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Covid-19 and the South African wine industry

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ABSTRACT

South Africa has faced multiple waves of COVID-19 infections since March 2020 with various levels of economic restrictions imposed to control the pandemic's spread. Such actions included intermittent bans on alcoholic beverage sales, which have had a substantial impact on the wine sector. This purpose of this paper is to quantify this impact, using a partial equilibrium simulation model to separate the direct impact of sales restrictions from the indirect impact of collapsed GDP growth and consequently also consumer spending. In 2020 alone, it points to a reduction in domestic sales and in exports as a result of the pandemic and the efforts to control its spread. The subsequent stock build up induces a prolonged period of weaker prices, and combined with additional actions imposed up to the end of July 2021, cost actors in the industry R3.6 billion in primary gross production value from 2020 to 2027, even without accounting for further value addition between bulk sale and retail value.

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1. Introduction

South Africa has endured multiple waves of COVID-19 infections, following the first recorded cases in March 2020. Like most of the world, the pandemic has dominated politics and social and work life, and has had a devastating impact on the economy across the primary non-agricultural (mostly mining), the secondary, and the service sectors. Because agriculture is largely about the production of food to sustain human life, however, the direct impact globally on the sector in general has not been large, and in the case of some commodities it has been positive. However, the contribution of food production to GDP was negatively influenced by the indirect impact that the pandemic has had on the low-income and poor segments of societies world-wide. South Africa has been no exception in this regard.

Many countries closed restaurants and bars during strict lockdown periods, effectively ending on-premises sales and consumption of alcoholic beverages. Where South Africa has been an exception, however, is in the periods where the sale of alcohol, including wine, has also been banned for sale in off-consumption outlets such as liquor stores and supermarkets. The only other country to implement as severe a ban was Greenland, which is, of course, not a wine-producing country. At the same time, wine exports were also banned in the early stages of the pandemic when the first lockdown regulations were promulgated towards the end of the 2020 wine grape harvest.

To this end, the purpose of this article is twofold, first to quantify the direct impact of the ban on wine sales through 2020, which must be separated from the indirect impact of the collapse in GDP growth and therefore in consumer spending in the economy as a whole, and second to illustrate how long it will take for the industry to recover from this impact.

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In this article, we place the impact of the bans into perspective by first analysing some of the trends that were affecting the wine industry prior to the pandemic. This is followed by a short analytical description of the details of the ban. In section four the model, as developed by the Bureau for Food and Agricultural Policy (BFAP), is first described, followed by a discussion of the results in section five. Section six concludes.

2. The industry in context

There are a number of medium and long-term or structural trends in the wine industry that need to be acknowledged before the real impact of the COVID-19 pandemic and the measures implemented by the state to manage it can be assessed. These changes include variables such as employment in the industry, the capital stock deployed (vines and vineyards, cellars, etc.), the portfolio of output in terms of the product characteristics as well as destination, prices at different stages of the supply chain, foreign exchange earnings, and the upstream and downstream linkages of the industry and the additional economic activity that this generates.

In 2020, the 2 693 primary grape producers in South Africa produced 1.342 million tons of grapes (estimated to be 1.462 million tons in 2021) on 92 005 hectares of vineyard, from which they made 898 million litres of wine in 529 wine cellars. The grapes and wine that they produced was then sold for R5 785 million.[1] A total of 269 096 employment opportunities were supported, either directly or indirectly, by activities related to the wine industry in 2019 (FTI Consulting 2021). These indicators have changed over the past two decades. The number of hectares and of primary grape producers has declined monotonically since the year 2000, as has the total income of the industry in real terms. Finally, the number of wine cellars increased during the first decade but then declined, as did employment in the wider industry (Conningarth 2000, 2004, 2009, 2014; FTI Consultants 2021). SAWIS estimates that there were 273 million vines in 2020, a decline from the 293 million vines in 2000, but relatively constant at around 3 000 vines per hectare.

Another structural change is reflected in the proportion of wine exported, which increased from a low of around 5% of wine produced in 1992 in the aftermath of the boycotts and sanctions of the 1980s to a high of 57.4% in 2013, down to the 35.4% of 2020 (with considerable annual fluctuations, but a definite recent downward trend). During this time, domestic consumption of still, sparkling and fortified wine, which also fluctuates annually, declined from 357 million litres in 2000 to 333 million litres in 2010, and 314 million litres in 2020. Still wine consumption per capita declined from 7.4 litres in 2000 to 5.9 litres in 2010 and 4.9 litres in 2020 during this period. Of course the 2020 figure was influenced by the 14 week ban on sales. On the positive side, two thirds of domestic sales were for wine sold at more than R30 per litre, while the share of wines sold at more than R120 per litre increased from 4.9% in 2018 to 6.8% in 2020.

While the physical capital used by the wine industry, as reflected in the land under vineyards, and the number of wine cellars, has declined over the past decade, this has not resulted in a significantly smaller harvest of grapes, or of wine made from those grapes. The average annual growth in grape production was 1.07% from 2001 to 2020, mirrored by an average annual decline of 1.07% from 2011 to 2020. Concomitantly, the wine crop grew by 1.13% on an average annual basis from 2001 to 2020, with a 1.03% average annual decline when only considering 2011–2020. Thus, the reasons for the declining real income earned by the South African wine industry must be found elsewhere, namely either in the real prices achieved for wine grapes or in the real price of wine. In the case of wine grapes, there has been a recent decline in the real price, which increased from R622/ton in 2000 to R3949/ton in 2010, but then declined to R3284/ton in 2016, after which it slightly recovered to R3506/ton in 2020. On the other hand, the real average income per litre from wine increased from R2,09 in 2000 to R3,85 in 2010, and then to R3,94 in 2020. It is evident, therefore, that the recent declining real price of wine grapes is one of the main factors that is driving the structural changes in the industry. Yet the impact of the exchange rate and changing consumption patterns should also be investigated.

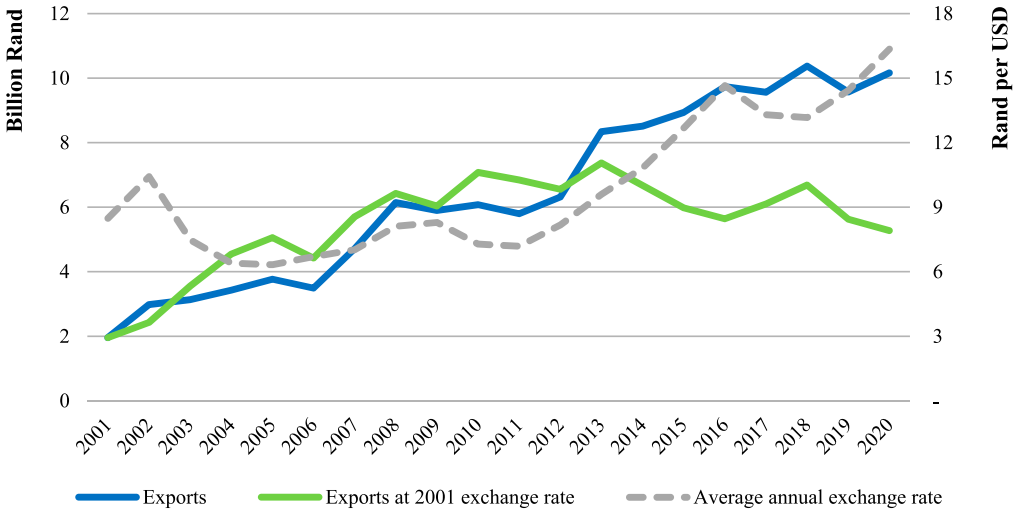

Figure 1. The effect of the exchange rate on export earnings, 2001–2020. Source: ITC (2021).

Export earnings from wine increased in nominal terms from $230.3 million in 2000 to $833.7 million in 2010 before declining to $621.3 million in 2019 (ITC, 2021). In Rand terms, the purchasing power of these earnings followed the same trend. However, Figure 1 shows the extent to which the industry depends on South Africa's weakening exchange rate, especially since 2012. If the exchange rate had remained at its level of 2001, then export earnings in 2020 would have been R5,2bn instead of the actual R10,1bn.

Industry average prices for grapes or wine hide the differences between prices for red grapes/wine, which are typically higher than those for white grapes/wine. Higher prices for red grapes were responsible for the shift in the proportion of red grapes produced from 15% in 2000 to its highest point of 34.4% in 2007. Since then, it has declined by almost two percentage points to 32.7% in 2020. The type of packaging within which wine is sold is also indicative of the extent to which consumers are migrating to premium and more expensive wines. In this regard, wine sold in 750 ml glass bottles made up no more than 17% of the litres of wine sold in the domestic market in 2000. This proportion peaked at just below 30% in 2014, and has fluctuated between 27% and 28% since 2016.

In summary, it is clear that the industry is in the process of structural change. The greater yields of both grapes per hectare and wine per ton of grapes is likely the combined result of new technologies, as well as changing management practices to accommodate declining profitability, but one of the important outcomes has been a peak in indicators such as the share of red wine in the total, the share of exports in total production, and the number of operational wine cellars after the first decade that is analysed here (i.e., 2000–2010), followed by a decline, thereby adding to these structural shifts. COVID-19 and the lengthy bans on alcohol sales that accompanied the government's management of the pandemic has added to these structural shifts in ways that we analyse in this paper. First, these bans are illustrated.

3. The industry and the COVID-19 regulations

On 23 March 2020, the South African Government issued the Amendment of Regulations of the Disaster Management Act as a prelude to the Lockdown Level 5. The relevant provisions included:

- No sales of any alcohol (on or off-premises) in the South African market within the 21-day period

- Production of alcohol for industrial use could continue
- Manufacturing of alcohol products ceases

As this came towards the end of the 2020 harvest season, the wine industry lodged an urgent application to the government to allow farmers to complete the harvest. The regulations were supplemented on 26 March by the addition of the following to the list of essential services that were to be allowed under Lockdown Level 5:

- All harvesting and storage activities essential to prevent the wastage of primary agricultural goods
- Agri-workers required to harvest grapes and/or to operate as cellar workers, were to be considered as essential workers

On 7 April, the Government amended the regulations to allow agricultural cargo (including wine) to be transported to designated seaports for export. Unfortunately, this was again amended on 16 April, when the regulations banned the transport of wine, only to be reversed once again from 1 May, when lockdown level 4 commenced. The new regulations stipulated that the following would be permitted:

- The procurement, packaging, transport and export of wine
- Essential procurement, manufacturing (bottling, labelling and packaging) of wine under strict health and safety protocols
- The transport of wine to port and airport for export and via road for export into neighbouring countries
- Essential support services such as inspection and certification

A month later (1 June), Alert Level 3 commenced, with sales of alcohol in the domestic market allowed for the first time in 9 weeks. Sales were limited to off-site consumption (the "off-trade") with limited trading times, from Mondays to Thursdays, 09:00–17:00. Online sales were also allowed, but with restrictions on delivery times. Restaurants and bars remained closed. However, 6 weeks later (on 12 July) the regulations were again amended and a total ban on sales of alcohol was implemented in the midst of South Africa's second wave of COVID-19 infections. This time the ban lasted about 5 weeks until, on 17 August, the previous restricted off-sales were once again allowed, but this time restaurants and bars were also allowed to serve alcohol within the curfew hours.

These relaxations were continued over the next 4 months, starting with 21 September under Alert Level 1, when off-sales were permitted from Mondays to Thursdays, 10:00–18:00, on-consumption restrictions were eased, and registered wineries were allowed to continue to sell wine and conduct wine tastings within the curfew period, with a further concession to include the weekends from 17 December. However, on 28 December the country reverted to an Adjusted Alert level 3, which for the third time included a total ban on all sales of alcohol in the domestic market, a situation that was kept in place until 1 February, when all restrictions were lifted.

On 15 June 2021, in response to the third wave of infections, South Africa again reverted to Alert Level 3. Alcohol sales were restricted once more, with retail sales only allowed from Mondays to Thursdays, between 10:00–18:00 and on site consumption permitted in line with licensing conditions, until 21:00. On 28 June 2021, all alcohol sales were banned in line with the shift to Alert level 4. This lasted for a total of 4 weeks, with a shift back to an adjusted Alert level 3, which again allowed retail sales from 10:00–18:00, Monday to Thursday, while on-site consumption was permitted until 20:00, in line with license conditions. By mid-August 2021, the time of writing, the conditions associated with adjusted level 3 remained in place.

4. Methodological framework

The impact of the various restrictions on alcohol sales is evaluated using a partial equilibrium simulation model. Various types of simulation models exist, each with its associated advantages and disadvantages. Computable General Equilibrium (CGE) models offer a broad sectoral coverage and their ability to capture linkages between different sectors in the economy is appealing. At the same time, their complexity limits the extent of disaggregation within specific sectors, which often constrains detailed policy inclusion and can obscure important underlying relationships. Together with their predominantly static and data intensive nature, these have been the main criticisms related to CGE models (Teh and Piermartini 2005; Van Tongeren et al. 2001). Conversely, the ability to include complex policies and market relationships in a highly disaggregated and focussed manner has made partial equilibrium models the preferred choice of methodology when conducting detailed analysis of specific sectors and policies (Davids 2015; Abler 2007; Westhoff et al. 2004). The model utilised for this analysis was first developed and documented by Cutts et al. (2007). The model encompasses various structural equations that capture the relationship between exogenous and endogenous variables through a range of elasticities. The partial equilibrium framework further equates total supply to total demand to yield equilibrium prices.

While the core factors underpinning the model and several components remain the same as those detailed by Cutts et al. (2007), the model has been maintained and further developed by the Bureau for Food and Agricultural Policy (BFAP). The supply block remains largely intact and on the demand side the disaggregated export structure is also retained from the original framework. Domestic demand however has since been disaggregated in order to capture differences in consumer response for wine priced in lower and higher segments. The structure and closure of the model has also been adapted to move away from the original price linkage equations with equilibrium achieved through a change in stocks, to a framework where the average bulk wine price is the result of an equilibration of total supply and total demand. A simplified illustration of the structure of the updated model, as utilised in this analysis and focused on wine as opposed to wine grapes, is presented in Figure 2.

The simulations are conducted in two phases within this framework. The first is retrospective in nature and aims to quantify the effect of the various market restrictions on the industry in 2020. The second is forward looking and aims to illustrate the time required to recover from this impact, whilst also accounting for further restrictions already imposed by August 2021.

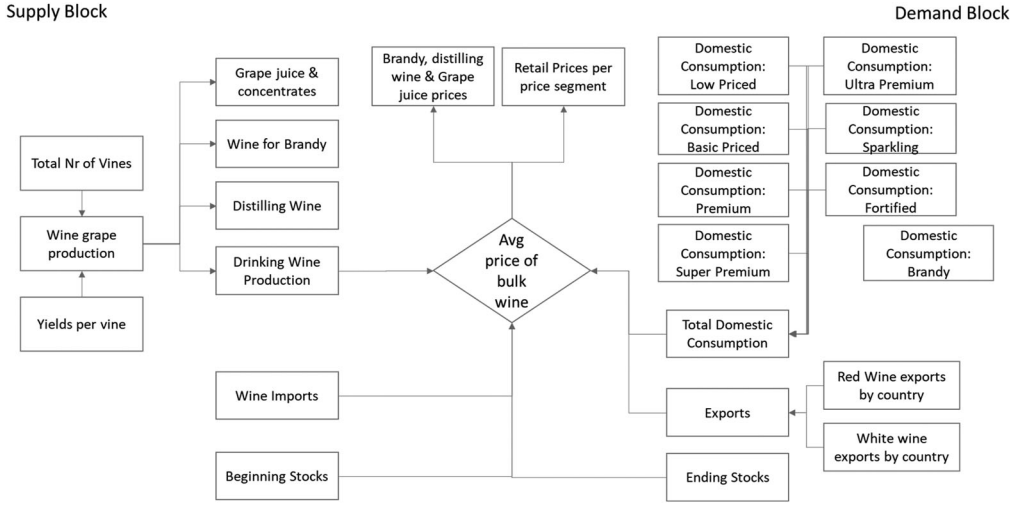

Figure 2. Structure of the latest version of the partial equilibrium wine market model.

In 2020, the pandemic and the associated regulations to control it influenced the wine sector in multiple ways. Directly, the various regulatory adjustments presented in Section 3 influenced producers' ability to trade. At various times, sales were banned outright, and at other times hours and outlets were restricted. Indirectly, the influence of the pandemic is also evident in terms of the macroeconomic environment within which the industry operates. Within the agricultural space, wine is a luxury product, suggesting that sales are sensitive to changes in consumer spending power. The contraction in economic activity therefore already implies that sales would come under pressure, but this was further exacerbated by the sales restrictions.

The retrospective simulation for 2020 aims to separate the macroeconomic impact from the direct effect of the various sales restrictions. Macroeconomic assumptions, which are exogenous in the partial equilibrium framework, are aligned with the actual outcomes observed in 2020, while the production level is exogenised and fixed at the actual level achieved. This reflects the timing of the interventions, which were introduced at the end of the growing season, as the harvest commenced.

The forward-looking analysis is conducted twice, firstly accounting for the actual levels attained in 2020 and therefore also for the bans imposed, as well as an adjustment in 2021,[2] to allow for restrictions already imposed from January to July, and secondly based on the simulated outcome for 2020, where the effect of the bans are effectively removed and no further bans imposed in 2021. All else being equal, this allows a comparison of the outlook for the industry under both scenarios, thereby comparing the growth path post 2020 and 2021 in each of the scenarios and enabling quantification of the impact of the sales restrictions on this path.

5. Simulation results

As a starting point for the simulations, Table 1 presents the macroeconomic assumptions used in the simulation. In 2019 and 2020, it shows actual data, while 2021 and beyond are projections based on the IMF's World Economic Outlook for the global economy, as well as a combination of sources such as the Bureau for Economic Research, the Bureau for Food and Agricultural Policy and the South African Reserve Bank in the case of South Africa.

5.1 Short term impact

To quantify the short-term impact of the sales restrictions in 2020 alone, the partial equilibrium model is solved retrospectively for 2020. This simulation provides an alternative outcome for 2020, which incorporates the macroeconomic impact of COVID-19 and its associated effect on sales, both domestically and in the export market, but without the accompanying restrictions on sales described in Section 3.

Figure 3 compares the results of the retrospective simulation to the actual volumes that materialised in 2020. The simulated outcomes suggest that domestic sales were reduced by 15%, or 54 million litres as a result of the various restrictions on sales. Given that sales were banned for a total of 14 weeks through 2020 (27% of the year), this suggests that some of the sales lost through the various periods of prohibition were recovered when sales re-opened, but it still

Table 1. Macroeconomic outcomes and outlook assumptions.

	2019	2020	2021	2022	2023	2024	2025	2030
Global Economy								
Real GDP (% change)	2.38	−3.64	5.76	4.12	2.92	2.77	2.72	2.69
South Africa								
Real GDP (% change)	0.20	−7.00	3.90	2.50	1.80	1.80	1.90	2.00
Population (Mil people)	58.8	59.1	59.7	60.3	61.0	61.6	62.1	64.83
Exchange Rate (Rand – USD)	14.55	16.46	14.05	15.05	15.80	16.39	16.85	17.34

Source: IMF (2021); BFAP (2021).

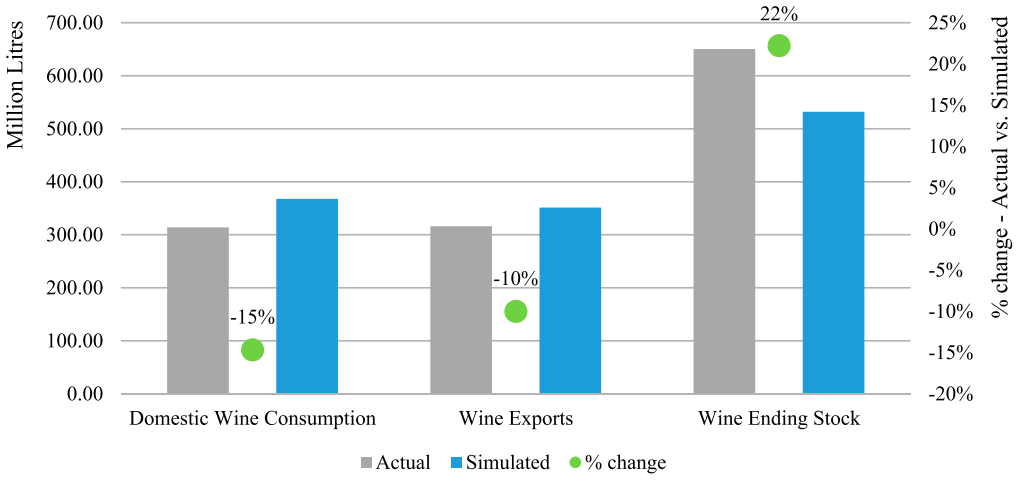

Figure 3. Impact of sales ban on domestic consumption, exports and ending stock (2020). Source: SAWIS (2021) & Partial Equilibrium Simulation Results.

represents a substantial loss to the industry. Valued at average bulk wine prices, this equates to R410 million in revenue related to the primary product, before accounting for additional value added up to the point of sale at retail level.

From an export perspective, the simulated outcomes in Figure 3 suggest that volumes were reduced by 10%, or 35 million litres as a result of the restrictions on trade. Exports were only prohibited for a period of 3 weeks in total, but the global market is extremely competitive. Over many years, the sector had built a reputation for over-performing on quality across the spectrum of price points (e.g., Robinson 2020), as well as for reliable supply. The prohibition of exports, combined with the uncertainty around the regulations, which changed frequently as described in Section 3, tarnished this reputation. The inability to deliver on orders concluded prior to the introduction of lockdown regulations can lead to delisting and loss of shelf space – both of which take months to remedy. It is not surprising then that the impact on volumes was larger than the share of total annual exports that would typically occur over a 3-week period (6%).

As a result of the reduction in sales, stock levels increased sharply in 2020, ending 44% higher year on year (SAWIS 2021). Some year-on-year increase was to be expected, even in the absence of sales restrictions, due to the weak economic environment and its associated impact on consumer spending power in South Africa and the rest of the world. The simulations presented in Figure 3 suggest that this year-on-year increase could have been contained to 18% if trade were allowed to continue freely. Ultimately, ending stocks were 22% higher than the simulated value, which implies that, even in the absence of further trade restrictions, those imposed in 2020 will have a prolonged effect on the industry.

5.2 Medium term impact

The long-term nature of wine grape production implies that producers take time to respond to exogenous shocks in the market. One of the few short-term mechanisms to adjust to market dynamics are changes in stock levels, provided that sufficient storage capacity exists. The availability of sufficient storage capacity is a critical assumption, as wine stocks reached an all-time high in 2020. While informal discussions with numerous industry stakeholders suggests that storage capacity currently available in the industry was almost fully utilised in 2020, no official data is available and so storage capacity in not constrained in the modelling framework, even in the short term.

A key benefit of the partial equilibrium simulation model used for this analysis is the ability to evaluate different outcomes *ex ante*. Based on the same set of macroeconomic assumptions for

the coming decade, the model is used to simulate two alternative future outcomes – one which accounts for the actual sales and stock levels recorded in 2020, as well as the additional sales restrictions that were imposed up to the end of July 2021, and another that provides a view of how this outlook would differ if 2020 outcomes had been in line with the simulations presented in Figure 3 and no further restrictions were imposed in 2021.

Figure 4 presents the outlook for bulk wine prices under both scenarios. Owing to the weak macroeconomic environment, where consumer spending power recovers slowly, it takes multiple years for stocks to be worked out of the market and, as a result, prices decline in the short term under both scenarios. Nevertheless, higher carryover stocks in the scenario that plays out following the sales bans imposed in 2020 and 2021 result in a significantly reduced price level in 2021–16.5% below the prices attained in the scenario where no ban was imposed. Prices remain below the alternative scenario with no ban and only converge by 2025, when the lack of reinvestment resulting from the 2020 and 2021 performance leads to lower production volumes.

Figure 5 presents the combined effect of price changes and production volume through the gross value of production, in nominal terms and at bulk wine prices. In line with price levels, the value of production reflects a modest decline in the short term – even under the scenario where no ban was imposed, before starting to trend upwards from 2023 onwards. Conversely, the scenario that follows from the actual outcomes in 2020 with its various sales bans results in a sharp decline in 2021 – due to sharply reduced prices. The slow adjustment in terms of production volumes and time required for additional stock levels to decline implies that production values in the two scenarios only converge by 2027. This is despite efforts within the industry to reduce stocks, with increased volumes contracted to non-alcohol production from 2021 to 2023. These volumes reduce wine production and are incorporated in the same way in both scenarios.

The simulations indicate that the long term effects of the various periods of sales prohibitions through 2020 and 2021 will remain with the industry for many years. Cumulatively, accounting for the sales value at bulk wine prices between 2020 and 2027, the combined loss of revenue as a results of the sales restrictions amount to R3.6 billion. This is less than some of the industry estimates that have been published, such as the R36.3 billion impact across the broader alcohol industry estimated by FTI Consulting in 2021. It reflects the focus of this analysis on detailed simulation at primary level for the wine industry alone, which therefore does not yet account for additional value adding that occurs up to the final point of sale at retail level, nor the additional impacts through sectors such as wine tourism. Prior to the pandemic, the industry had been going through a process of consolidation, as discussed in section 2, with a strategy of prioritising value over volume. Stock levels had

Figure 4. Impact of the sales ban on the outlook for bulk wine prices.

Figure 5. Impact of the sales ban on the outlook for gross production value.

started to reduce and real prices increased in 2018 and 2019, indicating that the strategy was starting to bear fruit. While the macro-economic environment deteriorated as a result of the pandemic, the simulations presented in this section clearly indicate that the response to the pandemic has put the industry in a sharper negative spiral, which will take many years to recover from.

6. Conclusions

Following multiple waves of COVID-19 infections in South Africa, the actions taken to curb the spread of the pandemic are worth considering. The various restrictions placed on trade through periods of lockdown have resulted in significant reductions in sales among alcoholic beverage sectors, where wine is the second largest after beer and a critical contributor to South Africa's export revenue. Within this context, the purpose of this paper was twofold: Firstly to quantify the impact of restrictions on wine sales in 2020 – particularly to separate this direct impact from the indirect impact of collapsed GDP activity and consequently consumer spending. Secondly, it aims to illustrate the time required for the industry to recover from this impact, accounting for further restriction imposed by end of July 2021.

Quantification of the impact of sales restrictions must be understood within the context of the structural adjustment evident in the sector over the past decade. The number of producers and area under wine grapes has been declining, while farm sizes and yields have increased. The proportion of wine production exported peaked in 2013 and in recent years, per capita consumption has trended downwards. To some extent, this reflects the industry's premiumisation strategy, which aims to curb a long term decline in real prices. This strategy was starting to bear fruit, with real prices increasing from 2016 to 2019. The pandemic however reversed this trend, resulting in a further decline in 2020.

The evaluation showed that the full year on year decline in domestic sales and export volumes cannot be attributed to sales restrictions, as the indirect impact of collapsed GDP and consequently also consumer spending would in itself have resulted in weaker sales and prices compared to 2019. However, domestic sales and export volumes that materialised in 2020 were respectively 15% and 10% lower than the simulated outcomes, which represent what might have been achieved in the absence of sales restrictions, under the same macro-economic circumstances. The extent of stock build up that occurred through 2020 also implies that the impacts of the pandemic will be with the industry for years to come. Simulations suggest that, due to the stock build up and additional restrictions already imposed through the first seven months of 2021, the gross value of production will only converge to a theoretically attainable scenario (where the 2020 sales restrictions are removed) by 2027.

The impacts of the pandemic have the potential to accelerate the structural adjustment that has occurred in the industry over time. The deterioration in profitability could result in further producers

choosing to exit the sector. At the same time, the premiumisation strategy will be more difficult to execute in a substantially weaker macro-economic environment and further complicated by the high level of stock build up.

Notes

1. All data are from SAWIS (various years) unless specified.
2. The adjustment for 2021 is based on the simulated magnitude of impact in 2020, adjusted for the total weeks of outright sales restrictions imposed by end of July 2021 (8 weeks) relative to the number of weeks affected in 2020 (14 weeks).

Disclosure statement

No potential conflict of interest was reported by the author(s).

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