Report prepared for SALBA, BASA and VinPro

Measuring the economic impact of the alcohol bans

An overview of the methodology and data used in quantifying the economic impact of the ban on alcohol sales

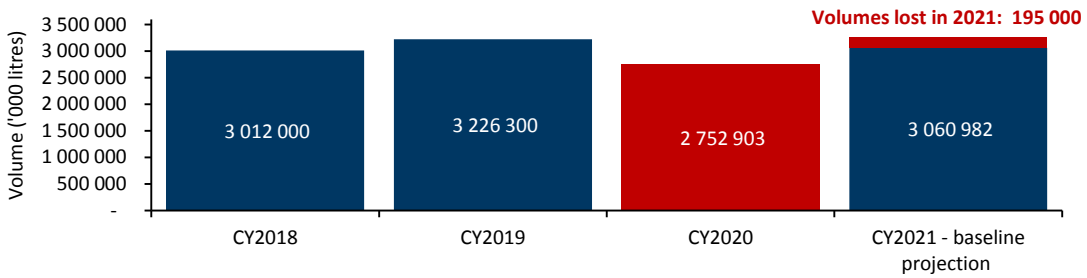
FTI CONSULTING™

12 February 2021

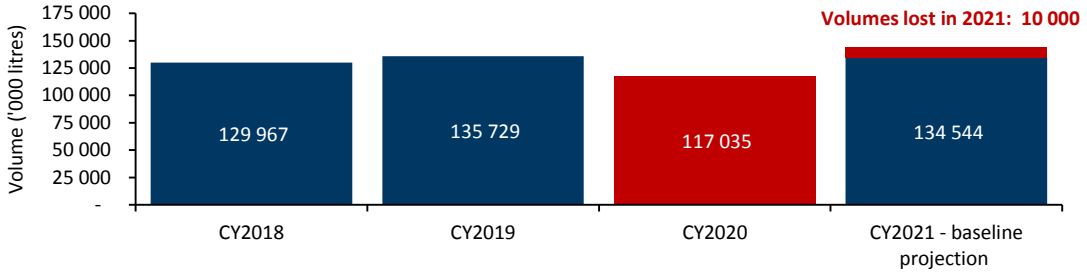
Introduction and context

Introduction and context

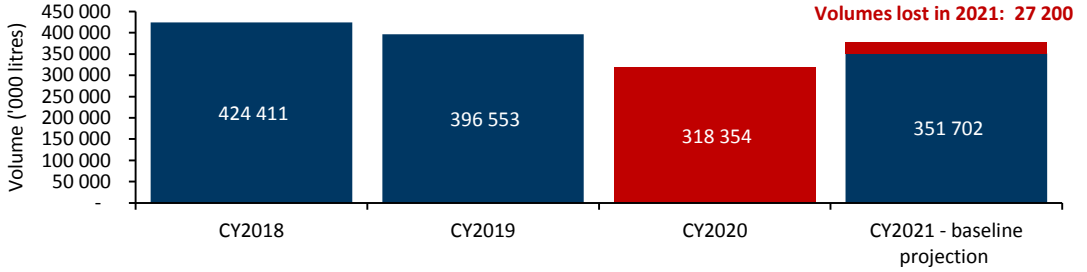
Beer volumes: 2018 – 2021F



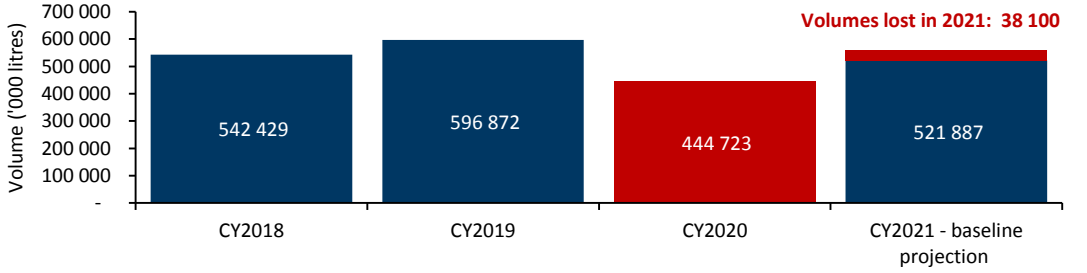
Spirits volumes: 2018 – 2021F



Wine volumes: 2018 – 2021F



RTD volumes: 2018 – 2021F



- During the course of 2020 and 2021, multiple bans on the sale of alcohol were implemented in South Africa:
  - Ban 1: 26 March 2020 – 1 June 2020 (9 weeks including 5 week ban on exports)
  - Ban 2: 12 July 2020 – 18 August 2020 (5 weeks)
  - Ban 3: 28 December 2020 – 1 February 2021 (5 weeks)
- As a result, the alcohol industry lost approximately 30% of sales opportunities in 2020.
- This has had a significant effect on alcohol sales in all categories in 2020. **Overall, alcohol sales volumes declined by almost 17% relative to 2019.**
- The impact of the third alcohol ban has already been felt in 2021. Relative to a baseline projection* for 2021, sales in all alcohol categories have declined:
  - Beer sales have declined by 195 million litres
  - Spirits sales have decline by 10 million litres
  - Wine sales have declined by 27.2 million litres
  - RTD sales have decline by 38.1 million litres
- FTI Consulting has quantified the economic impact of the sales bans in 2020 and 2021.

*The baseline projections for 2021 are an estimated of ales volumes in a "Business as usual – BAU" scenario. In other words, these are the projected sales volumes that would occur on the basis of macroeconomic economic conditions in the market, **in the absence of any ban of sales**. The 2021 forecast + the volumes lost YTD constitute the baseline projection per alcohol category. Assumptions and data underlying the baseline projection for 2021 are detailed in the ***Note on Interpretation*** (page 19) and the ***Appendix***.

Determinants of alcohol consumption in 2020

SA Liquor market performance

- Sales bans in 2020 removed 30% of available sales opportunity
- Total industry volumes declined by 17%
- Differential rates of decline across categories - Beer & RTDs (-15%), Wine (-20%), Spirits (-12%)

Key drivers of market performance

- Consumers trading down to more affordable alcohol offerings due to income decline
- On premise consumption & curfew restrictions impacts Beer & RTDs significantly
- Consumers stockpiling beverages which last longer & do not require refrigeration (Spirits & Wine)
- Stock outs occurred in trade due to volatility of short term demand surges post lifting sales bans (short term)

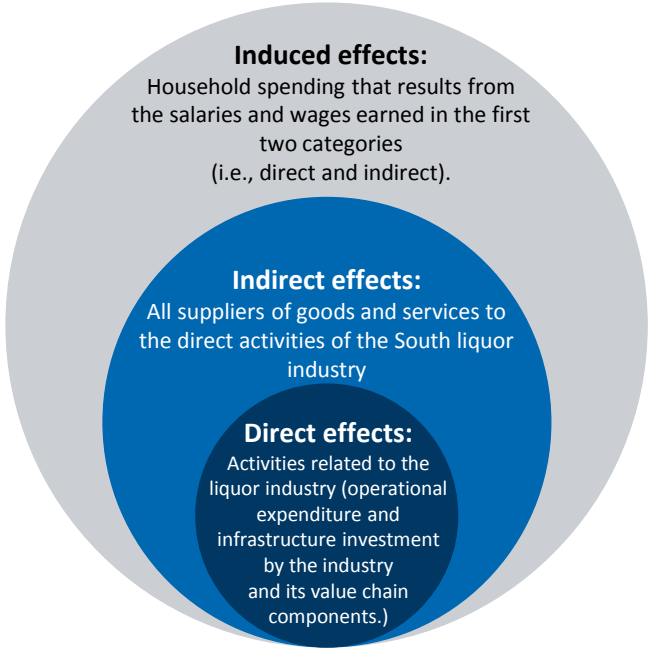
Methodology

Methodology

Modelling and analysis – approach to socio-economic contribution

Total economic contribution = direct + indirect + induced effects

Total economy wide effect is the sum of:



For example:

Direct effects	Indirect effects	Induced effects
e.g. liquor manufacturer purchases grapes/ apples from the agriculture industry	e.g. Agricultural industry hires additional labour to meet the demand for grapes/apples	e.g. Hired labourer uses income to service car at local garage

- The socio-economic impact assessment (SEIA) employs the **"input-output" (I-O) methodology** to model the economic impact and contribution of the liquor industry and its value chain in South Africa. The method is practically implemented using a Social Accounting Matrix (SAM) to represent the South African economy statistically.
- The method quantifies the upstream and downstream linkages that the liquor industry has with other industries in the economy. Specifically, the liquor industry buys or sells directly from several industries, and its customers and suppliers may be intricately connected to other unrelated industries. As a result, the liquor industry may have a profound influence on the economy through its direct and indirect relations with other industries.
- The I-O method, therefore, traces the flow of money through the economy to capture how the output of one sector becomes the input of another, that is, how the industries depend on one another.
- The SAM-based analysis begins with an injection of demand into the economy (initial impact) and estimates the total (economy-wide) impact in the following sequence:[1]
  - The **initial economic impact** (injection) is the result of operational and capital expenditures by the liquor industry and represents the industry's employment numbers, capital expenditure and tax contributions;
  - The **first-round effects** (i.e., direct suppliers and trade) consider the impact of ongoing spending on and by direct suppliers to the liquor industry (e.g., production, employment and tax revenue stimulated at first-round suppliers);
  - The sum of the initial injection (e.g., the total production/turnover of the liquor industry, the intermediate goods bought, the salaries and wages paid, and the profits generated by the liquor industry) and the impact on its first-round suppliers constitute the **direct impact;**
  - **Indirect impact**, also referred to as the "rest of indirect" or ROI, measures the contribution of the liquor industry's direct suppliers and trade partners who purchase goods and services from their suppliers (i.e., suppliers' suppliers), who in turn remunerate their employees and pay taxes; and
  - **Induced effects**, which consist of the spending by households of the extra income they derive from the salaries and wages earned in the first two categories. This spending, in turn, generates further production by industries.
- When the direct, indirect and induced effects are summed, we derive the total economy-wide impact of the liquor industry.

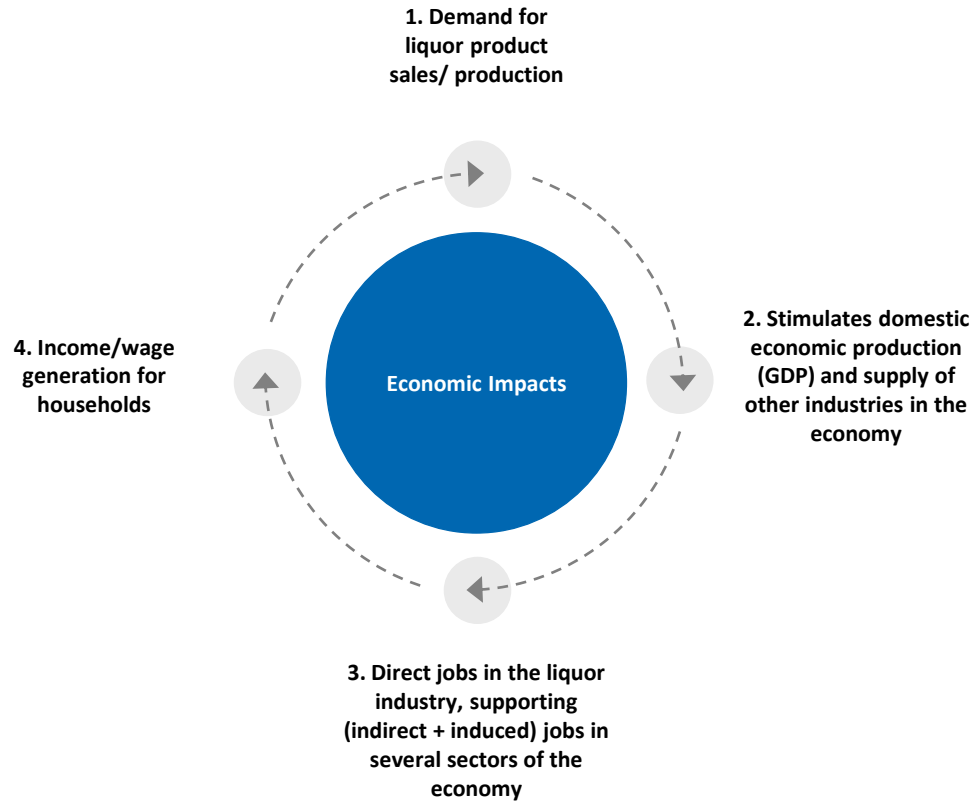
Source: *[1] British American Tobacco South Africa (2016). The contribution of British American Tobacco South Africa to the South African economy. A study conducted by Quantec Research.*

Methodology

Modelling and analysis – approach to the socioeconomic contribution

Multiplier effects across the broader South African economy

- The **SEIA quantifies the impact of the liquor industry and its identified alcoholic beverage categories, the liquor industry value chain and the rest of the economy** in terms of the following macroeconomic aggregates:
  - **Gross Domestic Product** (GDP) **/ Value Added** (GVA);
  - **Intermediate output** (production inputs or the intermediate output of the supplying sectors);
  - **Employment creation** (e.g., formal – skilled, semi-skilled, unskilled and informal employment; by race, by gender, by type);
  - **Capital utilisation/formation** (i.e., fixed investment);
  - **Household income** (e.g., low-, middle- and high-income households or households by income decile);
  - **Fiscal impacts** (i.e., tax revenue); and
  - **Balance of Payments** (i.e., exports and imports);
  - **Social Impacts** (i.e., impact on community services such as hospitals and schools can result from an increase in government income derived from direct and indirect taxes).
- The **multiplier effect** comes about because the demand for commodities (e.g., beer, brandy, whiskey, white spirits, wine, etc.) produced by the liquor industry results in economic activity and demand for inputs in the liquor industry value chain – this results in multiple rounds of spending in the economy.
- By manufacturing, packaging, exporting and distributing alcoholic beverage products, the liquor industry stimulates economic activity throughout the entire alcoholic beverage value chain, benefitting a wide range of producers and suppliers, such as agriculture (upstream linkages), as well as wholesalers, retailers, distributors and the hospitality industry (downstream linkages). These upstream and downstream activities generate additional income and tax revenue, which, in turn, is spent in the economy, thereby inducing further economic benefits.
- This can lead to a bigger eventual final effect on output, value added and employment, capital investment, amongst others, than simply the direct contribution of the liquor industry due to the inter-linkages between the wine industry and the rest of the economy.
- The figure provides further illustration of the knock-on effects of the liquor industry's business activities on the South African economy.

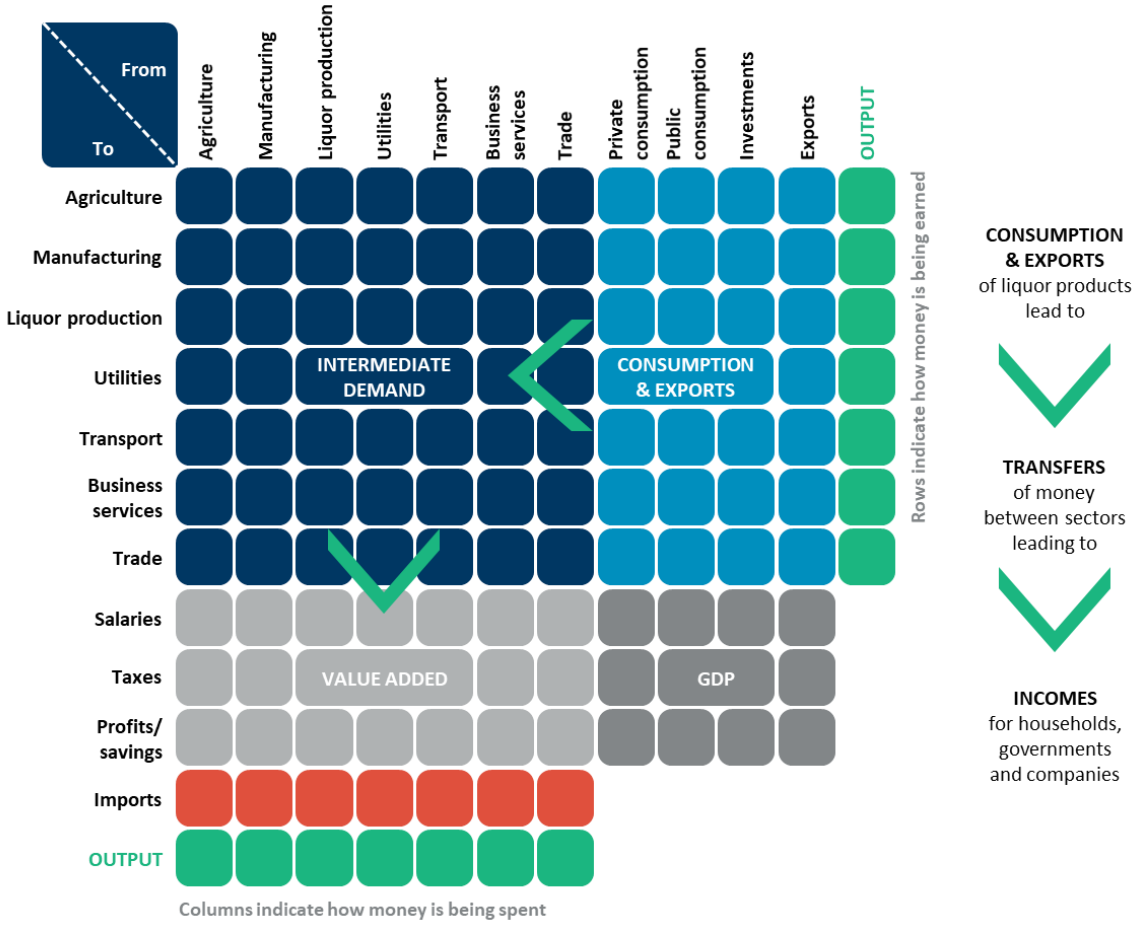


Methodology

Modelling and analysis – approach to the socio-economic contribution

The Social Accounting Matrix (SAM) is the heart of the methodology and approach

- A SAM is a square matrix representing all the financial transactions between productive and non-productive institutions and markets, such as factor markets, savings-investments, households, government, and the rest of the world at a specific point in time, i.e., a snapshot.[1]
- At the heart of the SAM is an I-O table, which shows what goes into the economy, and what is produced from it. These flows or linkages capture the integrated/ connected nature of each sector in the economy.
- The analysis will use a 2019 SAM for South Africa, built and disaggregated using data from several sources: liquor industry value chain cost items from the various industry role players; National Accounts from the South African Reserve Bank (SARB) Quarterly Bulletin; SARS tax statistics, income and expenditure surveys; labour force surveys; Gross Domestic Product statistical release (P0441), and Stats SA's Supply- and Use Tables (SUTs).
- In the SAM, illustrated on the right, final consumption induces production of liquor products, which leads to financial transfers between the various sectors which subsequently generate incomes for households, governments (taxes) and profits (revenue and savings) for companies.
- The liquor industry is included in the SAM by adding additional rows and columns to incorporate the liquor industry value chain (shown on the previous slide.)
- To measure the economic impact of the liquor industry's activities, data on the interdependence of sectors in the SAM and industry data from the various industry role players on their collective transactions across different sectors are combined. In other words, the key parts of the liquor industry value chain are included as additional 'sectors' and 'commodities' in the SAM to capture the transactions between the liquor industry and the rest of the economy in the same way that transactions between sectors are captured.
- The last step in constructing and disaggregating the liquor industry value chain in the SAM is to normalize it such that all columns add up to one. The final liquor product consumption can then be traced in money terms throughout the South African economy.
- The next slide provides a breakdown of the liquor industry value chain to be incorporated in the SAM.



Sources: *[1] Philippidis G., Sanjuan A., Ferrari E. and M'barek R. 2014. Employing Social Accounting Matrix Multipliers to Profile the Bioeconomy in the EU Member States: Is There a Structural Pattern? Spanish Journal of Agricultural Research, 12(4): 913-926. [2] Figure adapted from "The Socio-Economic Impact of the Coca-Cola System in Bulgaria," a study conducted by Steward Redqueen, May 2018.*

Methodology

Modelling and analysis – approach to the socio-economic contribution

Liquor industry value chain and related sectors' disaggregation in the SAM: List of original and new activities and commodities

Sector and sub-sector description	SIC (5th edition)			
MANUFACTURE OF FOOD PRODUCTS, BEVERAGES AND TOBACCO PRODUCTS	**30**			
MANUFACTURE OF BEVERAGES		305		
Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials; manufacture of wine			3051	30510
Manufacture of beer and other malt liquors and malt			3052	
Breweries, except sorghum beer breweries				30521
Sorghum beer breweries				30522
Manufacture of malt				30523
Manufacture of soft drinks; production of mineral waters			3053	30530

Proposed structure of the SAM

- Use 2019 SAM as foundation:
  - 62 activities and 104 commodities
  - 4 labour groups by skill level
  - 1 capital factor
  - 14 households by deciles, with the highest decile further disaggregated
  - Tax, investment (capital) and trade accounts
- Expand SAM to include:
  - Current alcoholic beverage production on an activity level
  - Current upstream and downstream activities linked to the liquor value chain
  - Can split liquor commodity outputs into more product detail – beer, wine, spirits, cider and flavoured alcoholic beverages – subject to data availability
  - Since the objective of the study is to calculate multipliers for various alcoholic drinks/products, the industry and commodity accounts for the agricultural sector are disaggregated considerably within the SAM to better distinguish between the distribution of raw materials as inputs for each product. The agricultural sector is disaggregated into 31 industries and 31 commodities using the United Nation's Central Product Classification (CPC) version 2.1 and ISIC Rev 4 classifications.

- To calculate the multipliers for beer, wine, spirits, cider and flavoured alcoholic beverages separately, each of these products will be split from the 'Beverages and tobacco' sector. The 'Beverages and tobacco' sector in the SAM is an aggregate of the following sub-sectors (according to the 5th edition of the Standard Industrial Classification of all Economic Activities (SIC)[1] as published by Stats SA (1993)) as shown in the Table.
- The group SIC3051 (in the table above), according to Stats SA, includes the "manufacture of distilled, potable, alcoholic beverages such as whisky, rum, brandy, gin, prepared mixed drinks, liqueurs, cordials, liquors or other alcoholic beverages containing distilled ethyl alcohol, as well as the manufacture of other fermented but not distilled alcoholic beverages such as perry, cider, mead or sake." The brewing of malt liquors is classified under group 3052 (Manufacture of beer and other malt liquors and malt).

Notes: The Standard Industrial Classification of all Economic Activities (SIC) is used to disaggregate the relevant sectors to include the liquor-specific and related sub-sectors or industries and their respective commodities and services. The SIC (5th edition) is based upon the International Standard Industrial Classification of all Economic Activities (ISIC) with suitable adaptations for local conditions – published by Statistics South Africa (Stats SA), https://www.statssa.gov.za/additional_services/sic/sic.htm.

A granular understanding of the value creation of the liquor industry requires a bottom-up approach, with total impact achieved through a top-down methodology

	Definition	Calculation	
	▪ Direct impact — Value created directly from the liquor industry (e.g., primary agriculture, producers and manufacturing)	▪ Collate and disaggregate liquor industry data to understand the value created by the industry and the identified alcoholic beverage categories	Bottom-up methodology
	▪ Supplier impact — Value resulting in first level suppliers of the liquor industry (e.g., fertilizer manufacturers, wine grapes, apples, barley, fuel manufacturers, etc.)	▪ Allocate liquor industry demand for intermediate inputs (expenses) to understand the value created through direct suppliers	
	▪ Indirect impact (suppliers' suppliers) — Activity resulting further down the value chain during liquor product manufacturing (e.g., transport, retail trade, etc.)	▪ Use indirect multipliers with direct liquor industry input data	Top-down methodology
	▪ Induced impact — Impact resulting from more money in the economy because of the activity (e.g., restaurants, transport services, improved medical facilities, etc.)	▪ Use induced multipliers with direct liquor industry input data	

Sources: *Framework adapted from "Socio-economic deep dive: How South Africa's energy future can impact the Socio-Economic landscape of the country," a study conducted by McKinsey & Company, February 2014.*

Assumptions

Key assumptions underlying the economic impact assessment

- FTI has modelled the impact of a 5-week ban on alcohol sales (i.e., from 29 December 2020 until 2 February 2021).
- The model takes account of some recovery in sales when the ban is lifted. The recovery rate of sales is calculated based on what we saw in 2020 when bans on alcohol sales were lifted, with different alcohol categories recovering at different rates.

The calculation of the cumulative impact of the ban depends on various assumptions:

- We allow for a recovery in alcohol sales to vary by product category: for spirits and wine, we allow for a recovery rate of 10%; for beer and cider, we allow for a recovery rate of 5%. Recovery rates are based on those observed following the alcohol bans put in place during 2020, following the end of each prohibition period.
- Given that the analysis quantifies the annual impact, and following the initial prohibition period, there would be structural changes across the industry supply chain and economy. It is important to include such adjustments to allow for an accurate calculation of the annual economy-wide impact.
- The most recent industry multipliers are used to quantify the economy-wide impact on GDP, employment and tax revenue (excluding excise tax), using the adjusted direct impact.
- The impact on each metric is expressed relative to the national total in 2019 to illustrate the relative impact.
- The results are presented as annualized changes (losses) in the industry and economy.

Key assumptions underlying the analysis of the impact of the alcohol sales ban and the applied economic impact assessment methodology, are provided here and in the Appendix.

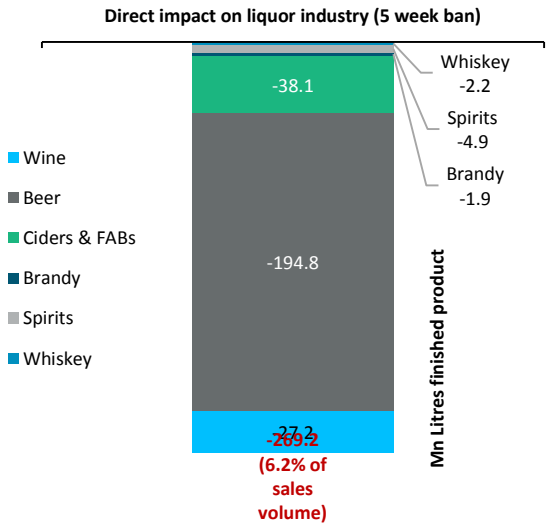
The **multiplier effects come in 4 types**:

- **Direct effects**, which include all activities directly related to the liquor industry, e.g., output produced, local salary and tax payments, as well as direct employment;
- **Indirect effects**, which measures the contribution of the liquor industry's direct suppliers and trade partners (i.e., employment and income generated by suppliers and retailers), who purchase goods and services from their suppliers (i.e., suppliers' suppliers), who in turn remunerate their employees and pay taxes;
- **Induced effects**, which consist of the spending by household of the extra income they derive from the salaries and wages earned in the first two categories. This spending in turn generates further production by industries.
- **Total effects** are the sum of the direct, indirect, and induced effects.

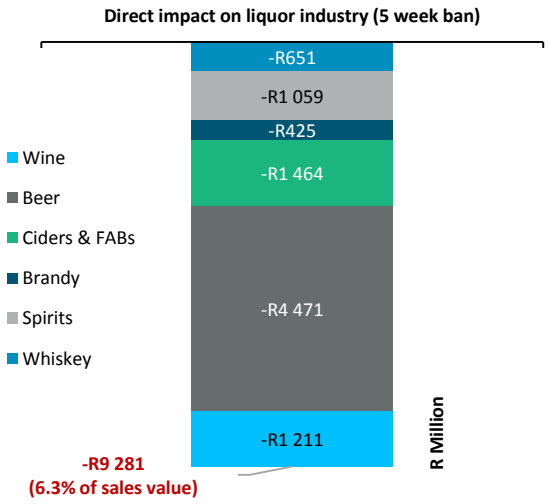
Economic impact of the third ban on alcohol sales

Direct impact of the third alcohol sales ban: 28 December 2020 – 2 February 2021

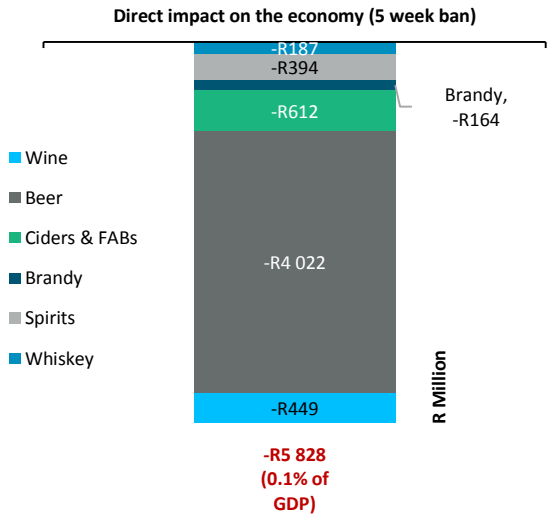
The potential sales volume lost (in terms of millions of litres finished product) is estimated to be 269.2 million litres. This is equivalent to 6.2% of projected sales volumes for 2021.



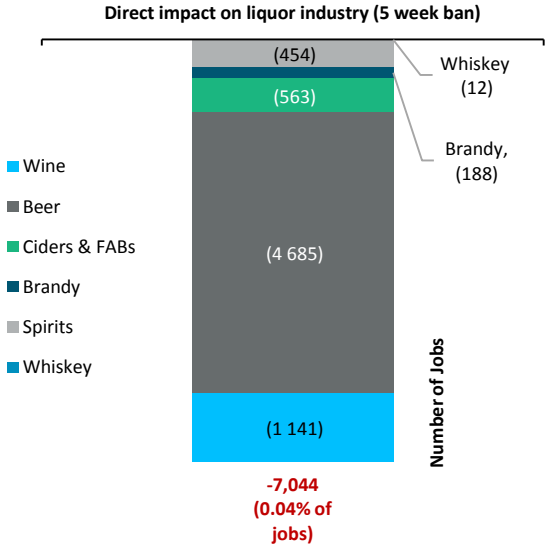
The potential retail sales revenue that will be lost is estimated to be R 9.3 billion. This is equivalent to 6.3% of projected sales values for 2021.



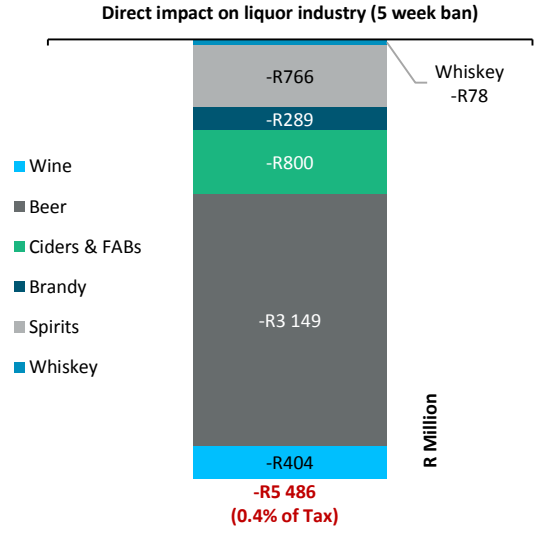
The potential direct loss in GDP is estimated to be R 5.8 billion. This is equivalent to 0.1% of national GDP at market prices for 2019.



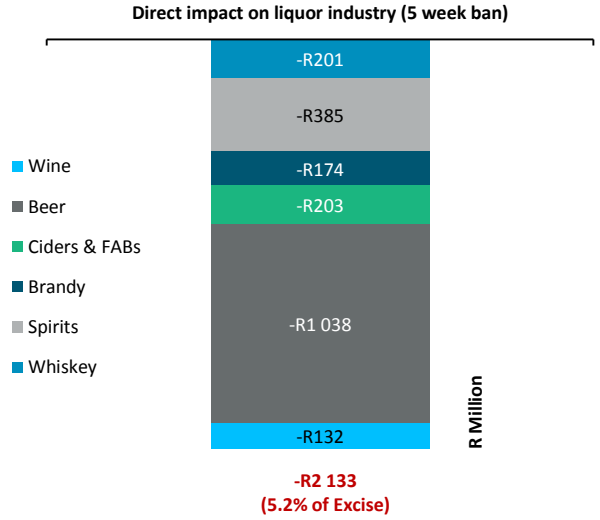
7 043 jobs are at risk as a result of the direction impact of the ban. This is equivalent to 0.04% of national total (formal + informal) employment for 2019.



The potential direct tax revenue (excluding excise tax) lost is estimated to be R 5.5 billion. This is equivalent to 0.4% of national tax revenue (excluding excise taxes) for 2019.



The potential direct excise tax income lost is estimated to be -R 2.1 billion. This is equivalent to 5.2% of excise revenue in 2019.



Economy-wide impact of the third alcohol sales ban: 28 December 2020 – 2 February 2021

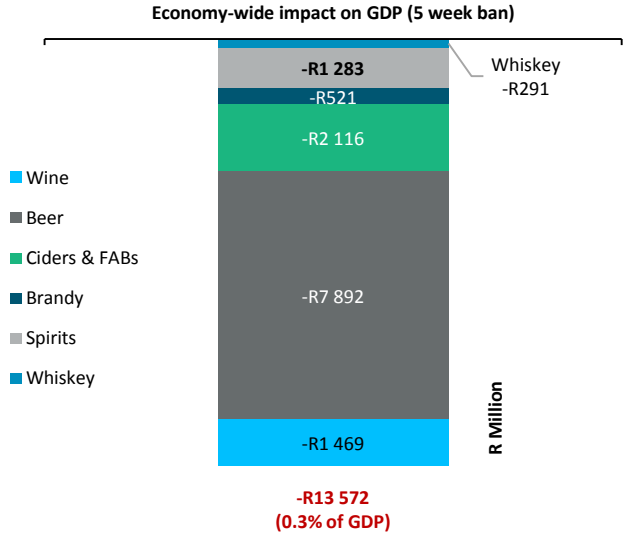
Total (Economy-wide) Impact

-R13.6 Total GDP impact (R Billion)
-51,401 Total jobs at risk (Number of Jobs)
-R7,477 Total govt revenue (excl. excise)
-R21.7 Total capital formation (R Billion)

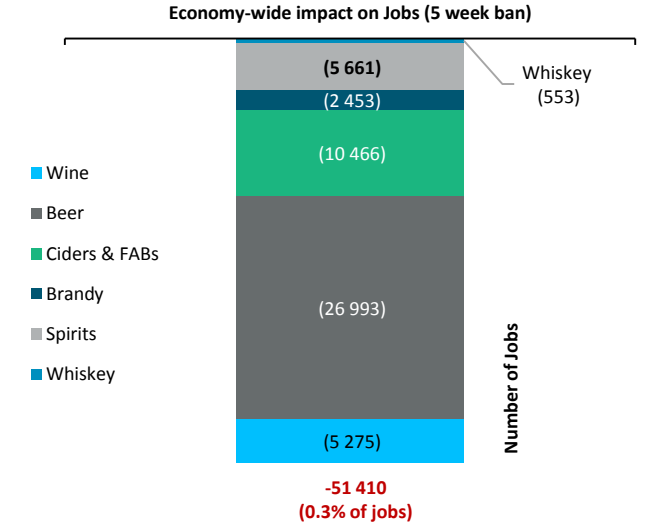
Total Industry-wide Impact on Number of Jobs

-51,401 Total jobs at risk
-8,883 - Agriculture
-211 - Mining
-8,315 - Alcoholic beverages
-2,258 - Manufacturing
-158 - Utilities
-553 - Construction
-5,855 - Wholesale and retail trade, hospitality
-1,089 - Transport, storage and ICT
-5,209 - Financial and business services
-144 - General government
-18,726 - Community services (incl. informal)

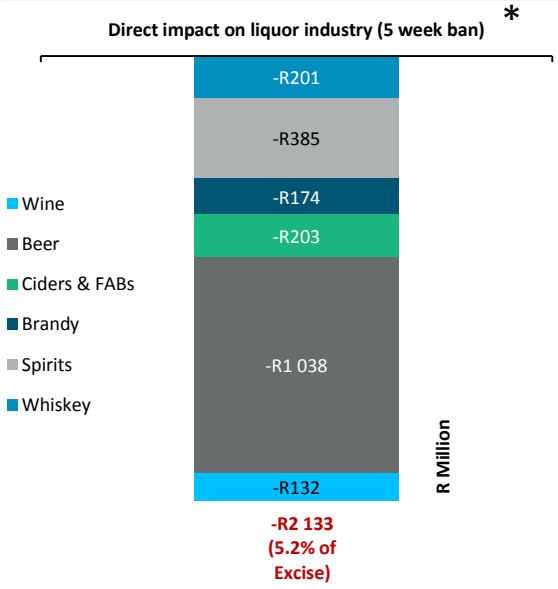
The total annualised loss in GDP is estimated to be R 13.6 billion. This is equivalent to 0.3% of national GDP at market prices for 2019.



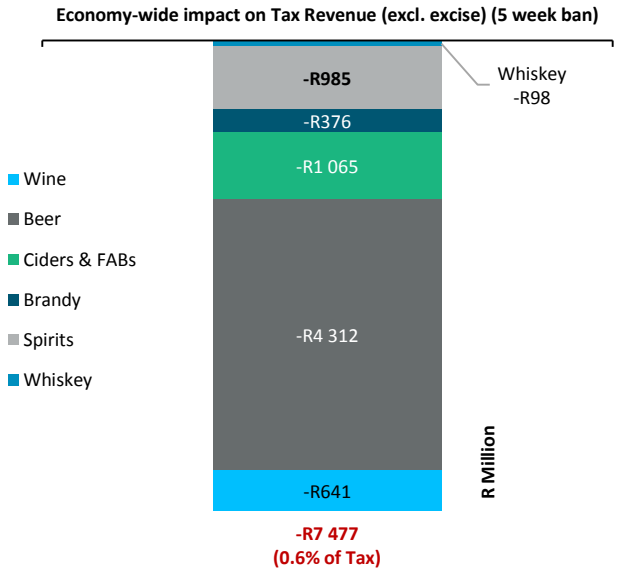
The potential total jobs at risk is estimated to amount to 7 043 jobs. This is equivalent to 0.31% of national total (formal + informal) employment for 2019.



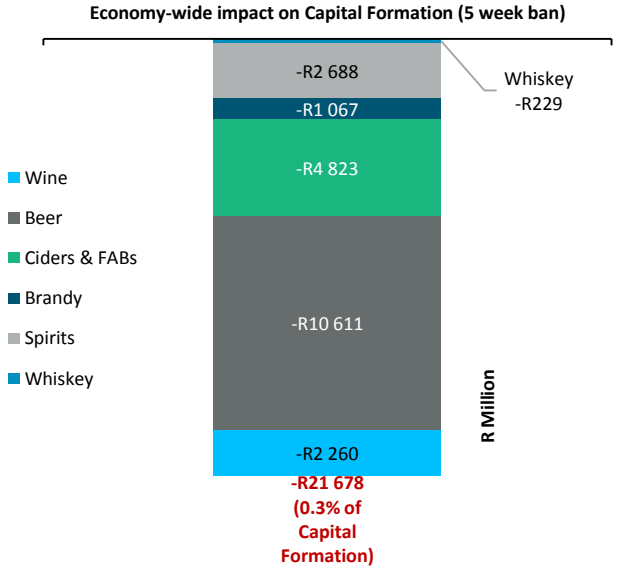
The potential direct excise tax income lost is estimated to be -R 2.1 billion. This is equivalent to 5.2% of excise revenue in 2019.



The potential total tax revenue (excluding excise tax) lost is estimated to be R 5.5 billion. This is equivalent to 0.6% of national tax revenue (excluding excise taxes) for 2019.



The potential total capital formation lost is estimated to be -R 2.1 billion. This is equivalent to 0.3% of national capital formation for 2019.

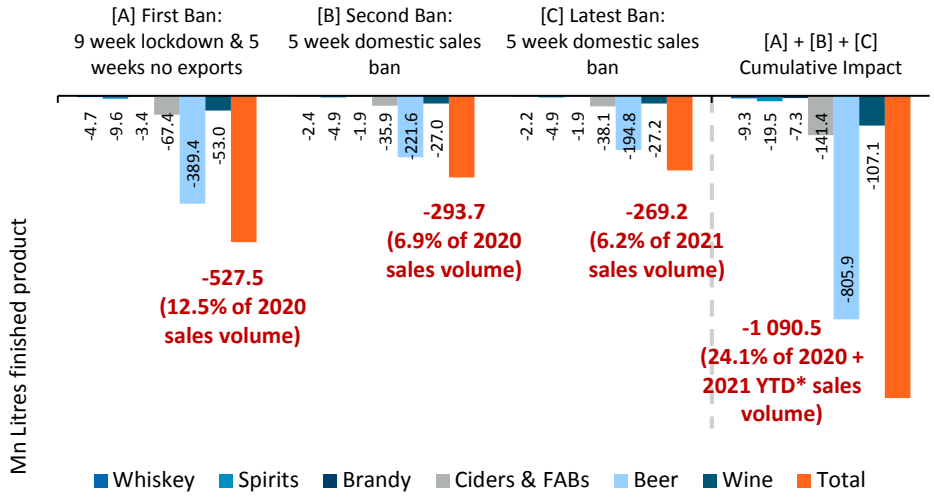


*The direct excise tax income forms part of the direct impact on the alcohol industry. We have included it here for the sake of completeness, as excise tax from alcohol is a significant proportion of overall excise revenue in the South African economy

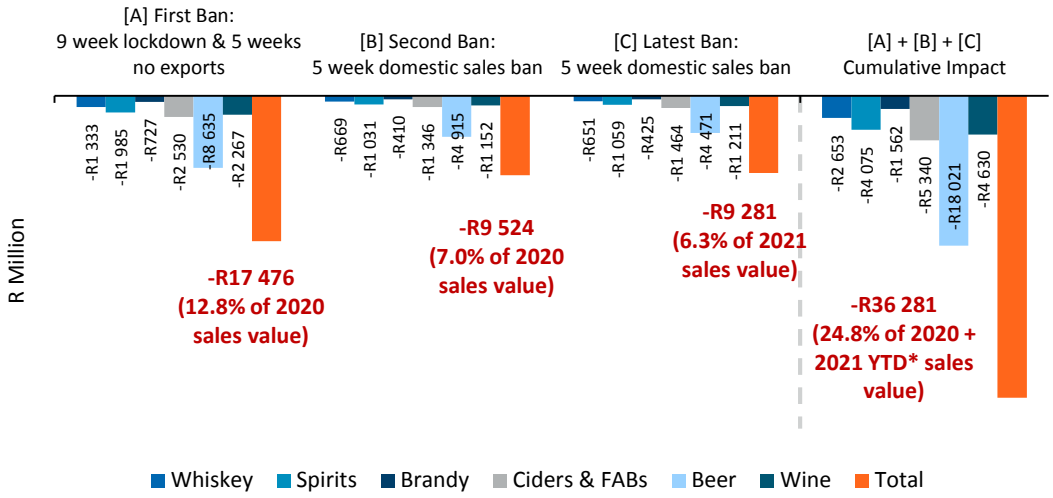
Cumulative impact of all bans on alcohol sales (2020 and 2021 YTD)

Cumulative impact of all the alcohol bans: 26 March 2020 – 2 February 2021

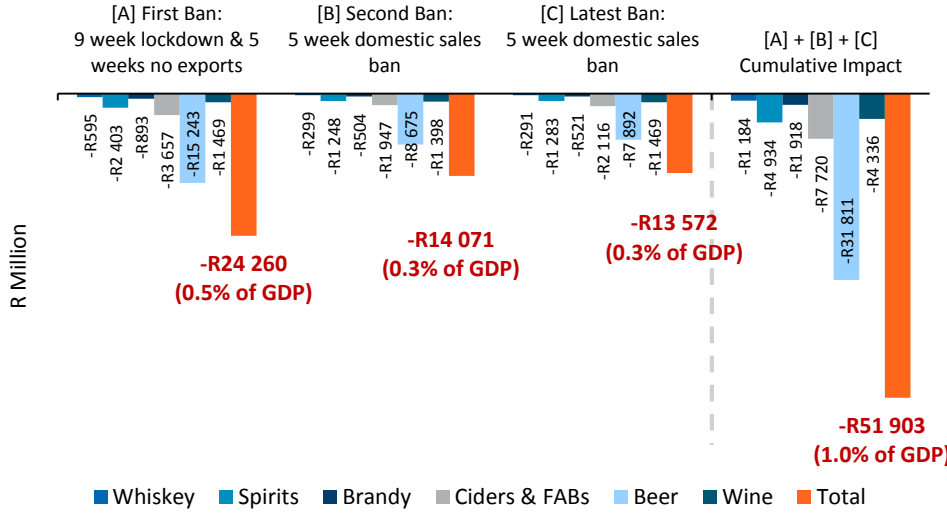
Total loss in sales volumes (in terms of millions of litres finished product) for all bans to date is estimated to be 1090.5 million litres. This is equivalent to 12.7% of projected sales volumes for 2020 and 2021.



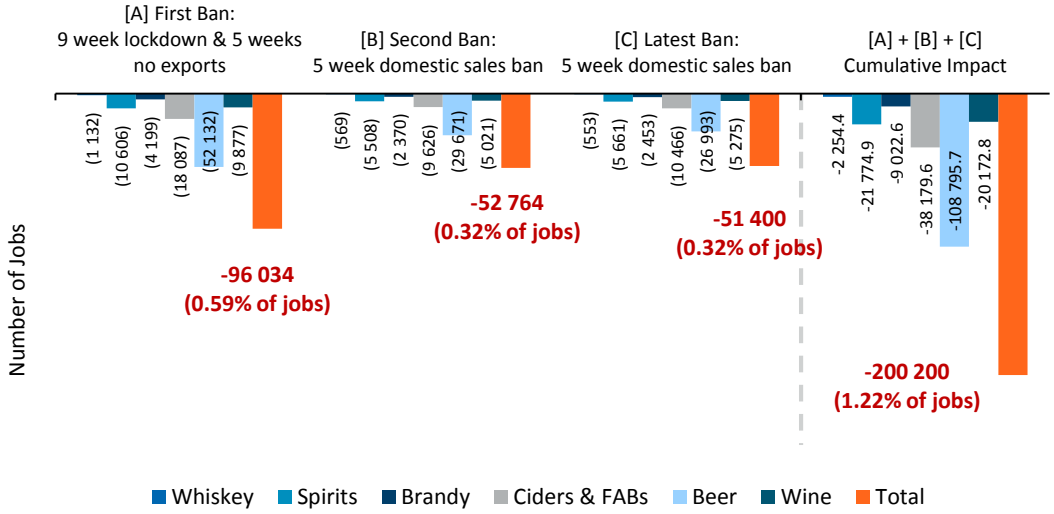
Total loss in retail sales revenue for all bans to date is estimated to be R 36.3 billion. This is equivalent to 12.7% of projected sales values for 2020 and 2021.



Total loss in GDP for all bans to date is estimated to be R 51.9 billion. This is equivalent to 1.0% of national GDP at market prices for 2019.



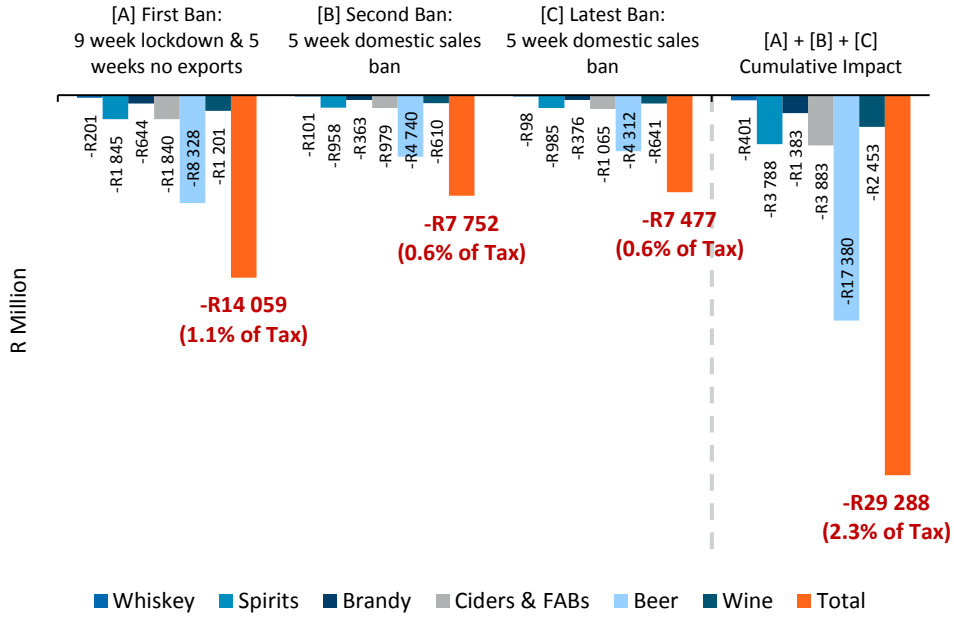
Total jobs at risk for all bans to date is estimated to amount to 200 200 jobs. This is equivalent to 1.22% of national total (formal + informal) employment for 2019.



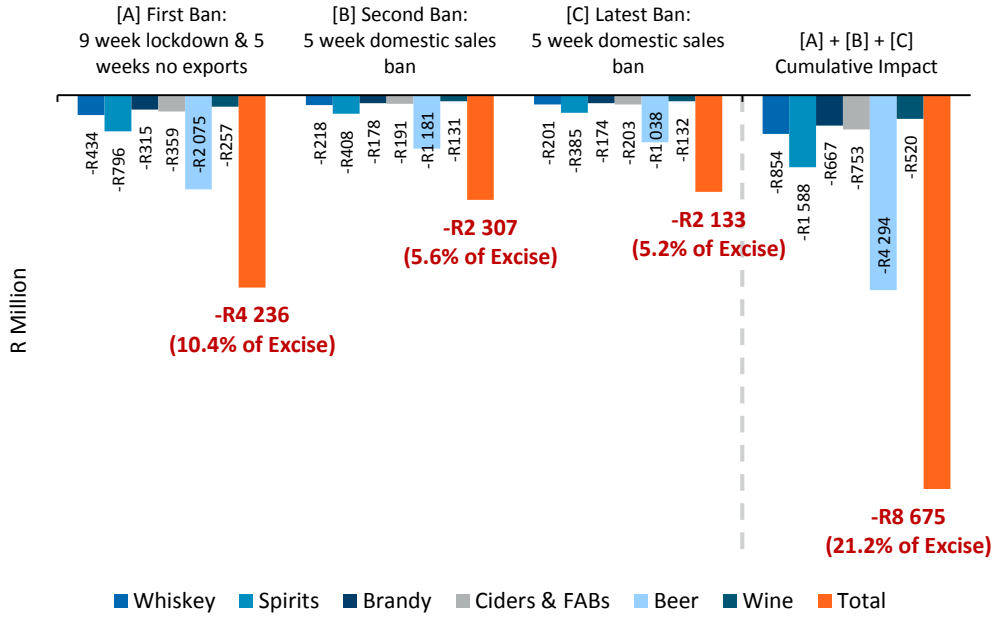
*2021 YTD sales volumes and 2021YTD sales value are projected volumes and sales value to the week in which the ban was lifted, i.e. volumes and value of sales from week ending 9 January 2021 to week ending 6 February 2021

Cumulative impact of all the alcohol bans: 26 March 2020 – 2 February 2021

Total tax revenue (excluding excise tax) lost for all bans to date is estimated to be R 29.3 billion. This is equivalent to 2.3% of national tax revenue (excluding excise taxes) for 2019.



Total direct excise tax income lost for all bans to date is estimated to be R 8.7 billion. This is equivalent to 21.2% of projected excise revenue for 2020 and 2021.



Cumulative economy-wide impact of the alcohol bans in 2020 and 2021:

- Decline in sales volumes: 1.1 billion litres (24.1% of 2020 + 2021 YTD sales volumes)
- Decline in sales value: R 36.3 billion (24.8% of 2020 + 2021 YTD sales value)
- Loss to GDP: R 59.1 billion (equivalent to 1% of GDP)
- Potential jobs at risk: 200,200 jobs (1.22% of formal and informal sector employment)
- Tax revenue loss (excluding excise): R 29.3 billion (2.3% of tax revenue)
- Direct excise revenue loss: R 8.7 billion (21.1% of excise)

A note on interpretation

- The methodology used for the analysis measures the impact of a shock to alcohol sales (i.e. the ban on sales) **at a specific point in time.** It provides a snapshot of transactions in the economy. The methodology does not control for dynamic adjustments in response to the ban on alcohol sales.
- The impact of the alcohol ban on **GDP is reported at market prices**. GDP at market prices includes the alcohol industry's contribution via net indirect taxes (i.e. indirect taxes (such as VAT and excise tax) – subsidies). Therefore, some portion of the alcohol industry's contribution to tax revenue is accounted for in the industry's contribution to GDP at market prices. We nonetheless report the industry's contribution to excise tax revenue and indirect tax revenue, and overall tax revenue separately to highlight the potential impact of the sales ban on government revenue.
- The impact of the alcohol bans on employment is **the potential threat of job losses**. Companies implement various mitigation measures to stem retrenchments (such as wage reduction, reduction in hours worked, redistribution of remuneration, etc.). The model does not capture these measures. Therefore, the impact on jobs presented does not necessarily result in job losses resulting from the alcohol ban.
- The modelling captures the annual economy-wide impact of the sales bans; that is, the results are annualised. This is practically implemented by allowing for a recovery in alcohol sales of 5% for beer, cider and FAB's and 10% for the other categories. The recovery rates are based on estimates derived by the liquor industry from ePOS (Electronic Point of Sale) data, following the end of each of the previous prohibition periods. **The measured impact depends on the assumptions used in the modelling process.**

Appendix

Assumptions underlying 2021 baseline calculations

1. **Various industry sources were used to estimate the historical total market volume and value sizing of the SA Liquor industry in 2019 and 2020. These include:**
   - GlobalData, Retail point of sale data (EPOS), SAWIS, SALBA, IWSR, ITC Trade Map (i.e. Primary Trade Data = SARS Customs & Excise data) and SARS (historical excise duty payments).

2. **To forecast a baseline scenario (no sales ban) of industry sales in 2021, the following assumptions were used:**
   a) For all liquor categories, retail price increase were assumed to equal inflation (i.e. 3.7%). Hence no own or cross-price elasticity effects were considered in volume forecasts.
   b) Excise is assumed to be 100 basis points above inflation (i.e. 4.7%). This is used to calculate the excise revenue loss arising from sales bans in 2021. However, the 'pass-through' effect of a 4.7% excise increase in liquor was not deemed sufficient to assume retail prices rise above inflation for all major categories.
   c) No supply-side shocks were assumed, which could lead to material out of stocks/significant real price increases or declines.
   d) The volume base for 2021 was restated to include sales volumes lost in 2020, where after growth rates were applied per category mostly led by income growth.
   e) Real income growth of 0.8% for South Africa in 2021 applied to estimated income elasticities per liquor category to forecast demand growth.

3. **Sales volume and value estimated impact arising from a sales ban in 2021:**
   a) The distribution of industry sales per week (52-week period) as % of annual sales was calculated based on the average weekly trend of industry sales per category from 2018-2019.
   b) The above ratios are recommended to be used to calculate what % of annual industry sales reasonably could have been expected to be sold within a specific period of a sales ban.
   c) It is recommended that recovery rates (on an annualised basis) should be applied to measure the sales impact of a ban, given that some consumers would purchase more in months following the ban to counter the impact of having had no or limited access to alcohol. Two factors complicate the determination of recovery rates to be assumed for liquor sales ban(s) scenarios in 2021: (i) Stock outs occurred in some categories in 2021, which negated their potential recovery performance. (ii) The sequencing and duration of a ban also has an impact on the assumed recovery rate. For example, after the first 8-week ban, the market experienced significant surges in demand; with the second 5-week ban, the surge effect was more muted. Given that we cannot, with reasonable accuracy, predict the timing and sequencing of future Covid-19 infection cycles, which may again give rise to sales bans, we recommend using a simplified approach that can be adapted over time. We assigned a 5% recovery rate to all RTD categories and a 10% to all other liquor categories. The lower recovery rate for RTDs is due to the ongoing category mix effect observed in 2020, which may well continue into 2021.

4. **Definitions include:**
   - **Fabs** includes wine coolers, spirits coolers, other fermented beverages (excluding beer).
   - **Spirits** includes spirit aperitifs, lower abv spirits.
   - **Liqueurs** are included under spirits.
   - **Wine** includes fortified wine, still wine, sparkling wine and vermouth and fortified vermouth.

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