DFSA Drinks Federation of South Africa

The Contribution of the Alcohol Beverage Industry to the South African Economy

Drinks Federation of South Africa

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Assessment conducted by

quantec

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EXECUTIVE SUMMARY

Legal alcohol beverage manufacturers make a valuable contribution to the South African economy through their production of beer, wine, spirits, and ready-to-drink alcoholic beverages. Wineries, breweries, cideries and distilleries also support the livelihoods of thousands of households and contribute strongly to government tax revenue. However, this direct economic impact of the alcohol beverage industry is only the tip of the iceberg – in the process of brewing, fermenting, distilling, manufacturing, packaging, marketing, and delivering consumers' favourite alcohol beverages, the liquor industry stimulates economic activity throughout its extensive value chain, encompassing a wide range of producers and suppliers (upstream partners) and distributors, wholesalers, retailers, and the hospitality sector (downstream partners).

These upstream and downstream industries generate additional household income and tax revenue, which in turn is spent throughout the various sectors of the economy, thereby stimulating further economic activity. Including all the economic multiplier effects, we estimate that the alcohol beverage industry:

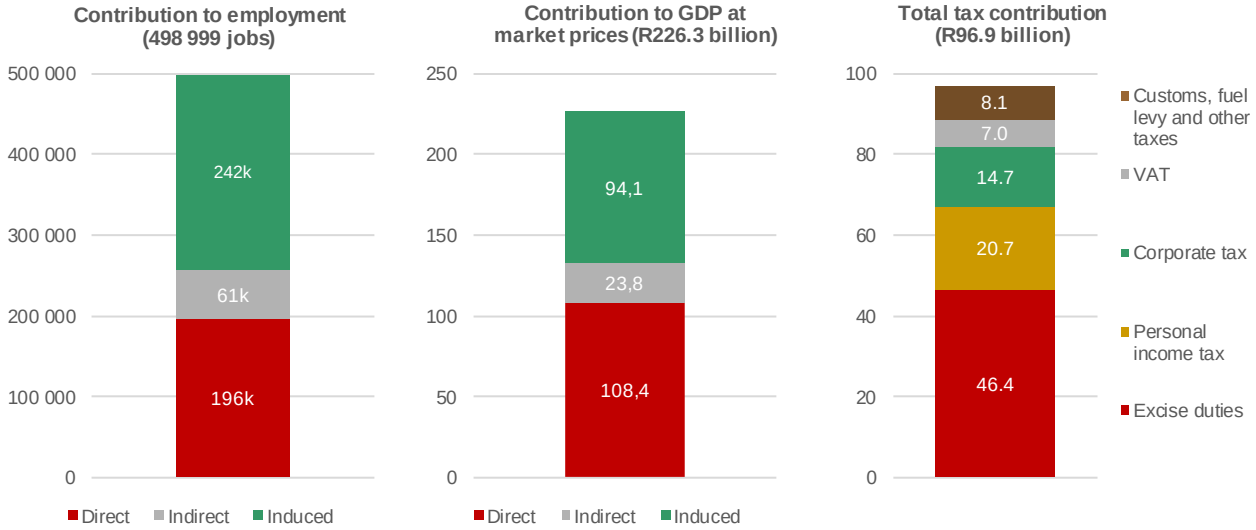
- sustained economy-wide output (or production) to the value of R482.7 billion,
- supported 498 999 jobs, generating R215.5 billion in household income, impacting the livelihoods of 1.15 million people in South Africa, and,
- contributed R226.3 billion (3.6%) to the country's gross domestic product (at market prices) in 2022.

Sustaining almost 500 000 jobs economy-wide, the alcohol beverage industry has particularly deep employment linkages in South Africa. Nearly half of these jobs are in the informal sector, or among low skilled workers – sectors where South Africa has alarmingly high unemployment rates. Notably, an estimated 86% of the workers directly employed by the liquor industry are from previously disadvantaged backgrounds.

One in every 31 jobs in South Africa can be traced back to the production and sale of alcohol beverages.

The liquor industry is also an indispensable source of government tax revenue in South Africa. The tax contributions of the liquor industry and its upstream and downstream partners, along with the excise duties on alcohol beverages paid by consumers, amounted to a hefty R96.9 billion in 2022. The economy-wide fiscal contribution of the alcohol beverage industry therefore amounted to 6.7% of the government's total tax haul in 2022.

The liquor industry and its customers supported R1 in every R15 of government tax revenue in South Africa in 2022.



The value of the liquor industry to the South African economy therefore ripples out far beyond the manufacturing of beer, wine, spirits and ready-to-drink alcoholic beverages (RTDs). With R1 in every R27.86 of South Africa's GDP tracing back to the alcohol beverage industry, the sector makes a vital contribution to the national economy and the livelihoods of thousands of South Africans. Economic sectors that derive particularly large benefits from the liquor industry's operations include agriculture, manufacturing, trade and hospitality, transport and communication, and finance and business services.

Every R1 million in sales produced by the liquor industry generated an additional R1.3 million in GDP in the rest of the SA economy.

When the industry's weighty tax contribution and considerable low skilled job creation numbers are also considered, it becomes clear that the alcohol beverage sector is well placed to support the government in its objectives of reducing unemployment and poverty through inclusive economic growth and strong fiscal revenue generation.

BACKGROUND

The Drinks Federation of South Africa commissioned Quantec to estimate the economic footprint of the legal alcohol beverage sector[1] in South Africa. This industry can broadly be classified into the manufacturing (or direct importation) of beer, wine, spirits and ready-to-drink alcoholic beverages (RTDs), where RTDs comprise alcoholic fruit beverages, ciders and other spirit coolers.

The study aims to quantify the broader economic impact of the *legal* alcohol beverage industry, including both its direct contribution to the South African economy and the economic multiplier effects working through a complex value chain of backward and forward linkages.

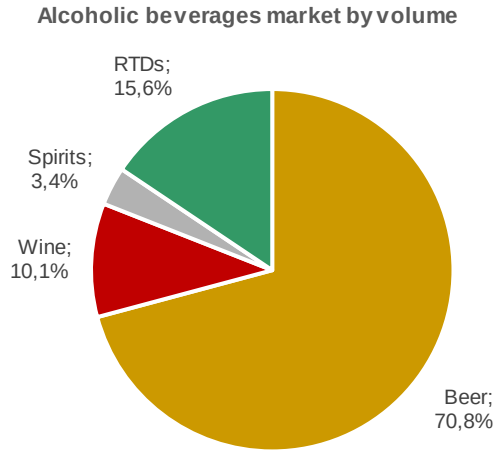
The economic impact assessment was based on the latest available (2022) operational and capital expenditure data from Statistics South Africa for the beverage industry, SARS excise and trade data and various other official national statistics, as well as company and industry sales information supplied by DFSA members. (Please see the methodology section of the report for more detail.) Input-output methodology was utilised to measure the direct, indirect, and induced impacts of the alcohol beverage industry on output, GDP, employment, household income and tax revenue.

AN OVERVIEW OF THE ALCHOL BEVERAGE INDUSTRY AND ITS VALUE CHAIN

Alcohol beverages can broadly be segmented into four sub-categories, namely beer, wine, spirits, and ready-to-drink alcoholic beverages (RTDs). Beer sales constituted nearly 71% of total liquor sales to South African consumers by volume in 2022, although beer's rand value share is lower at 52%. RTDs (15.6%) is the second largest liquor sales category by volume, followed by wine (10.1%) and spirits (3.4%).

With approximately R160 billion in domestic alcohol beverage sales, liquor sales accounted for 18.2% of consumer spending on food, beverages, and tobacco; and 3.7% of total consumer spending in 2022. However, South Africa is also a net exporter of liquor, largely due to our extensive wine exports. Total alcohol beverage exports measured R20.6 billion in 2022, while liquor imports were estimated to be only R9 billion. Wine exports accounted for 55% of alcohol beverage exports.

In the process of brewing, fermenting, distilling, and manufacturing various types of alcohol beverages, the liquor industry stimulates economic activity through an extensive value chain, encompassing a wide range of producers and suppliers (upstream linkages) and distributors, wholesalers, retailers, and the tourism & hospitality sector (downstream linkages). The liquor value chain therefore supports a range of industries, from agriculture, machinery, and packaging, to transport, retail, and finance.



Source: SA Wine Industry 2022 Statistics Nr 47, SAWIS

[1] The terms "alcohol beverage industry", "alcohol beverage sector" and "liquor industry" are used interchangeably and refer to the *legal* alcohol beverage industry in South Africa.

The alcohol beverage value chain

Input suppliers: Machinery, equipment, fertiliser, electricity, water, packaging, transport, finance, marketing, consulting etc.

Exports and imports

Farmers and raw material suppliers

Producers: Breweries, wineries, cideries, distilleries and RTD manufacturers

Distributors and wholesalers

Retail: Supermarkets and liquor stores

Tourism & hospitality: Restaurants, pubs, licensed taverns, hotels and wine tourism

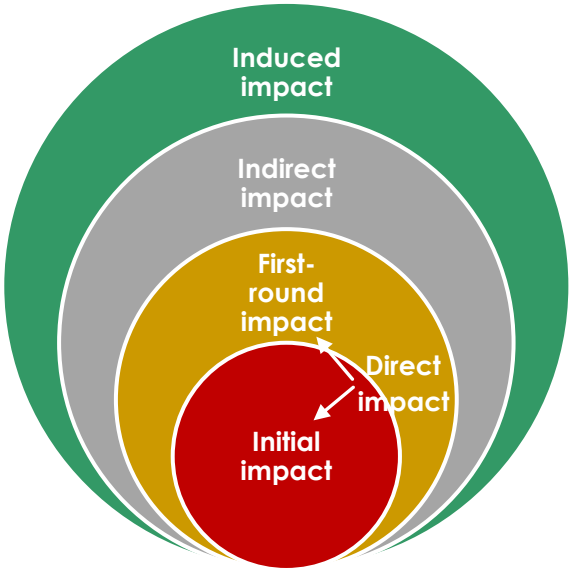
THE ECONOMIC IMPACT OF THE LIQUOR INDUSTRY

The impact of the alcohol beverage industry on the South African economy extends far beyond liquor manufacturers' own operational and capital expenditure, known as the *initial* impact. This initial injection of expenditure by alcohol beverage producers serves as a catalyst for further operational and capital expenditure among direct suppliers of the beverage manufacturing industry. Expenditure by liquor manufacturers and their direct suppliers is known as the *direct* impact of the industry.

The direct suppliers of the liquor industry, in turn, make purchases from their own suppliers and service providers, who also have operational and capital expenses. In multiplier-methodology, the *indirect* impact of an industry measures the expenditure by these indirect suppliers to the industry. Combined, the direct and indirect impacts of an industry therefore include all the operational costs and capital expenditure by the industry and its suppliers.

When employees and business owners throughout the alcohol beverage value chain spend their salaries and wages, this triggers further rounds of economic activity, known as the *induced* impact.

Finally, the total, or *economy-wide*, impact of the alcohol beverage industry is calculated as the sum of the direct, indirect, and induced impacts. These multiplier effects were calculated for variables such as output (or production), gross value added (South Africa's gross domestic product or GDP), employment, household income and government tax revenue for the year 2022, and are discussed below.



Contribution to output (production)

To produce alcohol beverages, the liquor industry sources key inputs across various sectors of the economy, ranging from grapes, apples, maize, barley, hops, malt, sugar and water to tin cans, glass bottles, corks, and bottle crowns, as well as fuel, power, and machinery. The industry also utilises services such as transport, storage, communication, finance, printing, marketing, and security.

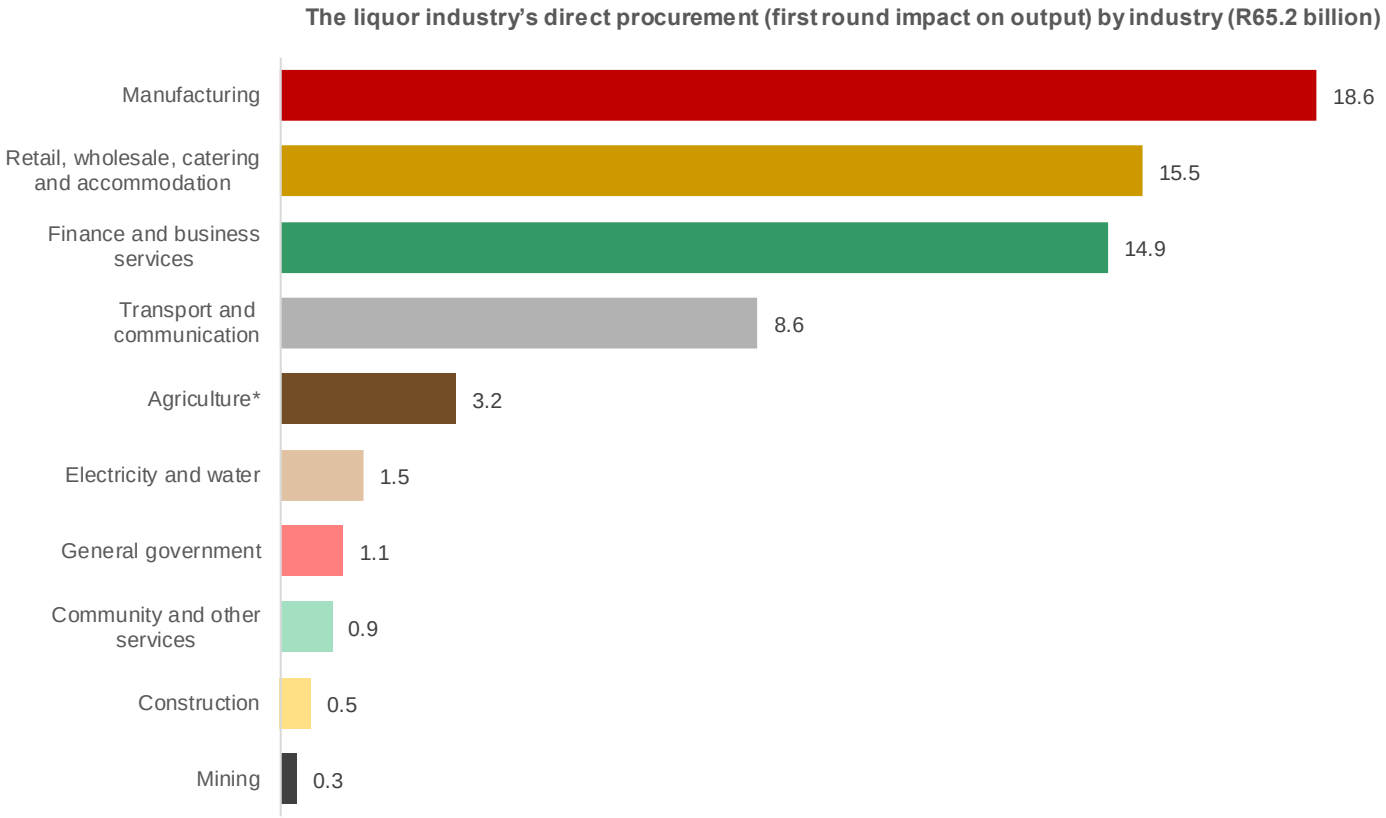
The alcohol beverage industry has an initial injection of R176.8 billion to output – i.e., the value of its production. Included in this is the industry's procurement of goods and services of R65.2 billion, and capital equipment of R3.7 billion, creating the first-round impact on output.[2]

R176.8 billion in output produced by liquor manufacturers in 2022.

R65.2 billion direct procurement by the liquor industry in 2022.

[2] Contribution to output, or production, refers to the contribution of alcohol beverage industry to the total value of sales of all goods and services in the economy. This is the sum of all final purchases and intermediate inputs, resulting to some double counting (as outputs from certain industries are used as inputs in others). The double counting is resolved when considering the impact on the gross domestic product (GDP), as GDP is measured in terms of the value added by each sector (as opposed to the sum total of the sales values of all sectors). The calculation of the alcohol beverage industry's first round impact on output is set out in the methodology section.

The sectors that experienced the greatest direct benefit from the liquor industry's procurement included manufacturing, the retail, wholesale, catering and accommodation sector, finance, and business services (including advertising), transport and communication and agriculture. Combined, the initial and first-round impacts generated a direct impact of R242 billion in output in 2022, of which 28% (R67.7 billion) supported sectors outside of the alcohol beverage manufacturing sector.



***The agricultural sector and the alcohol industry**

The relationship between the agricultural sector and the alcohol industry is stronger than what the direct input values suggest. The alcohol industry purchases inputs such as grapes, barley, maize, hops, fruit and other produce directly from farmers, but also indirectly via other industries, such as the processing of fruit (preparation of juice), and grain milling. The direct inputs into the alcohol manufacturing industry may be small, but if all the indirect linkages are also considered, the true impact is much larger. Therefore, when estimating the impact of the alcohol industry on agriculture, it is more comprehensive to include all direct and indirect impacts, so that all the backward linkages to the alcohol industry are considered. The direct impact of the alcohol beverage industry on agriculture is R3.2 billion, but if the indirect impact is also considered, this total impact grows to R6.5 billion, equating to 1.05% of the South African agricultural industry.

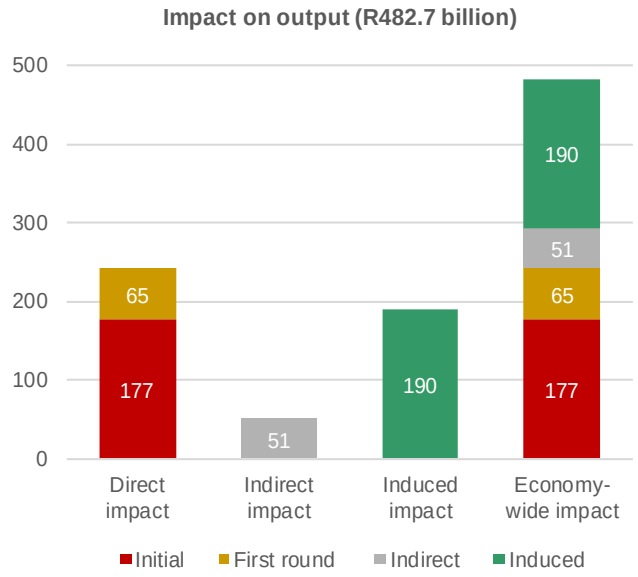
Direct suppliers of the liquor industry, in turn, purchase goods and services from their suppliers (the indirect impact). These recurrent purchases set a chain of economic activity into motion where different sectors produce output, employ, and remunerate workers and pay taxes, generating income that is re-spent throughout the economy (the induced impact). In all, the alcohol beverage industry's economy-wide contribution to output rippled out to a massive R482.7 billion, or 3.7% of production in the South African economy in 2022.

With an output multiplier of 2.7, every R1 million in output produced by the alcohol beverage industry generated an additional R2.7 million in output in the rest of the economy.

The liquor industry's output multiplier is significantly higher than the output multiplier of the average South African industry, estimated at 1.8. The liquor industry is therefore an exceedingly valuable driver of production in the South African economy.

The liquor industry's output multipliers[3] compared to that of the average South African industry (2022)

Multiplier	Liquor industry	South Africa
Output	2.73	1.82
GDP at market prices	1.28	0.87
Employment	2.82	2.12
Household income	1.22	0.82
Tax	0.54	0.20



[3] The multipliers shown in the report are output multipliers and therefore depict the impact of R1 million of output produced by the alcohol beverage industry on GDP, employment, tax revenue etc.

Impact on GDP

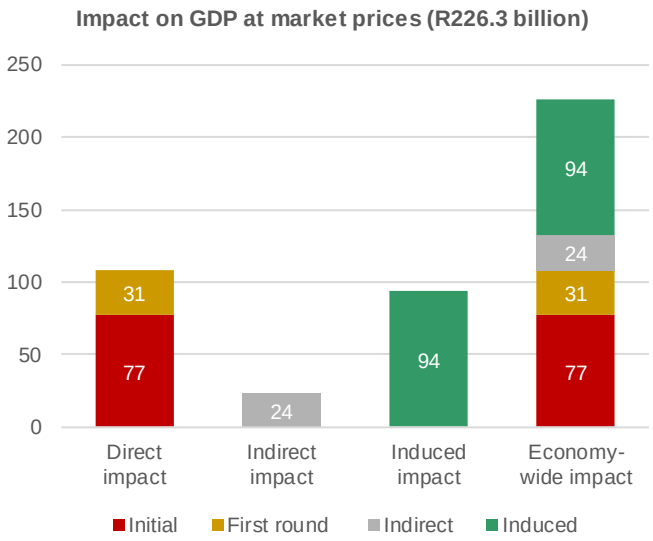
The alcohol beverage industry makes a vital contribution to South Africa's gross domestic product (GDP). GDP is the total value of all finished goods and services produced by a country's economy during a specified time. The alcohol beverage industry's economy-wide contribution to South Africa's GDP is estimated at R226.3 billion during 2022. This means that approximately 3.6% of the country's GDP linked back to the liquor industry in 2022, with the direct impact (from liquor manufacturers and their direct suppliers) accounting for 48% (R108.4 billion) of the industry's total economic footprint.

The alcohol beverage industry's GDP multiplier is estimated to be 1.3, indicating that for every R1 million in sales revenue added by the liquor industry, an additional R1.3 million in GDP was generated in the rest of South Africa. Similar to the output multiplier, the industry's GDP multiplier is considerably higher than the South African average (0.9).

The alcohol beverage industry's impact on GDP at market prices in 2022

Impact	Percentage	Multiplier
Initial	1.23%	0.44
First round	0.49%	0.18
Direct	**1.72%**	**0.61**
Indirect	0.38%	0.13
Direct and indirect	**2.10%**	**0.75**
Induced	1.49%	0.53
Economy-wide	**3.59%**	**1.28**
Average GDP multiplier in SA		*0.9*

R1 in every R27.86 of SA's GDP can be traced back to the GDP of the alcohol beverage industry.



The economic impact of the alcohol beverage industry cascades through various sectors of the South African economy, with manufacturing, trade and hospitality, finance and business services, community and other services, and transport and communication standing out as sectors that receive particularly large GDP injections from the liquor industry.

Driving job creation

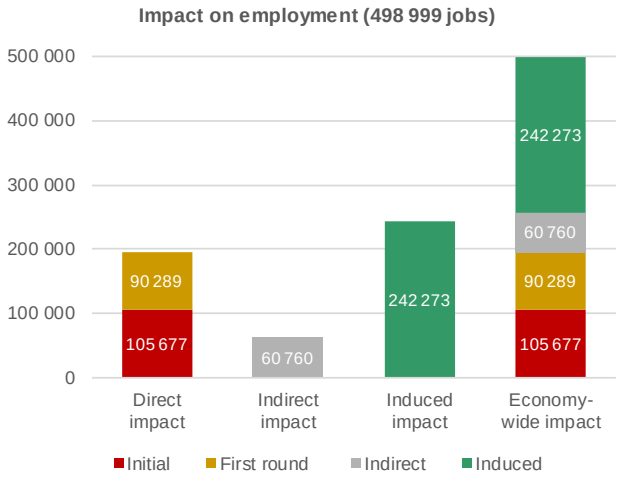
The alcohol beverage industry has particularly deep employment linkages, supporting the livelihoods of hundreds of thousands of South Africans. The initial employment impact of the liquor industry was estimated at just over 105 000 workers in South Africa during 2022, with the industry supporting an additional 90 289 jobs with first round suppliers. In all, the alcohol beverage sector directly sustained 195 966 jobs, with the vast majority of the industry's job opportunities being filled by employees from previously disadvantaged backgrounds.

86% of the workers directly employed by the liquor industry are from previously disadvantaged backgrounds.

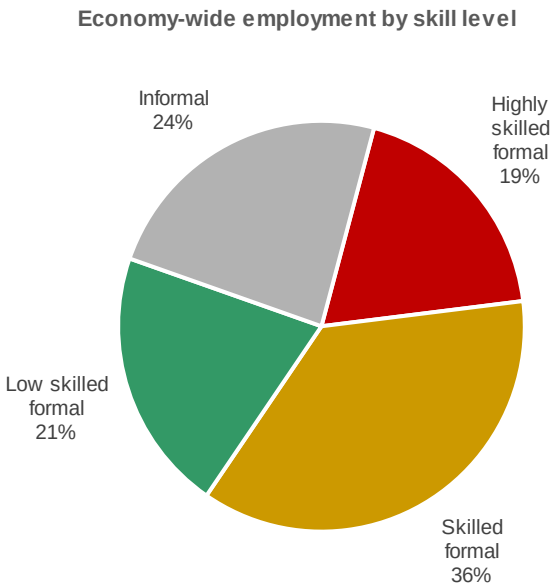
The direct employment impact by liquor manufacturers and their first-round suppliers represented 40.4% of the total economy-wide employment impact of the industry.

If all the multiplier effects are included, 498 999 jobs (or 3.3% of total employment in South Africa) can be traced back to the production and sale of alcohol beverages. This means that 1 in every 31 jobs in South Africa was linked to economic activity generated by the liquor industry in 2022.

Looking at the alcohol beverage industry's substantial employment contribution from another perspective, every 10 jobs offered by the liquor industry and its direct suppliers support another 15 jobs in the rest of SA.

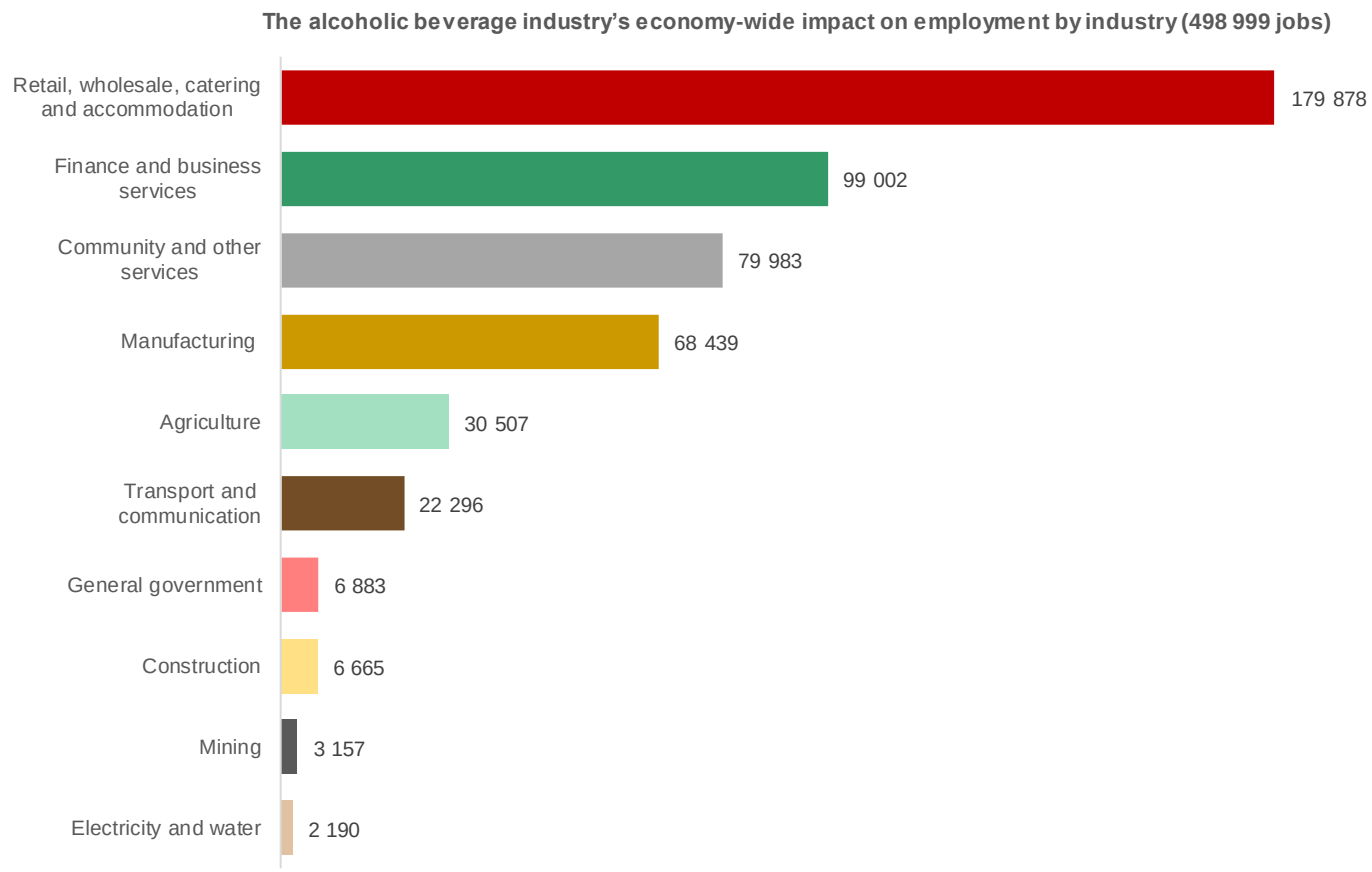


The employment multiplier of the industry is estimated at 2.8 (higher than the national average of 2.1), implying that for every R1 million in output produced by the liquor industry, 2.8 jobs are generated in South Africa (see the multiplier table on page 10).



Significant proportions of the jobs generated by the liquor industry's value chain were low skilled positions (21%) or in the informal sector (24%). The industry's noteworthy contribution to the employment of low skilled workers is particularly positive given South Africa's skills shortage and alarmingly high unemployment levels among low skilled workers.

The sectors that derive the greatest job creation spinoffs from the economy-wide impact of the liquor industry include the retail, wholesale, catering and accommodation sector, finance and business services, community services, manufacturing, agriculture, and transport and communication.[4]



When the dependents (i.e., children and the elderly) of those deriving earnings from the alcohol beverage value chain are also considered, the jobs generated by the industry supported the livelihoods of a massive 1 147 726 South Africans in 2022.[5]

The liquor industry supports the livelihoods of more than 1.1 million South Africans.

[4] The liquor industry supports a large number of jobs in the tourism and hospitality sector, although this sector has not been measured independently from the 10 main production sectors listed in the national accounts. Using a different classification, all of the catering and accommodation jobs (currently included in the retail, wholesale, catering and accommodation sector) would fall under tourism and hospitality, along with selected jobs from other sectors such as transport and communication (e.g., air travel, travel and transport services etc.). A new satellite account system would be required to strip out and measure the liquor industry's impact on the tourism and hospitality sector independently from the standard analysis.

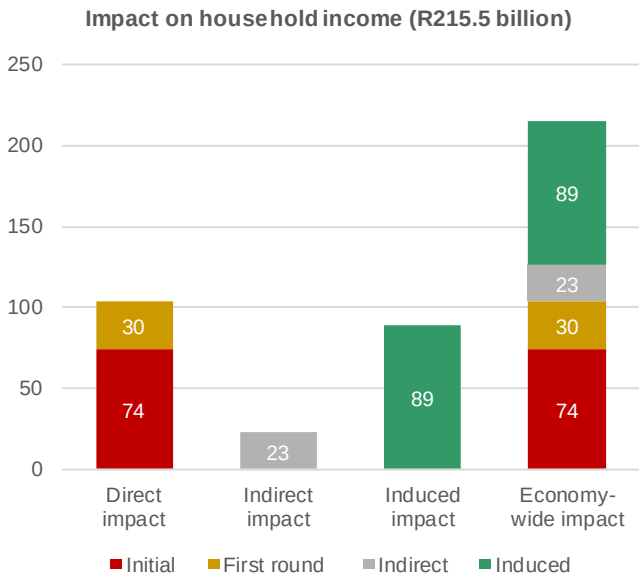
[5] There are approximately 2.3 children or elderly people (65 years and older) for every working person in South Africa. The roughly 500 000 jobs sustained by the liquor industry therefore supports the livelihoods of just over 1.1 million people (i.e., including those employed in the liquor industry and their dependents).

Supporting household income

The alcohol beverage industry makes a substantial contribution to household income in South Africa. Together with their first-round suppliers, the liquor industry directly generated R103.6 billion in household income during 2022. Including the indirect and induced impacts, the economy-wide contribution of the alcohol beverage industry to household income grew to an impressive R215.5 billion, or 3.6% of total household income in 2022.

R1 out of every R27.45 of income earned by households can be traced back to the liquor industry.

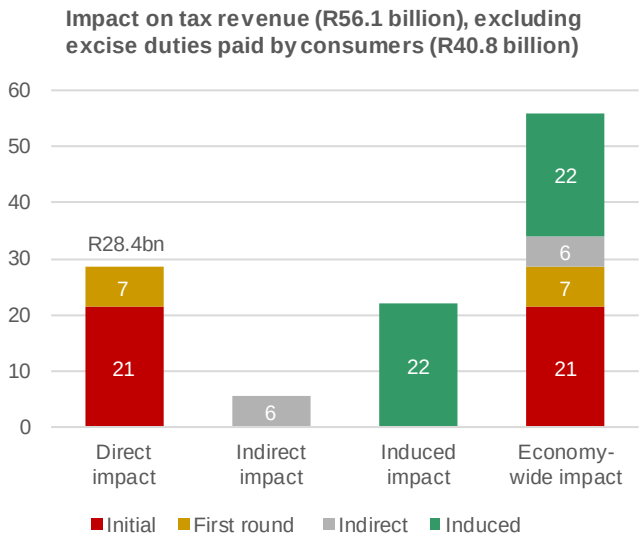
The alcohol beverage industry's household income multiplier is estimated to be 1.2, indicating that for every R1 million in sales revenue added by the liquor industry, R1.2 million in household income is generated. This is notably higher than the household income multiplier of the average South African industry, estimated at 0.8.



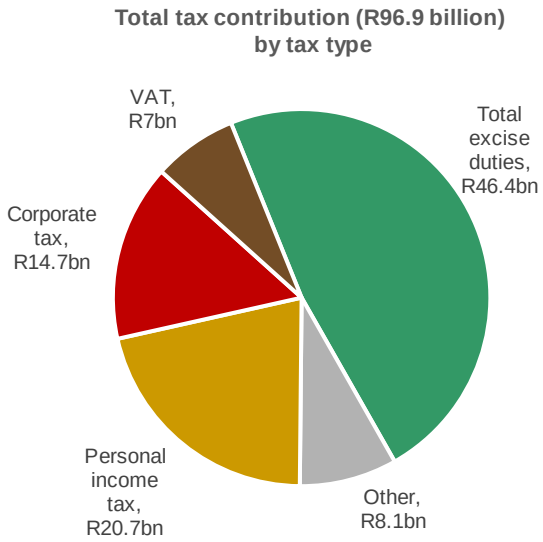
Bolstering the public purse with valuable tax contributions

The fiscal proceeds arising from the direct and indirect taxes on the production and sale of alcohol beverages constitute an indispensable source of state revenue in South Africa. During 2022, the National Treasury received R28.4 billion in tax revenue directly from liquor manufacturers and their first-round suppliers (corporate taxes), their employees (personal income tax) and their payment of indirect taxes (e.g., VAT and custom duties, but still excluding excise duties on alcohol beverages paid by consumers). Other upstream and downstream partners in the industry generated a further R5.6 billion in taxes, bolstering the alcohol beverage value chain's fiscal contribution to a substantial R34.1 billion, or 2.3% of the government's total tax haul in 2022 (i.e., the direct and indirect impacts).

The alcohol beverage industry's tax contribution grew to R56.1 billion, or 3.9% of total government tax revenue in 2022, when the induced impacts of the industry's operations were also considered.



Once the excise duties payable by consumers of alcohol beverages were also added, the total contribution of the alcohol beverage industry increased to a weighty R96.9 billion, or 6.7% of total tax revenue.



Nearly half (47.9%) of the taxes derived from the production and sale of alcohol beverages come from excise tax.[6]

The R96.9 billion in tax revenue generated by the liquor industry and its customers in a single year is enough to finance:

470 385 teachers[7],

131 621 low-cost homes[8], and,

all of the Child Support grants AND two-thirds of the Social Relief of Distress grants[9] paid by the government in 2022.

[6] The R46.4 billion in excise duties supported by the liquor industry in 2022 includes R40.8 billion in excise duties on alcohol products, as well as R5.6 billion in other excise duties (mainly stemming from induced impacts on excise duties on tobacco and petroleum products, as well as ad valorem excise duties).

[7] Teacher salaries are estimated at R205 928 per annum in 2022.

[8] The price of a low-cost home was estimated at R735 941 in 2022.

[9] The government spent R77.2 billion on child support grants to 13.3 million children (R480 per month) in its 2022/23 budget year, and R29.1 billion on social relief of distress (SRD) grants to nearly 8 million people (R350 per month).

At 0.54, the alcohol beverage industry's tax multiplier is far higher than that of the average South African industry of 0.2 (see multiplier table on page 10). Every R1 million in output produced by the alcohol beverage industry generates approximately R540 000 in tax revenue for the government, compared to the national average of R200 000. The hefty tax contribution of the alcohol beverage sector underscores the importance of the industry in terms of South Africa's fiscus.

R1 in every R15 of tax revenue in South Africa links back to the liquor industry and its customers.

CONCLUDING REMARKS

With production valued at R242 billion in 2022, 195 966 employees and R28.4 billion in tax contributions, alcohol beverage manufacturers and their first-round suppliers make a significant *direct* contribution to the South African economy. However, the direct impact of the liquor industry only represents a fraction of its overall economic contribution - when all of the multiplier effects rippling through its extensive value chain are also taken into consideration, the alcohol beverage industry added R226 billion to South Africa's GDP and supported close to 500 000 jobs, yielding R215.5 billion in household income. When dependents of employees working in the liquor value chain are also taken into consideration, the alcohol beverage industry supports the livelihoods of more than 1.1 million South Africans.

The liquor industry's multipliers for output, GDP, employment, household income and especially tax revenue are all considerably higher than that of the average South African industry. Notably, 1 in 31 jobs and R1 out of every R27.86 of South Africa's GDP in 2022 could be traced back to the alcohol beverage industry, highlighting the significance of the industry to the national economy.

The results from the multiplier analysis also confirmed that the liquor industry is an indispensable source of government revenue in South Africa. Including the revenue generated by excise duties levied on the sale of alcohol beverages, a hefty R96.9 billion in government tax revenue (6.7%) derived from the production and sale of alcohol beverages. The alcohol beverage industry is therefore well placed to support the government in its objectives of reducing unemployment and poverty, particularly among low skilled individuals, through inclusive economic growth and fiscal revenue generation.

TABLES

Alcohol beverage industry's impact on output in 2022

	Initial impact	First round impact	Direct impact	Indirect impact	Direct and indirect impact	Induced impact	Economy-wide impact
Industry impact							
Agriculture	0	3,159.57	3,159.57	3,287.35	6,446.92	10,549.25	16,996.17
Mining	0	296.33	296.33	2,807.46	3,103.79	5,289.21	8,393.01
Manufacturing excluding alcohol beverages manufacturing	974.94	18,093.65	19,068.59	9,727.95	28,796.54	35,628.27	64,424.81
Alcohol industry	173,104.75	1,214.59	174,319.34	335.41	174,654.75	2,362.72	177,017.47
Electricity and water	0	1,489.78	1,489.78	1,746.78	3,236.55	9,628.58	12,865.13
Construction	691.18	548.43	1,239.61	676.15	1,915.75	1,770.37	3,686.12
Wholesale and retail trade	248.09	14,894.68	15,142.76	6,425.32	21,568.09	23,473.84	45,041.93
Transport and communication	450.92	8,541.16	8,992.09	7,149.48	16,141.56	20,255.48	36,397.05
Finance and business services	1,052.59	14,891.40	15,943.99	15,341.71	31,285.71	56,234.14	87,519.85
General government	110.41	1,130.51	1,240.92	1,532.97	2,773.88	2,513.84	5,287.72
Community and other services	192.79	925.94	1,118.73	1,610.94	2,729.67	22,300.88	25,030.55
Output (R million)	176,825.67	65,186.03	242,011.71	50,641.51	292,653.22	190,006.58	482,659.80
Output (Percentage)	1.34%	0.49%	1.84%	0.38%	2.22%	1.44%	3.66%
Output (Multiplier)	1.00	0.37	1.37	0.29	1.66	1.07	2.73

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[10] The multipliers included here are output multipliers and is the impact per R1 million in output. This applies to all the multipliers in this document, unless specifically stated otherwise.

Alcohol beverage industry's impact on GDP at market prices in 2022

	Initial impact	First round impact	Direct impact	Indirect impact	Direct and indirect impact	Induced impact	Economy-wide impact
Industry impact							
Agriculture	0	1,009.17	1,009.17	1,086.24	2,095.41	3,569.47	5,664.88
Mining	0	98.94	98.94	1,116.13	1,215.07	1,985.63	3,200.71
Manufacturing excluding alcohol beverages manufacturing	322.34	6,106.66	6,429.00	3,004.80	9,433.81	11,259.44	20,693.25
Alcohol industry	75,606.83	667.67	76,274.51	194.39	76,468.90	1,194.22	77,663.12
Electricity and water	0	845.10	845.10	859.19	1,704.29	4,859.40	6,563.69
Construction	270.57	195.35	465.92	246.39	712.30	636.84	1,349.15
Wholesale and retail trade	145.23	8,931.05	9,076.28	3,810.73	12,887.01	13,557.12	26,444.13
Transport and communication	131.02	3,730.56	3,861.58	2,825.11	6,686.70	7,784.91	14,471.60
Finance and business services	602.87	8,106.01	8,708.88	8,448.76	17,157.64	31,943.32	49,100.96
General government	71.86	746.91	818.77	1,013.08	1,831.85	1,661.70	3,493.54
Community and other services	157.43	664.65	822.08	1,170.29	1,992.37	15,687.92	17,680.29
GDP at market prices (R million)	77,308.16	31,102.07	108,410.24	23,775.11	132,185.35	94,139.97	226,325.32
GDP at market prices (Percentage)	1.23%	0.49%	1.72%	0.38%	2.10%	1.49%	3.59%
GDP at market prices (Multiplier)	0.44	0.18	0.61	0.13	0.75	0.53	1.28

Alcohol beverage industry's impact on employment in 2022

	Initial impact	First round impact	Direct impact	Indirect impact	Direct and indirect impact	Induced impact	Economy-wide impact
Industry impact							
Agriculture	0	5,384	5,384	5,939	11,323	19,184	30,507
Mining	0	111	111	1,036	1,147	2,010	3,157
Manufacturing excluding alcohol beverages manufacturing	701	14,054	14,755	4,914	19,669	18,869	38,538
Alcohol industry	101,657	1,087	102,745	369	103,114	1,432	104,546
Electricity and water	0	294	294	282	576	1,614	2,190
Construction	1,221	1,005	2,227	1,230	3,457	3,208	6,665
Wholesale and retail trade	774	35,281	36,055	15,409	51,464	56,617	108,081
Transport and communication	72	5,469	5,541	4,263	9,804	9,644	19,448
Finance and business services	748	23,560	24,309	22,070	46,379	52,623	99,002
General government	128	1,473	1,601	1,999	3,600	3,282	6,883
Community and other services	374	2,572	2,946	3,247	6,193	73,789	79,983
Employment (Number)	105,677	90,289	195,966	60,760	256,726	242,273	498,999
Employment (Percentage)	0.69%	0.59%	1.28%	0.40%	1.68%	1.58%	3.26%
Employment (Multiplier)	0.60	0.51	1.11	0.34	1.45	1.37	2.82

Alcohol beverage industry's impact on household income in 2022

	Initial impact	First round impact	Direct impact	Indirect impact	Direct and indirect impact	Induced impact	Economy-wide impact
Industry impact							
Agriculture	0	1,001.16	1,001.16	1,083.88	2,085.04	3,577.18	5,662.21
Mining	0	90.27	90.27	1,089.34	1,179.62	1,913.34	3,092.96
Manufacturing excluding alcohol beverages manufacturing	285.45	5,582.27	5,867.72	2,747.04	8,614.75	10,369.32	18,984.07
Alcohol industry	72,167.40	630.84	72,798.24	188.89	72,987.13	1,165.74	74,152.87
Electricity and water	0	856.48	856.48	833.42	1,689.89	4,754.00	6,443.90
Construction	242.38	167.13	409.51	213.32	622.83	546.95	1,169.78
Wholesale and retail trade	141.90	8,772.90	8,914.80	3,734.55	12,649.34	13,186.56	25,835.91
Transport and communication	125.64	3,512.19	3,637.83	2,618.44	6,256.27	7,316.79	13,573.06
Finance and business services	604.11	7,973.95	8,578.06	8,387.96	16,966.02	32,343.03	49,309.05
General government	63.14	672.55	735.69	912.43	1,648.13	1,497.02	3,145.14
Community and other services	133.92	535.36	669.28	973.03	1,642.32	12,457.32	14,099.64
Household income (R million)	73,763.93	29,795.09	103,559.03	22,782.31	126,341.34	89,127.25	215,468.59
Household income (Percentage)	1.25%	0.50%	1.75%	0.39%	2.14%	1.51%	3.64%
Household income (Multiplier)	0.42	0.17	0.59	0.13	0.71	0.50	1.22

Alcohol beverage industry's impact on taxes in 2022

	Initial impact	First round impact	Direct impact	Indirect impact	Direct and indirect impact	Induced impact	Economy-wide impact
Industry impact							
Agriculture	0	271.08	271.08	291.21	562.29	950.64	1,512.93
Mining	0	29.54	29.54	309.10	338.64	573.50	912.14
Manufacturing excluding alcohol beverages manufacturing	81.20	1,552.79	1,633.99	823.43	2,457.42	3,055.52	5,512.94
Alcohol industry	20,914.50	173.51	21,088.01	46.14	21,134.16	352.43	21,486.59
Electricity and water	0	221.32	221.32	254.64	475.96	1,408.18	1,884.14
Construction	68.56	49.24	117.79	62.19	179.98	160.58	340.56
Wholesale and retail trade	29.90	1,860.55	1,890.45	801.55	2,692.00	2,915.10	5,607.10
Transport and communication	40.87	1,019.85	1,060.72	785.83	1,846.56	2,215.92	4,062.48
Finance and business services	148.97	1,719.48	1,868.46	1,878.06	3,746.52	7,588.95	11,335.47
General government	11.63	128.01	139.64	173.72	313.36	285.12	598.48
Community and other services	22.93	105.32	128.25	184.36	312.61	2,514.94	2,827.56
Taxes (R million)	21,318.57	7,130.69	28,449.26	5,610.24	34,059.50	22,020.89	56,080.39
Taxes (Percentage)	1.47%	0.49%	1.96%	0.39%	2.34%	1.52%	3.86%
Taxes (Multiplier)	0.12	0.04	0.16	0.03	0.19	0.12	0.32

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[11] This table shows the tax impact of the liquor industry excluding the R40.8 bn in excise duties paid by consumers in 2022. The tax multiplier showed here therefore does not include the impact of these excise duties. The total economy-wide tax contribution of the liquor industry grows to R96.9 bn when the excise duties paid by consumers are included, with an overall tax multiplier then calculated at 0.54. The tax table on the following page depicts tax revenue by tax type and notes the excise contribution by consumers.

Alcohol beverage industry's impact by tax type in 2022

	Initial impact	First round impact	Direct impact	Indirect impact	Direct and indirect impact	Induced impact	Economy-wide impact
Net taxes on production (R million)	966.49	545.03	1,511.52	507.96	2,019.48	2,267.45	4,286.93
Net taxes on production (Percentage)	0.76%	0.43%	1.19%	0.40%	1.59%	1.79%	3.38%
VAT (R million)	1,986.89	1,046.46	3,033.35	862.89	3,896.24	3,097.69	6,993.92
VAT (Percentage)	0.48%	0.25%	0.73%	0.21%	0.94%	0.75%	1.69%
Custom duties (R million)	666.91	81.34	748.26	59.56	807.82	292.69	1,100.51
Custom duties (Percentage)	0.95%	0.12%	1.06%	0.08%	1.15%	0.41%	1.56%
Excise (R million)	5,347.96	48.92	5,396.88	15.15	5,412.03	197.06	5,609.09
Excise (Percentage)	8.88%	0.08%	8.97%	0.03%	8.99%	0.33%	9.32%
Fuel levy (R million)	413.97	374.60	788.57	293.00	1,081.57	846.46	1,928.03
Fuel levy (Percentage)	0.52%	0.47%	0.99%	0.37%	1.36%	1.07%	2.43%
Other taxes on products (R million)	305.11	177.51	482.61	147.10	629.71	502.10	1,131.81
Other taxes on products (Percentage)	0.45%	0.26%	0.72%	0.22%	0.94%	0.75%	1.68%
Subsidies on products (R million)	-115.18	-55.82	-171.00	-43.82	-214.82	-128.43	-343.25
Subsidies on products (Percentage)	0.75%	0.36%	1.11%	0.28%	1.40%	0.83%	2.23%
Corporate taxes (R million)	5,135.79	1,968.81	7,104.60	1,531.54	8,636.13	6,064.80	14,700.93
Corporate taxes (Percentage)	1.35%	0.52%	1.87%	0.40%	2.28%	1.60%	3.88%
Personal taxes (R million)	6,610.63	2,943.84	9,554.47	2,236.87	11,791.33	8,881.09	20,672.42
Personal taxes (Percentage)	1.11%	0.50%	1.61%	0.38%	1.98%	1.49%	3.48%
Taxes (R million)	21,318.57	7,130.69	28,449.26	5,610.24	34,059.50	22,020.89	56,080.39
Taxes (Percentage)	1.47%	0.49%	1.96%	0.39%	2.34%	1.52%	3.86%
Excise duties on alcoholic beverages paid by consumers (R million)							40,784.91
Excise duties on alcoholic beverages paid by consumers (Percentage)							87.91%
Total tax contribution alcohol beverage industry (R million)							96,865.30
Total tax contribution by alcohol beverage industry (Percentage)							6.67%
Total tax multiplier (including excise impact)							0.54

METHODOLOGY

The section below provides a brief explanation of the methodology used in estimating the contribution of the legal alcohol industry to the South African economy in 2022.

The size of the alcohol industry

The size of the alcohol industry is estimated in terms of its output, contribution to GDP, employment and other economic concepts. The process of estimating the contribution of the alcohol industry starts by estimating its output. The size of the alcohol industry is estimated using the methodologies set out by the System of National Accounts (SNA) as published in 2008. Output is calculated as the value of goods and services supplied. This is equal to revenue, adjusting for inventory changes, and adding trade and transport margins charged on the supply of goods and services.

Various sources were used to confirm the size of the alcohol industry in 2022, including Stats SA's Annual Financial Survey, industry sales statistics supplied by DFSA members, Stats SA's Supply and Use tables for various years, SARS excise data, SARS trade data, as well as company level data for the largest participants in the alcohol industry in South Africa. Quantec estimated the size of the alcohol industry as follows:

	R billion
Alcohol industry at basic prices	118
Trade margins	50
Transport margins	4
Alcohol industry at market prices*	**173**

* Including domestic sales and exports

The output (or operational expenditure) of the alcohol manufacturing industry (of R118 billion), the transport services industry (R4 billion) and the trade services industry of (R50 billion) were included in the calculation, as well as estimated capital expenditure of R7 billion. The capital expenditure amount was adjusted for final imports and taxes, so that a final value of R4 billion was utilised. In all, the total expenditure impact – or first round impact of the alcohol beverage industry on output – therefore measured R177 billion.

Other concepts such as compensation of employees, gross operating surplus, imports, tax contributions and employment were estimated using the same approach; data from the largest participants in the alcohol industry was considered with other sources such as Stats SA to make the final estimations.

The multiplier analysis was conducted using a Quantec Supply and Use Table for 2022 at basic prices. The economic activity of the alcohol industry was isolated, and industry specific multipliers were generated using the methodology discussed below. The Supply and Use Tables show the input structure of the alcohol industry, including its intermediate use, compensation of employees, gross operating surplus, net indirect taxes on production, and net indirect taxes on products. The total intermediate imports by industry are shown separately so that the multipliers generated show actual South African economic activity. The Supply and Use Tables also show the output of the alcohol industry; including the output to other industries, households, and exports. The Supply and Use Tables show all the forward and backward (downstream and upstream) activities of the alcohol industry.

The multipliers generated are output multipliers, showing the impact of R1 million of output of the alcohol industry on output itself, GDP, employment, household income and taxes. These multipliers were calculated using the methodology explained below. Concepts such as employment, household income and taxes were linked to the SUT by estimating the per industry contribution to them. Various sources of data are used in estimating the SUTs and associated concepts; the sources are all official statistical sources, including:

- South African Reserve Bank (SARB) and Statistics South Africa (Statssa) – national accounts, public finance statistics, production, distribution and accumulation accounts for South Africa. The SAMs are consistent with national accounts figures.
- Statssa – various Supply and Use Tables (SUTs), Social Accounting Matrices (SAMs) and Input-Output Tables (IO) were used to determine the structure of intermediate use. The Annual Financial Statistics (AFS) were also used to supplement the rest of the data used.
- Statssa – including various Labour Force Surveys (LFS), Quarterly Labour Force Surveys (QFLS), Household Surveys (HS), various Censuses, as well as Community Surveys and Income and Expenditure Surveys (IES). These surveys were used to derive the labour disaggregation (formal and informal) by skill level, as well as the household disaggregation.
- South African Revenue Services (SARS) – Trade statistics.
- National Treasury (NT) – estimates of Government Revenue and Expenditure statistics.
- NT and SARS – published Tax Statistics

Multiplier analysis

Multiplier analysis use an input-output framework to estimate the link between an industry and its supplying industries. This is known as the upstream activities, or is often referred to as an industry's backward linkages with the rest of the economy. The multiplier calculated is calculated as a ratio to its total output and is called the direct impact. The link between and industry and its supplying industries also extend further out into the economy to the suppliers of the supplying industries. To measure this, it is necessary to calculate the Leontief Inverse. This is the type I or direct and indirect impact. Lastly, multiplier analysis also includes the impact of the spending of wages and salaries on the economy. The salaries and wages of the industry itself, its suppliers and the suppliers of the supplying industries are included in the analysis. This is known as the type II or economy-wide impact. The mathematical notation below sets out how the multipliers are calculated.

Mathematical notation

Wassily Leontief (1905-1999) developed the input-output multiplier modelling approach for which he received a Nobel Memorial Prize in 1973. The input-output model depicts economic relationships between different agents in an economy by identifying monetary flows (expenditures and receipts) between these. Multiplier models normally focus on inter-industry relationships at a detailed sectoral level, whereas the macro-econometric model emphasises relationships between macro-economic aggregates as depicted in the national accounts of a country.

The relationship between the initial spending and the total effects generated by the spending is known as the **multiplier** effect of the sector, or more generally as the **impact** of the sector on the economy. For this reason, the study of multipliers is also known as **impact analysis.**

The underlying data source used in the analysis is a Supply-and-Use Table (SUT) at basic prices. The intermediate imports and product taxes are not included in the intermediate use matrix. The SUT at basic prices was then used to estimate the multipliers as discussed below.

The structure of the SUT at basic prices:

	Industries	Final demand						Total supply at purchases prices
Commodities	Intermediate use	Household consumption	Government consumption	Gross fixed capital formation	Exports	Change in inventories	Residual	Total supply at basic prices
Primary inputs	Compensation of employees							
	Gross operating surplus							
	Taxes on production							
	Less Subsidies on production							
Intermediate imports	Intermediate imports							
Product taxes	Taxes on products							
Subsidies on products	Less Subsidies on products							
Total output at basic prices	Total output at basic prices							

The SUT at basic prices in mathematical notation:

	Industries	Final demand	Total supply at purchases prices	Other primary inputs	Total output at basic prices
Commodities	Z	Y	Total supply at purchases prices	M	X
Primary inputs	M				
Total output at basic prices	X				

The SUT contains n commodities and industries. The intermediate use block, for example, is therefore a n*xn* matrix. The following denotations are therefore made:

n the number of industries and commodities

i denotes the commodities in the SUT

j denotes the industries in the SUT

X_i the total output of commodity *i* which is equivalent to the total output of industry *j*

Z_{ij} the inter-industry sales of commodity *i* to industry *j*

Y_i the total final demand of commodity *i*

M_j the total primary inputs used in industry *j*

a_{ij} the technical-coefficient matrix which represents the ratio of input to output

B is the Leontief or total requirements matrix

C is the closed Leontief matrix

C^* is the commodity-industry portion of the closed Leontief matrix

V is the output multiplier vectors

d share of additional multiplier to output (for example $\frac{GDP_j}{X_j}$)

The inter-industry sales of commodity *i* to industry *j* are represented by the following block of equations:

$$X_1 = Z_{11} + Z_{12} + \cdots + Z_{1n} + Y_1$$
$$X_2 = Z_{21} + Z_{22} + \cdots + Z_{2n} + Y_2 \quad \text{--(1)}$$
.

.

$$X_n = Z_{n1} + Z_{n2} + \cdots + Z_{nn} + Y_n$$

The technical coefficient matrix, which represents the ratio of inputs to output may be calculated as follows:

$$a_{ij} = \frac{Z_{ij}}{X_i} \quad \text{--(2)}$$

Substitution (2) into block (1) results in the following block of equations:

$$X_1 = a_{11}X_1 + a_{12}X_2 + \cdots + a_{an}X_n + Y_1$$
$$X_2 = a_{21}X_1 + a_{22}X_2 + \cdots + a_{2n}X_n + Y_2 \quad \text{--(3)}$$
.

.

.

$$X_n = a_{n1}X_1 + a_{n2}X_2 + \cdots + a_{nn}X_n + Y_n$$

Block (3) can be re-written in matrix notation as:

$$X = AX + Y \quad \text{--(4)}$$

Solving for x:

$$X = (I - A)^{-1} \cdot X \quad \text{--(5)}$$

With the following matrices:

$$A = \begin{bmatrix} a_{11} & a_{12} \cdots & a_{1n} \\ \vdots & \ddots & \vdots \\ a_{n1} & a_{n2} \cdots & a_{nn} \end{bmatrix}$$

$$X = \begin{bmatrix} X_1 \\ \vdots \\ X_n \end{bmatrix}$$

$$Y = \begin{bmatrix} Y_1 \\ \vdots \\ Y_n \end{bmatrix}$$

$A = \begin{bmatrix} 1 & 0 \cdots & 0 \\ \vdots & 1 \ddots & \vdots \\ 0 & 0 \cdots & 1 \end{bmatrix}$, a (*n x n)* identity matrix.

The matrix A is the technical coefficient matrix, but is also known as the direct requirements matrix and is used to measure the direct impact of changes in final demand on the economy. The direct impact measures the impact of the change in final demand (or the initial economic impact or injection) as well as the impact on the output of first-round suppliers.

The Leontief matrix is $B = (I - A)^{-1}$ and measures the direct and indirect impact of changes in final demand (or the initial economic impact or injection) on the economy. This combines the direct impact as well as further rounds of impacts on all the suppliers.

The direct and indirect impacts is measured using an "open" model, however, to measure the induced impacts the model is "closed" with respect to households. In doing this, the model measures the impact of all the earnings and subsequent spending by households on the economy, as well.

The matrix C denotes the *(n+1) x (n+1)* matrix that endogenize household income and consumption. The C matrix is derived exactly in the same way A is derived, but an additional row and column is added that contains household consumption and expenditure shares as a ratio to total output. The B matrix is then used to calculate $(I - C)^{-1}$. However, for the rest of the calculations a sub-portion of this matrix is used C^*, that contains only the sector values calculated. This matrix is used to calculate the economy-wide impact which includes the direct, indirect, and induced impact of the sector.

These matrices are used to calculate the output multipliers, or vectors V^* (*nx1*) as follows:

Initial impact (II): $V_{II} = \begin{bmatrix} 1 \\ 1 \\ \vdots \\ 1 \end{bmatrix}$

Direct impact (DI): $V_{DI} = \begin{bmatrix} \sum_{i=1}^{n} a_{i1} \\ \sum_{i=1}^{n} a_{i2} \\ \vdots \\ \sum_{i=1}^{n} a_{in} \end{bmatrix}$

Direct and indirect impact (D&I): $V_{D\&I} = \begin{bmatrix} \sum_{i=1}^{n} b_{i1} \\ \sum_{i=1}^{n} b_{i2} \\ \vdots \\ \sum_{i=1}^{n} b_{in} \end{bmatrix}$

Economy-wide impact (EW): $V_{EW} = \begin{bmatrix} \sum_{i=1}^{n} c_{i1} \\ \sum_{i=1}^{n} c_{i2} \\ \vdots \\ \sum_{i=1}^{n} c_{in} \end{bmatrix}$

These output multipliers may then be used to calculate other multipliers such as the GDP, employment, capital requirement, or import multipliers. Let *d* denotes the share of, for example GDP to output, the GDP multipliers are then calculated as follows:

GDP initial impact = $d * V_{II}$

GDP direct impact = $d * V_{DI}$

GDP direct and indirect impact (D&I) = $d * V_{D\&I}$

GDP economy-wide impact = $d * V_{EW}$

The input-output analysis has limitations. Input-output analysis is an accounting framework that provides a snapshot of the economy at a specific point in time describing the composition and level of economic activity and the interactions and dependencies (backward and forward linkages) between industries and institutions. There are however several limitations to the model which should be considered when interpreting the results. The following limitations of multiplier analysis exist and should be considered when interpreting the estimation results:

- Multipliers assume that resources are unemployed, and an increase in output would therefore not influence resource prices.
- The structure of the economy remains the same over time.
- An increase in the resource required (as indicated by the model) does not necessarily imply an absolute increase in the resources used; for example, an increase in employment (as indicated by the model) does not necessarily mean an increase in the same number of jobs. It may mean that as the demand for labour increase some workers may work more hours, some workers in temporary jobs may be permanently employed, or that the number of shifts may increase. This especially occur in times of low economic activity. Therefore, it is more prudent to refer to the number of jobs supported because of the increase in economic activity and not necessarily jobs created.