bottles)	7920	259.99	53.81	20.7%	32.83	6.79	656.54
1 X 750ml (bottle)	750	19.99	5.10	25.5%	26.65	6.79	533.07
12 X 750ml (bottles)	9000	234.99	61.15	26.0%	26.11	6.79	522.20
1 X 1L (bottle)	1000	21.99	6.79	30.9%	21.99	6.79	439.80
12 X 1L (bottles)	12000	264.99	81.53	30.8%	22.08	6.79	441.65

Option 2: Scrap benchmark system and apply tiers to wine & beer

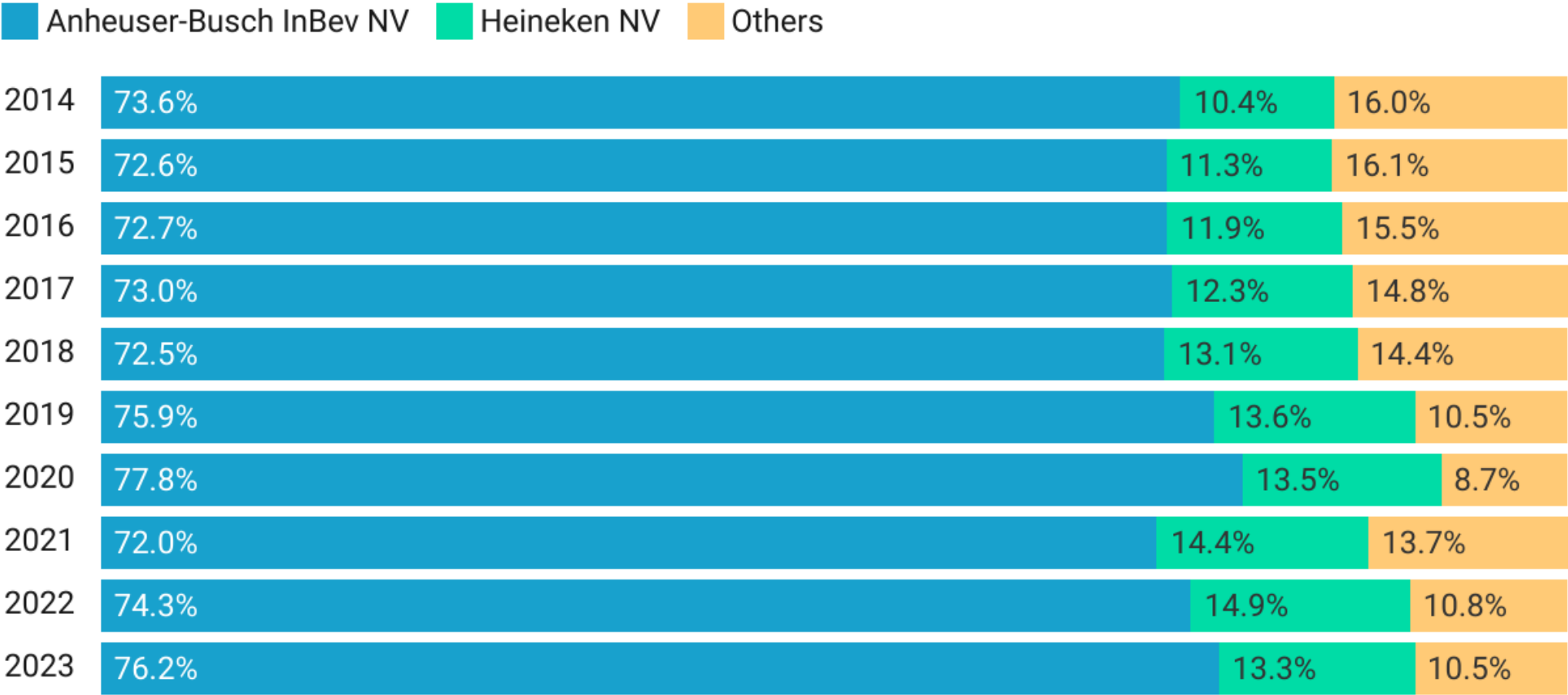
- Excise duties on alcoholic beverages have been increasing above inflation, while the weighted average retail prices have been below inflation
- Alcohol industry argues that the excise tax burden has been exceeded as a reason not to increase excise taxes
- If the industry passed through excise tax increases to consumers in the form of higher retail prices, the benchmarks would not be exceeded
- REEP supports the NT proposal to have ***a policy framework that delinks excise tax adjustments from industry's retail pricing decisions***
- ***Other policy option: tiered tax system***

Modelling the impact of **tiered** excise taxes for beer



Beer market structure in SA

1. BEER MARKET IN SA



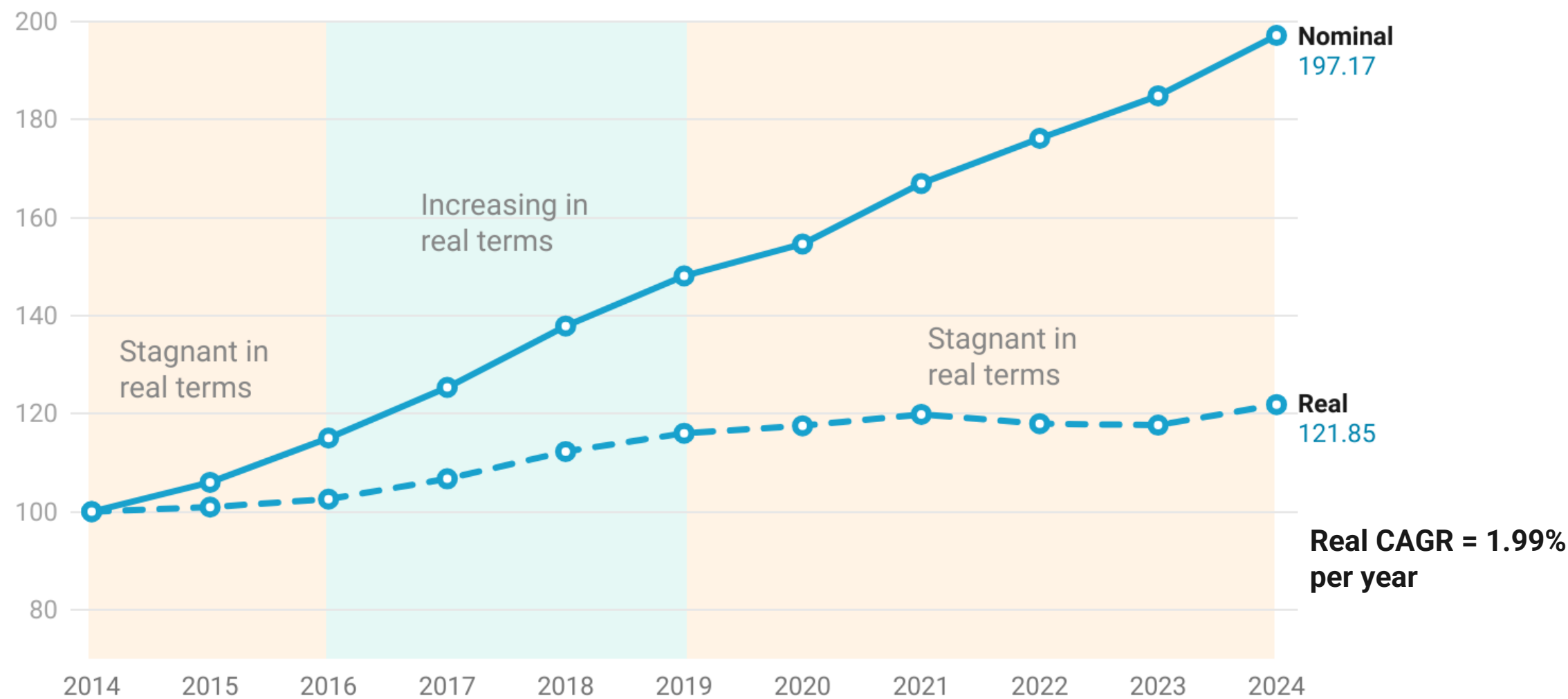
Source: Euromonitor International. Alcoholic drinks in South Africa: 2014-2023. • Created with Datawrapper

Beer brand market shares in South Africa, 2023

Brand	Producer	ABV	2023 market share
Carling Black label	Anheuser-Busch InBev NV	5.5%	23.5%
Castle	Anheuser-Busch InBev NV	5.0%	17.9%
Castle Light	Anheuser-Busch InBev NV	4.0%	14.8%
Hansa Pilsner	Anheuser-Busch InBev NV	4.2%	11.6%
Heineken	Heineken NV	5.0%	5.9%
Amstel	Heineken NV	5.0%	3.7%
Windhoek	Heineken NV	4.0%	3.3%
Chibuku	Delta Corp Ltd	4.0%	3.1%
Flying Fish	Anheuser-Busch InBev NV	4.5%	2.9%
Castle Milk Stout	Anheuser-Busch InBev NV	6.0%	2.7%
Lion Lager	Anheuser-Busch InBev NV	4.5%	2.1%
Corona	Anheuser-Busch InBev NV	4.5%	0.4%
Miller	Molson Coors Brewing Co	4.7%	0.4%
Tafel Lager	Heineken NV	4.0%	0.3%
Stella Artois	Anheuser-Busch InBev NV	5.0%	0.2%
Devil's Peak	Signal Hill Products	4.0%	0.1%
Others	Others		7.1%

Source: Euromonitor International. Alcoholic Drinks in South Africa. June 2024 • Created with Datawrapper

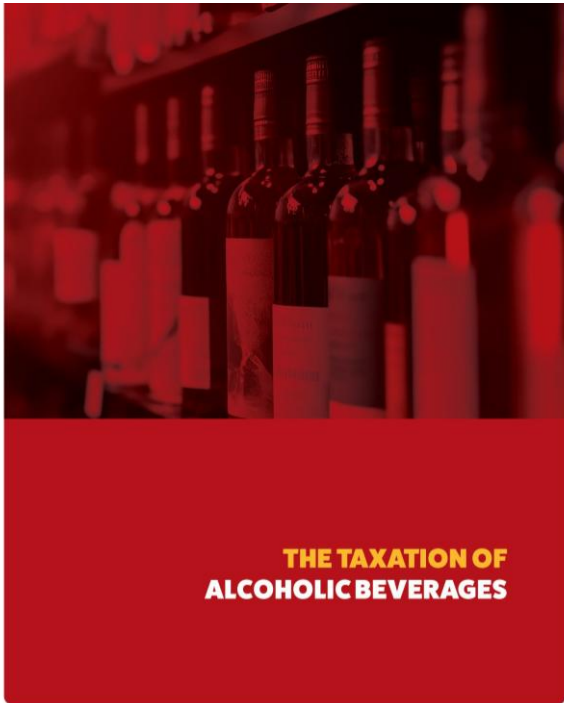
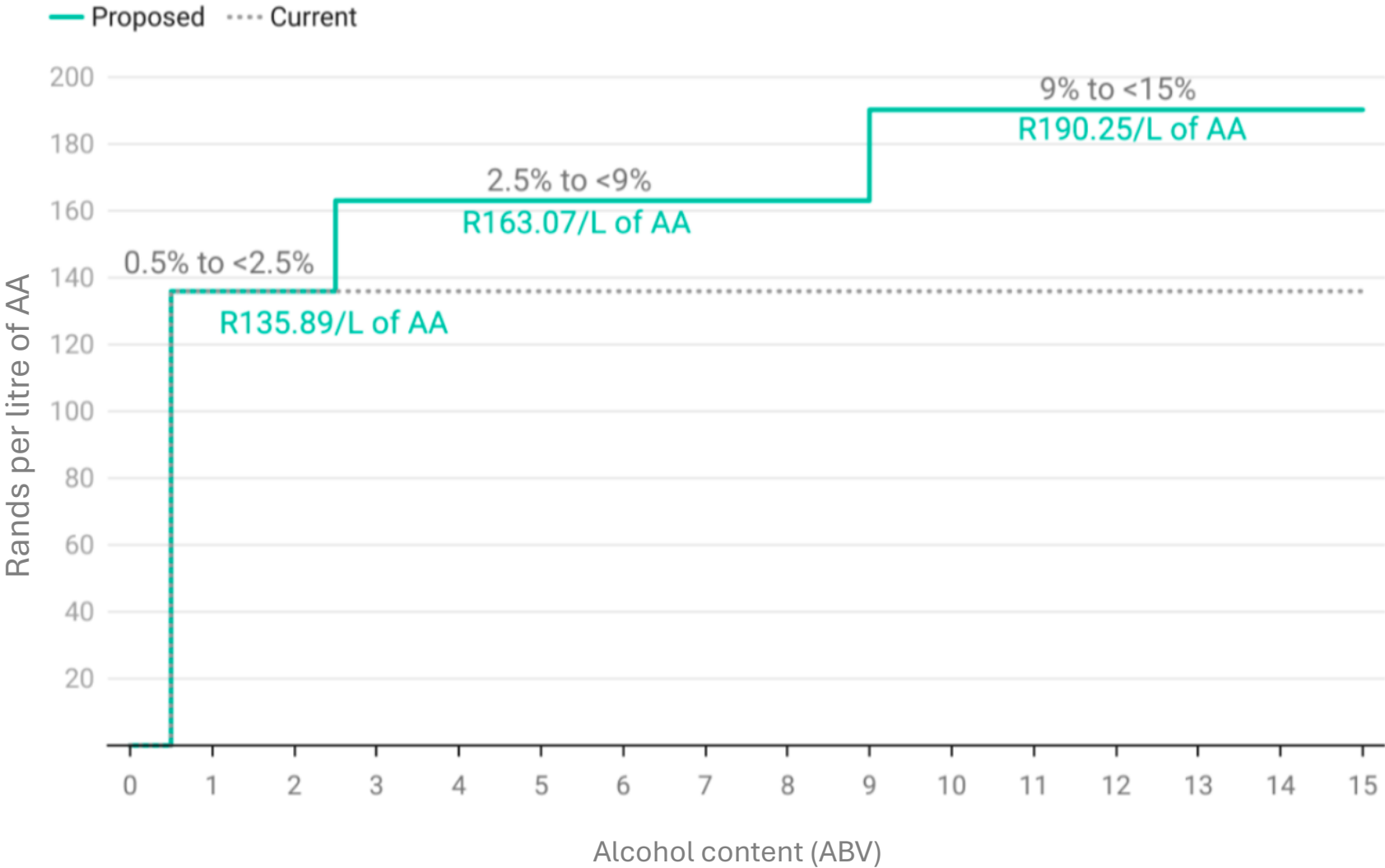
Beer excise tax over time (nominal vs real)



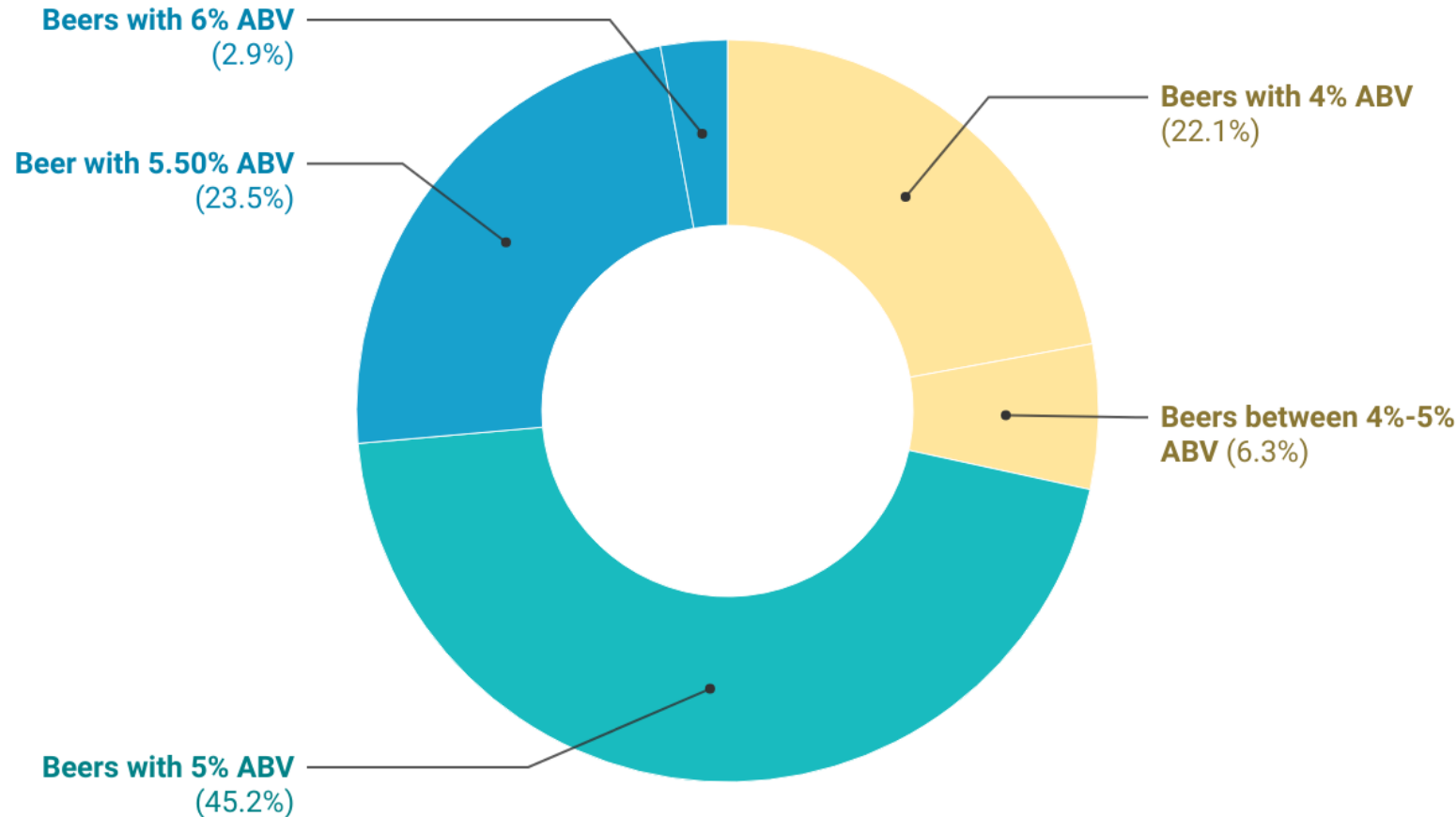
Source: Excise tax rates from Republic of South Africa: National Treasury. 2024 Budget Reviews.
<https://www.treasury.gov.za/documents/National%20Budget/2024/review/FullBR.pdf>. • Created with Datawrapper

National Treasury proposal (tiers)

2. NT'S PROPOSAL



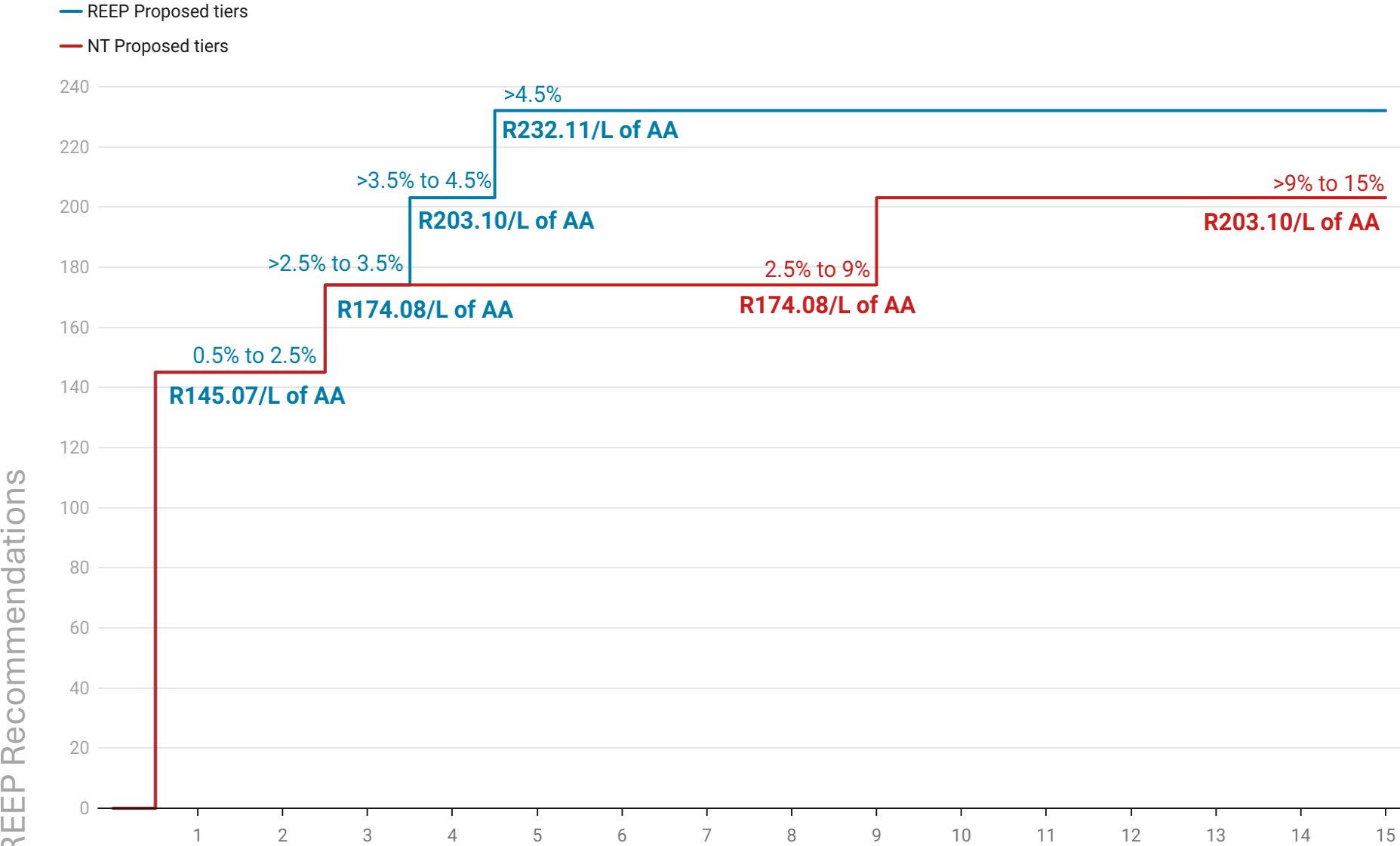
But how is the structure of the beer market in South Africa?



- Beers with more than >5% ABV account for **26.4%**
- Beers with exactly 5% ABV **45.2%** .
- Therefore:
 - Beers with **at least 5% ABV** have **71.6% market share**
- Beer with less than 5% ABV account for **28.4%**

Conclusion: More than 95% of beers fall within 2.5% to 9% ABV band.

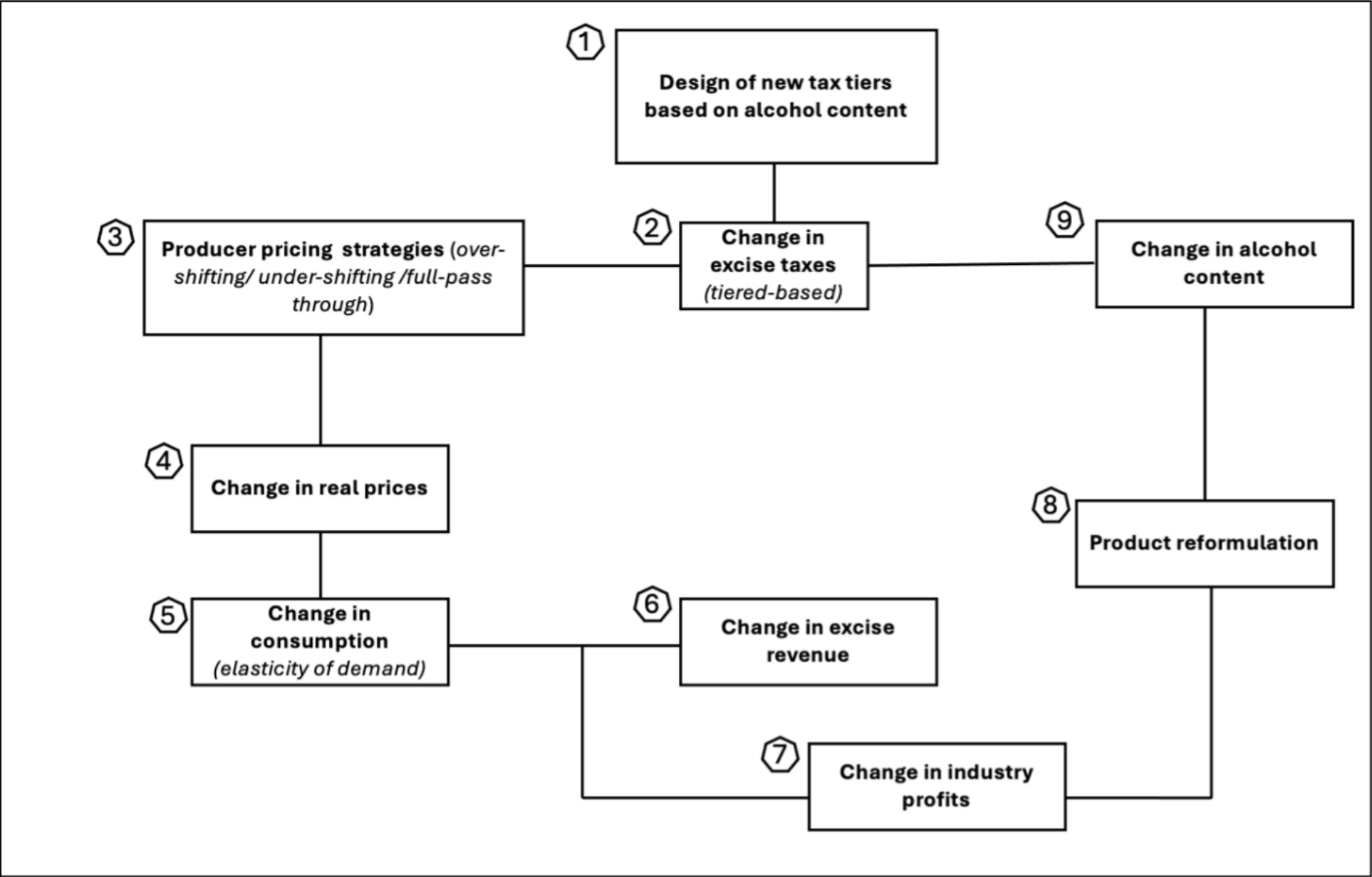
REEP proposed tiers



- Recommendation 1: Introduce a **>2.5% to 3.5% ABV tier with 1.2 uplift factor**
- Recommendation 2: Introduce a **>3.5% to 4.5% ABV tier with 1.4 uplift factor**
- Recommendation 3: Introduce a **>4.5% ABV tier with 1.6 uplift factor**

Tax Simulation Model

4. TAX SIMULATION MODEL



Tax Simulation Model

- Partial equilibrium microsimulation tool designed to estimate the impact of excise tax changes on alcohol consumption and government revenue
- Adapted the mathematical framework of the Tobacco Excise Tax Simulation Model (TETSIM)

Model parameters

Parameters	Description	Assumed Value/Range	Data Source
Excise tax	Excise tax per liter of alcohol content.	R145.06/L (current period)	National Treasury Budget 2025
Tax Pass-Through	The extent to which tax changes are reflected in retail prices.	full pass-through	Visual trend of price and taxes. Aligned to standard practice in tax modelling studies.
Price Elasticity of Demand	The responsiveness of consumers to changes in alcohol prices.	-0.45	Wagenaar et al. (2009)
Average alcohol content (AA)	The alcohol by volume (ABV) percentage of the product.	4.84%	Euromonitor
Consumption	The initial level of alcohol consumption of beer before tax changes	3 461 million litres	Euromonitor & National Treasury

4. TAX SIMULATION MODEL

Tax Simulation Model - Simulations

1. Simulation 1 - NT Scenario:

- National Treasury's proposed tiers and uplift factors.
- No reformulation of beer is assumed

2. Simulation 2 - REEP Scenario (*with no reformulation*):

- REEP proposed tiers and uplift factors are applied.
- No reformulation of beer is assumed

3. Simulation 3 - REEP Scenario (*with reformulation*):

- REEP proposed tiers and uplift factors are applied.
- Reformulation of beer is assumed

Reformulation assumptions

4. TAX SIMULATION MODEL

Brand	ABV	NT - No response		REEP (No Response)		REEP (Response)	
		Post-change ABV	Post-change uplift factor	Post-change ABV	Post-change uplift factor	Post-change ABV	Post-change uplift factor
Carling Black label	5.5%	5.5%	1.2	5.5%	1.6	4.5%	1.4
Castle	5.0%	5.0%	1.2	5.0%	1.6	4.5%	1.4
Castle Light	4.0%	4.0%	1.2	4.0%	1.4	3.5%	1.2
Hansa Pilsner	4.2%	4.2%	1.2	4.2%	1.4	3.5%	1.2
Heineken	5.0%	5.0%	1.2	5.0%	1.6	4.5%	1.4
Amstel	5.0%	5.0%	1.2	5.0%	1.6	4.5%	1.4
Windhoek	4.0%	4.0%	1.2	4.0%	1.4	3.5%	1.2
Flying Fish	4.5%	4.5%	1.2	4.5%	1.4	3.5%	1.2
Castle Milk Stout	6.0%	6.0%	1.2	6.0%	1.6	4.5%	1.4
Lion Lager	4.5%	4.5%	1.2	4.5%	1.4	3.5%	1.2
Corona	4.5%	4.5%	1.2	4.5%	1.4	3.5%	1.2
Miller	4.7%	4.7%	1.2	4.7%	1.6	3.5%	1.2
Tafel Lager	4.0%	4.0%	1.2	4.0%	1.4	3.5%	1.2
Stella Artois	5.0%	5.0%	1.2	5.0%	1.6	4.5%	1.4
Devil's Peak	4.0%	4.0%	1.2	4.0%	1.4	3.5%	1.2

Results

Variable	Units	Baseline	National Treasury Proposal		REEP Proposal			
			Simulation 1 (no reformulation)		Simulation 2 (no reformulation)		Simulation 3 (full reformulation)	
		Levels	Levels	Percentage change	Levels	Percentage change	Levels	Percentage change
Consumption of Beverage	million litres	3,463	3,398	-1.9%	3,299	-4.7%	3,415	-1.4%
Consumption of absolute alcohol	million litres	167.5	164.4	-1.9%	159.4	-4.9%	141.3	-15.7%
Government excise revenue	billion rands	24.3	28.6	17.7%	35.5	46.3%	27.4	12.9%
Average price	rands per litre	38.86	40.47	4.2%	43.21	11.2%	40.04	3.0%
Average alcohol content (ABV)	percent	4.84	4.84	0.0%	4.84	0.0%	4.14	-14.4%
Industry revenue	billion rands	92.7	91.0	-1.8%	88.5	-4.6%	91.5	-1.3%

Sensitivity Analysis

	Consumption of absolute alcohol			Government Revenue		
	Simulation 1 NT Proposal (no reformulation)	Simulation 2 REEP Proposal (no reformulation)	Simulation 3 REEP Proposal (reformulation)	Simulation 1 NT Proposal (no reformulation)	Simulation 2 REEP Proposal (no reformulation)	Simulation 3 REEP Proposal (reformulation)
Elasticity of demand						
-0.3	-1.3%	-3.4%	-15.3%	18.4%	48.6%	13.4%
-0.35	-1.5%	-3.9%	-15.4%	18.2%	47.8%	13.2%
-0.4	-1.7%	4.4%	-15.5%	17.9%	47%	13%
-0.45	-1.9%	-4.9%	-15.7%	17.7%	46.3%	12.9%
-0.5	-2.1%	-5.4%	-15.8%	17.5%	45.5%	12.7%
-0.55	-2.3%	-5.9%	-15.9%	17.2%	44.7%	12.5%
-0.6	-2.5%	-6.4%	-16.1%	17.0%	43.8%	12.3%
-0.65	-2.7%	-7.0%	-16.2%	16.8%	43.0%	12.1%
-0.7	-2.9%	-7.5%	-16.4%	16.5%	42.2%	11.9%
-0.75	-3.1%	-8.0%	-16.5%	16.3%	41.4%	11.7%

If not tiered taxes, what would it take for National Treasury?

	5-year forecast (2026-2030)		
	Consumption of Beverage	Consumption of absolute alcohol	Government Revenue
Inflation + 2%	-3.34%	-3.39%	32.36%
Inflation + 5%	-5.03%	-5.10%	49.39%
Inflation + 6%	-5.61%	-5.69%	55.36%
Inflation + 7.5%	-6.50%	-6.60%	64.61%
Inflation + 10%	-8.03%	-8.14%	80.77%
Inflation + 12.5%	-9.60%	-9.74%	97.89%
Inflation + 15%	-11.22%	-11.38%	115.96%
Inflation + 20%	-14.57%	-14.76%	154.98%
Inflation + 21%	-15.25%	-15.45%	163.24%
Inflation + 25%	-18.01%	-18.23%	197.81%
Inflation + 30%	-21.50%	-21.75%	244.42%

What did we show with this modelling exercise?

- Traditionally we recommend excise tax increases because it reduces the demand for the product
- That recommendation still stands
- However, if we design the newly proposed tax structure appropriately, we can create incentives for producers to reduce the harmfulness of the product
- Doing this for beer can yield substantial health benefits

Recommendations

1. Adopt a tiered excise tax structure based on alcohol content

- Replace the flat-rate system with a progressive tiered structure that increases tax rates with alcohol strength.

2. Implement targeted tax tiers

- Introduce refined tiers within the 2.5%–9% ABV range to reflect market realities and to incentivize reformulation:
 - 0.5% to 2.5% ABV: Uplift factor 1.0
 - 2.5% to 3.5% ABV: Uplift factor 1.2
 - 3.5% to 4.5% ABV: Uplift factor 1.4
 - Above 4.5% ABV: Uplift factor 1.6

3. Annual excise tax duty rate adjustments

- Increase alcohol excise taxes by **4% percentage points above inflation** annually for the next 5 to 10 years to reduce affordability. This adjustment reflects the combined growth in inflation and per capita GDP.

Limitations & future work

- No disaggregated consumption data – to create and calibrate consumption weights.
- Lack of cross-price elasticities – to allow us to measure substitutions between alcoholic products.
- Future work - modelling scenarios:
 - Scenario: Industry over-shift prices to consumers + no reformulation
 - Scenario: Modelling different reformulation permutations
- Any suggestions from this forum will be appreciated.



Thank you

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Appendix – Additional Simulations

Simulation 4 - REEP Scenario with aggressive uplift factors for >4.5% ABV (*with no reformulation*) :

- Aggressive **uplift factor of 2.0** applied to beers with alcohol content **> 4.5% ABV**.
- No reformulation of beer is assumed

Simulation 5 - REEP Scenario with aggressive uplift factors for >4.5% ABV (*with partial reformulation*) :

- Aggressive **uplift factor of 2.0** applied to beers with alcohol content **> 4.5% ABV**.
- **Only reformulation of beers with >4.5% ABV**

More simulations (aggressive uplift factors)

Variable	Units	Baseline	REEP Proposal		REEP Proposal (aggressive uplift factors for >4.5% ABV)			
			Simulation 2 (no reformulation)		Simulation 4 (no reformulation)		Simulation 5 (partial reformulation)	
		Levels	Levels	Percentage change	Levels	Percentage change	Levels	Percentage change
Consumption of Beverage	million litres	3,463	3,299	-4.7%	3,226	-6.8%	3,378	-2.4%
Consumption of absolute alcohol	million litres	167.5	159.4	-4.9%	155.6	-7.1%	147.8	-11.8%
Government excise revenue	billion rands	24,304	35.5	46.3%	40.8	68.0%	30.0	23.7%
Average price	rands per litre	38.86	43.21	11.2%	45.46	17.0%	41.02	5.6%
Average alcohol content (ABV)	percent	4.84%	4.84	0.0%	4.84	0.0%	4.37	-9.6%
Industry revenue	billion rands	92,699	88.5	-4.6%	86.6	-6.5%	90.4	-2.4%