Wine Economics Research Centre

Working Papers

Working Paper No. 1 2024-01 ISSN 1837-9397

THE UNIVERSITY of ADELAIDE

Australia's Wine Industry Crisis and Ways Forward: An Independent Review

Kym Anderson

July 2024

make history.

Wine Economics Research Centre

The Wine Economics Research Centre was established in 2010 by the School of Economics and the Wine 2030 Research Network of the University of Adelaide, having been previously a program in the University's Centre for International Economic Studies.

The Centre's purpose is to promote and foster its growing research strength in the area of wine economics research, and to complement the University's long-established strength in viticulture and oenology.

The key objectives for the Wine Economics Research Centre are to:

- publish wine economics research outputs and disseminate them to academia, industry and government
- contribute to economics journals, wine industry journals and related publications
- promote collaboration and sharing of information, statistics and analyses between industry, government agencies and research institutions
- sponsor wine economics seminars, workshops and conferences and contribute to other grape and wine events

Contact details:
Wine Economics Research Centre
School of Economics
University of Adelaide
SA 5005 AUSTRALIA
Email: wine-econ@adelaide.edu.au

Centre publications can be downloaded at: https://economics.adelaide.edu.au/wine-economics/

Australia's Wine Industry Crisis and Ways Forward: An Independent Review

Kym Anderson

18 July 2024

Commissioned in early May 2024 by Wine Australia as a contribution to the ministerial Viticulture and Wine Sector Working Group (which is scheduled to report to federal, state and territory Ministers of Agriculture on 18 July 2024) and thereby to the *One Grape & Wine Sector Plan* (Wine Australia 2024e). It draws on and updates historical and comparative data in Anderson (2015) and Anderson, Nelgen and Pinilla (2017) plus a new database on winegrapes production by region and variety in Australia since 2001 (Anderson and Puga 2023a). The views expressed are the Reviewer's alone, and not necessarily those of Wine Australia staff or Directors, nor of any others contributing to the Working Group.

Contents

	Page
List of figures	iv
List of tables	vi
Acronyms and currency note	vii
Key messages	ix
Executive summary	xi
1. Introduction	1
2. Anatomy of the current boom-slump cycle	9
2.1 Bearing area and winegrape production changes	9
2.2 Winegrape revenue per hectare	12
2.3 Wine production and exports	13
3. Contributions of recent demand trends and shocks	20
3.1 Global	20
3.2 Domestic	24
4. Contributions of recent supply trends and shocks	28
4.1 Global	28
4.2 Domestic	29
5. Options for reducing the current over-supply of red wine stocks	39
5.1 Leave it to market forces?	39
5.2 A subsidy or producer levy to dispose of surplus bulk red wine?	39
5.3 Generate new markets for bulk red wine?	40
5.4 Subsidize growers to mothball their vineyards?	40
5.5 Provide temporary financial assistance in worst-affected communities	41
6. Nudging the industry toward a sustainable supply-demand balance	42
6.1 Subsidize another vine-pull scheme?	42
6.2 Leave it to market forces?	44
6.3 Boost generic marketing/promotion?	46
6.4 Invest more in research/innovation?	47
6.5 Invest more in wine market analysis and market access negotiations?	50
6.6 Invest more in winegrape data generation and analysis?	50
7. Ways forward: actions needed by producers and governments	52
7.1 Market prospects for Australian wine	52
7.2 The case for reforming producer levies	54
7.3 Industry-driven structural adjustment with limited government support	57
7.4 Scope for improving the nation's key wine institutions	58
7.5 Other possible regulatory changes	61
7.6 What else can individual producers do?	61
Appendix 1: Determinants of winegrape prices	63
Appendix 2: Ownership concentration in Australia's wine industry	66

Appendix 3: How government policies diverted Australia away from still wine production and exports in the inter-war years 68
Appendix 4: Domestic demand growth and supply response, 1960 to mid-1980s 70
Appendix 5: Changing concentration in the direction of Australia's wine exports 72
Appendix 6: The long-term payoffs from investing in innovation 74
Appendix 7: Possible effects of reforming the wine consumer tax regime 75
Appendix 8: Comparing the wine competitiveness of Australia and New Zealand 77
Appendix 9: Acknowledgements 79
Appendix 10: The Independent Reviewer 80

References cited 81

List of figures

Page

Figure 1: Average prices of red and white winegrapes by region, Australia's warm inland wine regions, 2021 to 2025 1
Figure 2: Vine bearing and non-bearing areas, average winegrape price, new vine plantings and removals, wine export price and vineyard land prices, Australia, 1986 to 2024 3
Figure 3: Stock-to-sales ratio, red, white and all wines, Australia, 1985 to 2023 4
Figure 4: Indicators of wine industry expansion and cycles, Australia, 1843 to 2023 6
Figure 5: Vine bearing areas in Victoria's Murray Darling-Swan Hill region, other warm inland regions, and cooler regions, 1995 to 2023 9
Figure 6: Vine bearing area, crush and average winegrape price, SA Riverland and NSW/Vic warm inland regions, and cooler regions, 1995 to 2024 10
Figure 7: Winegrape yield and share of national crush and area, Riverland, Other warm inland, and cooler regions in Australia, 1995 to 2024 11
Figure 8: Shares of premium regions in total winegrape bearing area and crush, and price index, Australia and California, 1997 to 2023 12
Figure 9: Gross revenue per hectare of winegrapes, Riverland, Other warm inland, and cooler regions in Australia, 2001 to 2023 13
Figure 10: Gross revenue per hectare of winegrapes and average wine export price, Australia and New Zealand, 2001 to 2023 14
Figure 11: Vine bearing area, average winegrape price, and wine export price, New Zealand, 1985 to 2023 14
Figure 12: Value of wine exports per capita, national share in the value of global wine exports, and index of revealed comparative advantage in wine, Australia and key competitors, 1985 to 2023 15
Figure 13: Number of firms exporting Australian wine, 2001 to 2023 16
Figure 14: Volumes of Australian premium and non-premium wine exported (sold at more and less than $5/litre), their average prices, and premium shares of volumes to the UK, US, Germany and all countries, 2002 to 2023 17
Figure 15: Grapegrowers' share of wine pre-tax wholesale sales revenue, Australia, 1985 to 2023 20
Figure 16: Global recorded alcohol consumption per adult, 1970 to 2022 21
Figure 17: Global wine production and consumption, 1960 to 2022 22
Figure 18: Volume of China's production, net imports and apparent consumption of wine, 2000 to 2023 23
Figure 19: Index of intensity of the value of wine exports to China from Australia, Chile and France, and share of Australia's wine exports going to China, by value, 2011 to 2023 23
Figure 20: Apparent alcohol consumption per adult, Australia, 1950 to 2020 25
Figure 21: Production of winegrapes and other grapes in Australia, 1937 to 2023 29
Figure 22: Shares of red varieties in the vine bearing area and crush, Australia, 1956 to 2024 30
Figure 23: Real effective exchange rate indexes, Australia, Chile, New Zealand and South Africa, 1984 to 2022 30
Figure 24: Wine trade intensity indexes by value, Australia's exports to the UK, the US and China, 1989 to 2023 32

Figure 25: Four *Strategy 2025* target indicators and pathways toward them, Australia, 1996 to 2023 32
Figure 26: Warm inland and cooler regions' grape bearing areas, Australia and California, 1997 to 2023 35
Figure 27: Investment in grape and wine research and development in Australia, 2001 to 2022 49
Figure 28: Average price of wine exports in bottles and in bulk, volumes of bottled and bulk wine exports, and bulk's share of the total volume of wine exports, Australia and the world, 1991 to 2023 63
Figure 29: Number of wineries and % crushing less than 50 tonnes per year, Australia, 1990 to 2022 66
Figure 30: Exports as a % of wine production and imports as a % of wine consumption volume, Australia, 1960 to 2023 70
Figure 31: Total and unit values of Australia's two-way trade in wine with New Zealand, 1993 to 2023 77

List of tables

Page

Table 1: Bulk wine export prices, Cabernet Sauvignon and Chardonnay, Australia and competitors, as of March 2024 versus March 2019 5
Table 2: Share of export volume from cooler regions sold at less than $5 per litre FOB, by GI region, 2001 to 2023 18
Table 3: Average offer price, volume and value of bulk wine for sale, by GI region or Zone, 1 March 2024 19
Table 4: Excise taxes on alcohol consumption by type, and VAT/GST, high-income countries, 2018 27
Table 5: Global rankings of Australian brands of light still wine among the top 15, 2006, 2010 and 2015 37
Table 6: Shares of Australian wine exports to key markets, by volume and value, and average unit values, 1990 to 2023 46
Table 7: Indicators of Australian wine exports to key markets, 12 months ended February 2024 47
Table 8: National shares (%) of global wine consumption and import volumes and of import values, and indexes of Australian wine exports to those nations, 2020 48
Table 9: Grape and wine research publications per litre of wine production, by country, 1992 to 2006 50
Table 10: Estimated annual levy payments by the largest firms and all smaller firms in Australia's warm and other regions, 2019-23 56
Table 11: Annual producer levy payments and government grants, recent average (2019-23) and proposed for 2025-28 58

Acronyms and currency note

ABA	Almond Board of Australia
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ABS	Australian Bureau of Statistics
ACCC	Australian Competition and Consumer Commission
AGW	Australian Grape and Wine
AI	Artificial intelligence
AIHW	Australian Institute of Health and Welfare
ALRC	Australian Law Reform Commission
AUD	Australian dollar
AWBC	Australian Wine and Brandy Corporation
AWF	Australian Wine Foundation
AWRI	Australian Wine Research Institute
CBAM	Carbon border adjustment mechanism
CCA	Copper chrome arsenic (treated timber posts)
CCW	A member-owned and controlled co-operative of 530 Riverland growers
CDFA	California Department of Food and Agriculture
CEO	Chief Executive Officer
CIF	Cost, insurance and freight (of transporting imported goods from origin)
CPI	Consumer Price Index
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAFF	Department of Agriculture, Fisheries and Forestry
DAWE	Department of Agriculture, Water and Environment
EEC	European Economic Community
ESG	Environmental, social, and governance (considerations)
EU	European Union
FOB	Free on board (for export)
FTA	Free Trade Agreement
GATT	General Agreement on Tariffs and Trade
GFC	Global financial crisis
GI	Geographical indication (a legally defined grape-growing region)
GST	Goods and services tax
GWRDC	Grape and Wine Research and Development Corporation
MIS	Managed investment schemes
ML	Million litres
MLA	Meat and Livestock Australia
OIV	Organisation Internationale de la Vigne et du Vin (International Organization of Vine and Wine)
PC	Productivity Commission
PIRSA	Primary Industries and Regions South Australia
R&D	Research and development (including extension)
RCA	'Revealed' comparative advantage (index)
RDC	Research and Development Corporation
RVF	Regenerative Viticulture Foundation
SAFER	Fédération Nationale des Safer
SAWIA	South Australian Wine Industry Association
SAWIS	South African Wine Industry Information and Systems NPC
SFA	Statutory Funding Ageement (between the Federal Government and each RDC)

SRA	Sugar Research Australia
SVB	Silicon Valley Bank
SWA	Sustainable Winegrowing Australia
UC	University of California
UK	United Kingdom
UN	United Nations
US	United States (of America)
VAT	Value added tax
WET	Wine equalization tax
WFA	Winemakers Federation of Australia
WGCSA	Wine Grape Council of South Australia
WGGA	Wine Grape Growers Australia
WHO	World Health Organization
WIR	Warm inland regions (GIs growing winegrapes)
WRAA	Wine Industry Restructuring Agenda
WTO	World Trade Organization

Currency note: all figures preceded by $ refer to current Australian dollars; otherwise the country of currency is indicated explicitly (e.g., US$ or NZ$).

Key messages

- In response to the Australian wine industry's current difficulties, local, state and federal Governments are responding to calls for **immediate relief to financially stressed grower households and cash-strapped smaller wineries** wishing to build or re-build their export markets, particularly in China.
- Welcomed though such assistance is for individual recipients, **it does not address the industry's current red wine surplus, nor its long-term underlying structural imbalance**.
- **Australia's stock-to-sales ratio for red wine** is now close to twice its 2010s average, creating cash flow problems and leaving little room in storage tanks for the next vintage.
- Some have argued that, since that surplus is partly a consequence of the punitive tariffs imposed by China on Australian wine from December 2020 to March 2024, the Federal Government should subsidize at least part of its disposal; others point out that several other industries were hurt by China's recent coercion so they too would then demand compensation; still others believe **the surplus is a private matter for current stock holders to solve, not all of whom are wineries**.
- Even when that short-term problem is solved after COVID-19 and war disruptions ease, **the bigger task of getting the industry back onto a firmer financially sustainable footing remains**.
- The need to get future supplies to better match demands has been evident for most of the past 25 years following the tsunami of new vineyard plantings in the 1990s, but **supply adjustments have been postponed in part by positive hiccups along the way**: the boom in premium sales to the US from the mid-1990s, the launch of Casella's [yellow tail] brand from the early 2000s, then the boom in exports to China in the 2010s.
- **Numerous other countries' winegrowers also are struggling** to get their future supplies to match demands which, together with Australia's surplus, is depressing prices in international wine markets, especially for commercial red wines.
- But since **there is no mechanism for addressing the problem globally**, the best Australians can do is address it nationally and be grateful meanwhile for whatever other countries do to reduce their surpluses.
- If there were easy solutions that made all participants better off, they would have been found earlier, but that does not mean there is nothing that can be done – and **a crisis is the best time to make hard decisions**.
- To the extent some producers decide to exit the industry and close their operations (as distinct from selling out to other producers), that will reduce supply capacity.
- But if the surplus red wine stock and the vineyard area do not shrink enough through market forces, **actions are needed to boost demand for Australian wines, raise their quality, and/or lower their production and distribution costs**.
- Over and above what individual producers can do to boost their own profitability, there are possibilities for **increasing demand, raising quality or lowering costs by enhancing investments in generic promotion, in collective R&D, in industry data collection and analysis**, and possibly by funding a structural adjustment scheme.

- While some of those actions are already being funded via a complex web of levies on producers and exporters, **there is scope for improvements in the efficiency of levy collecting**, in the productivity of investing them in generic promotion and R&D, and in the quality of the compilation and analysis of managerial-enhancing industry data.
- In place of the current web of levies **the industry needs a simpler, more efficient set of levies based on the crush *value* of recent vintages** that is capable of boosting producer net returns even if the current total levy revenue collected was unchanged.
- If the industry were to **combine current levies into a single comprehensive levy,** the overall cost to producers and bureaucracies of levy collecting would fall.
- **A single comprehensive levy of 1.8% of the value of recent crushes** would deliver the same total levy revenue as the current complex system of myriad levies, assuming the matching R&D grant from the Federal Government was unchanged.
- Impact assessments suggest **returns from investing current levy revenues in R&D are extremely high**, which means raising their total and investing it wisely in more R&D would help reverse the decline in incomes of growers and wine makers.
- One other area where reform is being called for is **the *ad valorem* taxing of domestic wine consumers**, because that encourages their consumption of non-premium wines relative to a smaller quantity of premium wines and so **invites health and other anti-alcohol groups to lobby for higher taxation of wine consumption**.
- Since a switch from an *ad valorem* to a volumetric tax on domestic wine consumers would have the opposite distributional consequences on producers to that from switching producer levies from volumetric to *ad valorem*, **there would be less producer and regional welfare redistribution within the industry if levy and WET reforms were to occur simultaneously**.
- Those who currently benefit most from the WET rebate of the first $350,000 of tax paid, namely **small premium winemakers, may not be worse off if the WET rebate were to be removed at the same time as a WET switch from *ad valorem* to volumetric**.
- In parts of the industry there is a view that Australia should reduce its bearing area of red winegrapes by as much as 30%, while others (particularly in the warm inland regions) believe **the problem is insufficient marketing effort abroad to boost demand for Australian wine**.
- While not diminishing the industry's challenges in the face of global warming and wine consumers drinking less and going up-market, **a refreshed focus and a more positive vision for the industry is long overdue**: it is not inconceivable that Australia, like New Zealand, could capture a bigger share of the world market, through boosting its generic and firm marketing efforts and investments in innovation.
- To invest more in generic promotion and R&D so as to **get back onto a more sustainable, premiumizing growth path** requires raising producer levy revenue.
- Those generic investments will have a higher payoff the more they are matched by **greater firm investments** in sustainability of production and **in export marketing**.
- A new (June 2024) commitment by the government to help fund the establishment of a **National Vineyard Register** needs to be accompanied by a new levy (to match South Australia's) on non-SA winegrowers to ensure on-going **annual collection, compilation and analysis of data by variety and region on winegrape plantings by area as well as crush and price.**

Executive summary

The average price of red winegrapes in the nation's warm inland regions fell in each of the three vintages to 2024, to near-record lows. Together with low yields in 2023, many small growers have been struggling to put food on their table in 2024. Wineries with unsold wine also are struggling, especially those with tanks full of wines from previous vintages.

These are recent symptoms of a crisis that has been threatening since early this century. The threat was eased somewhat by the rapid growth after 2001 in export sales of Casella's new [yellow tail] brand, and then by the emergence in the 2010s of China as a new large wine market. But China's punitive tariffs on Australian wine over the past three years and its rapid decline in wine consumption since 2017, plus COVID-19 and war-related logistical problems depressing FOB export prices of Australia's bulk red wine in international markets, have led to the accumulation of a huge surplus of bulk red wine.

Cycles in the wine industry's fortunes are normal. The current cycle, Australia's fifth, involved the longest boom but now a long slump. That calls for various types of responses, one of which is immediate financial relief. But that does not address the industry's current surplus of red wine, nor underlying structural issues. They are the focus of this report. Readers interested in the details of the current boom-slump cycle and the global and domestic forces contributing to it are directed to Sections 2, 3 and 4 of the report. This summary focuses on the pros and cons of various options for dealing with the bulk red wine surplus (Section 5) and the industry's long-term structural supply-demand imbalance (Section 6), and on possible ways forward (Section 7).

Options for reducing the current over-supply of red wine stocks

The current surplus involves commercial red wines that will sell wholesale for less than $5/litre (hereafter called commercial wines, selling for less than $10 a bottle off-trade retail or in casks). Many observers assume they mostly originate from the warm inland regions, but in fact such wines come from many regions since not all cooler regions' new plantings were on ideal sites or the best variety for their location. However, unsold wine in premium regions puts downward pressure on prices in warm inland regions such that growers there are the worst affected.

Creating new markets for bulk red wine requires a long-term marketing investment and so cannot be a solution to the immediate problem of needing to empty tanks ready for the next vintage.

Many argue that it should be left to the market to clear the excess stock of red wine. The market has been slow to do so for at least two reasons: not enough containers or ships have been available to ship bulk wine from Australia except at prohibitive cost (thanks to COVID and the wars in Ukraine and Gaza), and a two-thirds reduction in China's (mostly red) wine imports since 2017 and its high tariff on imports of Australian wine for 3.3 years.

The re-opening of the China market to Australian wine at the end of March 2024 offers only a limited opportunity for holders of bulk red wine, because the red surplus in mid-2023, of about 500 ML above normal stock levels, is about three times the annual amount of red wine China purchased from Australia at its peak in 2018 and purchased from the world as a whole as bulk wine that year.

The lowest-quality stocks could be distilled into industrial alcohol, but typically that pays too little net of transport costs to be anything but a last-resort option for stockholders.

The most likely market-driven scenario is that stockholders will sell their excess supplies as soon as possible after shipping costs and availability gradually return to normal.

From a national economic efficiency viewpoint, a distillation subsidy is undesirable because it would raise moral hazard issues: future market participants would be less risk averse because they would know there is a chance the government would bail them out of subsequent surpluses. And as a WTO member it would be illegal for Australia to subsidize the export of today's surplus bulk wine, not to mention unwise because it would trigger the imposition of anti-dumping duties by our trading partners.

Nor would a subsidy to mothball vineyards be helpful. It would assist some growers to leave their options open for another season, but it would not reduce Australia's long-run supply capacity and so would help save adding to the surplus only so long as the subsidy continued.

Perhaps the best option from the viewpoint of governments is to remind producers that there are more-generic ways in which governments can and have been helping financially stressed winegrowers, including through the Federal Government's Rural Financial Counselling Service.

Ways to nudge the industry toward a more sustainable supply-demand balance

The decline in Australia's international competitiveness in wine started well before 2020, as did the decline in demand for and thus sales of commercial wines at home and abroad. The volume of Australia's premium wine export sales also has shrunk in recent years, even though their average price has kept pace with the rest of the world's.

There have been calls recently by some growers for the government to pay them to drop red grapes to the ground, or to remove those varieties and replant with white grape varieties, or to replace vines with other crops. But the results of the 1986 vine-pull subsidy program were not viewed favourably in retrospect, even from within the industry.

Instead, the Australian Government's response has been that, through its Regional Investment Corporation, there are already loans available to support the long-term strength, resilience and profitability of Australian farm businesses.

The fact is there will always be excess investment in the wine industry both here and abroad, in the sense that long-run returns will be below the average of other investment opportunities. One reason is lifestyle appeal. Another is that both vineyards and wineries are very capital intensive, so a delay in selling them when returns are low is understandable.

Since there is never a consensus on where the industry's future lies, and each firm has its own unique projected outlook and business plan, many argue it is better to leave firms to make their own decisions on the timing as to when to create, dispose of or convert their assets. Certainly some producers with access to enough finance will take opportunities to enlarge their operation by buying others' assets at distressed prices in the hope of reaping greater economies of scale in future. While that can make economic sense to the buyer and may improve overall profitability in the industry, it does not contribute to a shrinkage of the industry.

There have been some calls for placing a moratorium on new plantings, but that would handicap producers' future options as and when opportunities improve.

An economic case can be made, though, for continuing to assist producers' decision-making by collectively compiling and disseminating data on market conditions and publishing results from analyses of market prospects. Currently that is done by Wine Australia and funded by producer levies – which is appropriate since the benefits accrue entirely to producers.

Levies also are collected from producers and wine exporters to fund both generic promotion to boost aggregate demand for the industry's wine and investments in R&D to boost productivity and wine quality. Generic promotion is funded entirely by producer levies, which again is appropriate, while R&D is co-funded by the Federal Government because some of its benefits spill over to others in the community.

Boosting demand though promotion efforts, and raising producer productivity, quality and ESG outcomes through R&D are the two most-obvious ways for the industry to improve its financial sustainability. Producers have the option of expanding the industry's investment in these crucial areas simply by agreeing to raise the levies' rates.

There is also the option to improve the ways levies are collected so as to get a bigger bang for each levy buck. Currently the wine marketing annual levy is based on winegrape crush volume. If this levy was set as a percentage of the rising value rather than volume of winegrape production, that would slow and potentially reverse the recent decline in that marketing budget. Also, an export charge that is collected to help cover the cost of promoting Australian wine abroad is set as a percentage of the export price. It would be simpler if that export charge was expressed as a single percentage of the gross value of exports or, since exports are more than 60% of sales, as a percentage of the gross value of winegrape production so that part of that revenue could then be used also for promotion in the domestic wine market.

The Bordeaux region, with almost the same vine bearing area as Australia, has an annual marketing budget of around €30 million or almost ten times Australia's, which suggests the industry should seriously consider raising its marketing levies substantially. It could also argue that some government financing of marketing is warranted because exported high-quality wines help build Australia's reputation/image generally over and above boosting demand for its wines, and more so than would promotion of most other products.

Turning to R&D, the Australian wine industry is rightly proud of its long history of high-payoff investment in grape and wine research and innovation. Additional investment returns are likely to continue to be high thanks to global warming, and in any case faster rates of innovation in production and marketing are needed to help restore the competitiveness of Australia's wine industry through boosting its productivity, premiumization, resilience and environmental sustainability.

However, just when the digital revolution, AI, climate change and pressures to become more environmentally sustainable are boosting the industry's opportunities to embark on new high-return investments in grape and wine research, funds for such research in Australia have stagnated. This is because the levies generating them are tied to the volume of grape and wine production (tonnes of grapes crushed). That R&D investment as a share of winegrape value has halved over the past decade, dropping from more than 4% in the early 2010s to 2.5% in 2020-22, because the sizes of the per-tonne levies on grape producers and processors have been unchanged since 2005 and the volume of winegrape production has stagnated this century.

The high marginal rates of returns from past R&D investments suggest a considerably higher levy is warranted. If the levies were set as a percentage of the rising value of winegrape production then further premiumization of production would ensure some growth in the research budget.

Another opportunity to boost producer productivity is to collect more data on vineyards. Official national vine area data on annual winegrape plantings and removals by variety and region – essential for grower and winery planning – have not been collected since 2015 due to lack of funds. A commitment to contribute to the set-up cost of establishing a National Vineyard Register, made by the Federal Minister for Agriculture at a press conference in McLaren Vale on 12 June 2024, has been welcomed, but presumably an

additional grapegrower levy will be needed to fund the annual collecting, collating and analysing of such data.

Ways forward: actions needed by producers and governments

A crisis is often the best and sometimes the only time to bring about unpopular but necessary changes that in the past have been kicked down the road because it was perceived they would harm a significant subset of stakeholders. The industry itself needs to own the problems it faces, and step up its leadership in finding appropriate and workable solutions.

Given recent geopolitical developments, disruptions to wine export markets are at least as likely in the future as they have been in the first quarter of the present century. Demand growth will be dampened also to the extent health and anti-alcohol lobbies are successful in lobbying for higher taxes and tougher restrictions on wine consumption, and as consumers make their own choices to limit alcohol consumption for personal health or lifestyle reasons, or try alcoholic beverages other than wine including No-Lo options. Consumer choices within the wine category seem to be favouring whites and rosé in addition to sparkling wines. As in the past, some shocks will harm one set of countries while benefitting another set, as is always the case with the signing of FTAs or other preferential trading agreements, for example.

Increased investments in upgrading current vineyards, wine making and wine marketing would help to focus attention away from vine pulls and toward restoring the country's reputation as a competitive producer of a range of wine qualities, from commercial premium to iconic. A refreshed focus and a more positive vision for the industry is long overdue. It is not inconceivable that Australian winegrowers, like New Zealand's, could gradually capture a bigger share of that market, provided they boost their marketing efforts and investments in R&D.

The system of producer levies developed in Australia is the envy of rural producers in the US and other countries because it has successfully overcome the free-rider problem of collective action for generating public goods for the industry, but there is much scope to reform the current grape and wine levy structures.

Levies based on area or crush volume are not growing with the nominal prices of winegrapes, but that can be altered simply by basing them on the gross value rather than volume of winegrape production so that funds would grow over time as the industry premiumizes. Combining current levies into a single comprehensive levy would lower the overall cost to producers and bureaucracies of levy collecting. Another benefit of a single levy is that if growers in states other than South Australia were to agree to be levied (and provide their vineyard area data) in a similar way to those in South Australia, a full picture of area, production and price data would be available each vintage. Many winegrowers would argue they can't afford levy rises during this crisis period, but the alternative viewpoint is that producers can't afford NOT to, as it is the most obvious thing to do to get back onto a sustainable, premiumizing growth path.

The potential for a high payoff from increased R&D investment is clear when one compares prices of vineyards in Australia's best regions with those in, for example, Napa, northern Italy, Bordeaux and Burgundy: that huge gap suggests there remains much scope for raising the perception abroad of the quality of vines and wines in parts of Australia.

Grape and wine R&D is provided by the world-famous Australian Wine Research Institute (AWRI) but also by universities, CSIRO and state government research institutes. All of the latter are willing co-investors with Wine Australia as the broker allocating producer levy and Federal Government matching grant funds. AWRI has been the jewel in the crown of wine research organizations in Australia since its foundation in 1955 and the envy of many

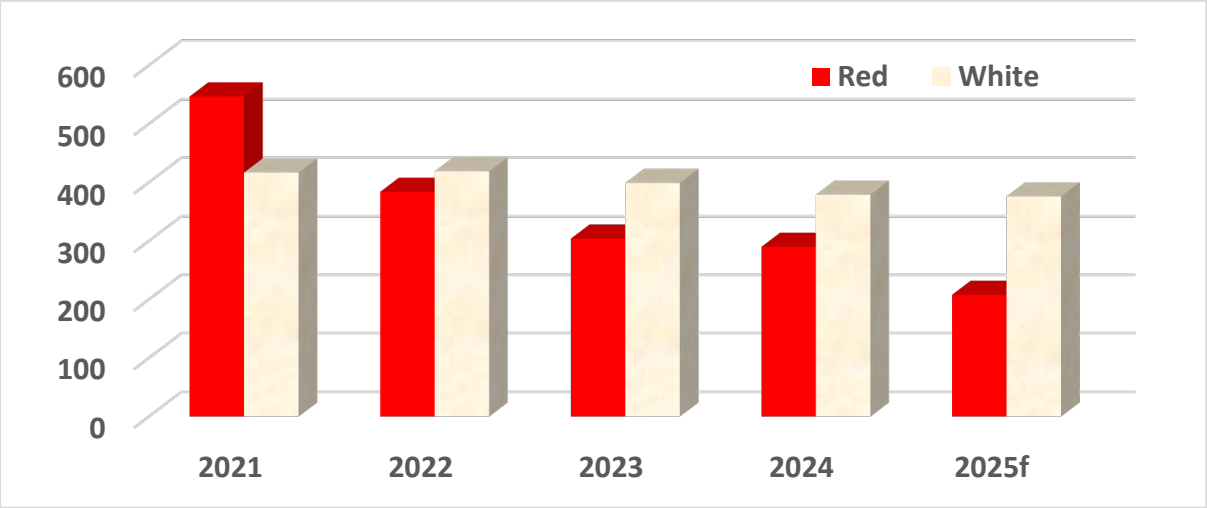
other wine-producing countries, and has provided a very long list of direct benefits to producers. The future of it and other grape and wine R&D providers is now being threatened by the shrinkage of levy funds, which is yet another reason for producers to support a levy increase.

1

Introduction

The average price of red winegrapes in the nation's warm inland regions, for those lucky enough to find a buyer, fell in each of the three vintages to 2024 and is forecast to be even lower by 2025 (Figure 1). It fell below the cost of production for an increasing number of growers over that period. Even more growers in 2024 did not find a buyer than in 2021-23 and so did not pick, or dropped fruit on the ground. That means the price for those marginal growers without a contract has been effectively negative to the extent that it is costly to drop fruit. Mothballing a vineyard also is costly and brings in no income.

Figure 1: Average prices[a] of red and white winegrapes by region, Australia's warm inland wine regions, 2021 to 2025 ($/tonne)



[a] The average price refers to those crushed. Insofar as some red grapes were dropped on the ground or left on the vine for lack of a buyer, the average price of the crushable grapes is somewhat lower. Forecast prices for 2025 are from ABARES (2024a).
Source: Wine Australia (2024d and earlier).

Following not just low prices but also the low yields of 2023, many small growers have been crying out for cash simply to put food on their table in 2024. Some Riverland growers still under contract were offered a modest amount per tonne to drop fruit rather than deliver it to the winery, and others were subsidized to convert their red vines into whites, but many received no help. In April 2024 Accolade Wines offered $4,000 per ha to the Riverland's 540 CCW wine grapegrowers to end its red winegrape contract with that huge cooperative, but the offer was soundly rejected by a majority of CCW growers.

The Riverland's gross revenue per ha averaged $12,700[1] in 2020-22, but less than half that in 2023 when yields were down by one-eighth and prices were near-record lows. Since all but one-sixth of growers in the Riverland have less than 25 hectares of vines, and more than half (56%) had less than 10 ha in 2023,[2] it is no wonder that so many there are struggling to make ends meet.

[1] Throughout this report, values not otherwise indicated are nominal Australian dollars not adjusted for inflation.
[2] The average vineyard size in the Riverland has risen from 15 ha in 2001 to 17 ha in 2007, 21 ha in 2015 and 22ha in 2023. The South Australian average was 20 ha in 2001 and 23 ha in 2023 (Wine Australia 2023b and

According to the latest survey of South Australian winegrowers, 24% of large businesses are planning to remove vineyards, as are 15% of medium businesses and 11% of small businesses – and the majority in each of those groups said they were over-supplied (SAWIA 2023). Presumably lots of those with a small vine area have other sources of income, and some consider viticulture a hobby. In their cases, low net vineyard earnings don't necessarily trigger vine removal. Others may be delaying vine removal in the hope that governments will fund a vine-pull scheme or that prices will rise by next vintage. After all, the cost of removing vines may be more than another year's operating costs. So their survey-reported plans to remove vines may well not materialize.

Wineries with unsold wine also are struggling, especially those with tanks full of wines from previous vintages. One Riverland winery with a 10,000 tonne crushing capacity fell into administration in February 2024, owing nearly $25 million. It had five million litres of unsold bulk wine in storage at the time.

Two of the five largest wineries (Accolade and Australian Vintage) – each of whose value has shrunk hugely in recent years – had been exploring whether a merger in 2024 would make them more viable, but those talks were put aside in May. Pernod Ricard Winemakers also is rumored to be on the market and in merger discussions with Accolade. (The other two wineries on Australia's top-five list are Treasury Wine Estates and Casella Family Wines; De Bortoli Wines is 6th.)

Clearly both wine grapegrowers and wineries in Australia are currently facing difficulties. Some of the causes (wine demand shocks) are affecting both of them. But part of the pain for growers is the low prices they are receiving for their winegrapes, which is something that helps wineries stay in business in the face of a slump in demand for the industry's wine. That is, grapegrowers and wine makers are aligned on some (especially demand-altering) issues but have opposite interests on others.

Warning signs have been flashing for some considerable time. Australia's average export price for wine peaked in 2001, as did grower prices of winegrapes, yet the nation's bearing area continued to grow until 2008 (Figure 2(a)). That reflects the long lead time from planting a vineyard to its bearing. The pace of new plantings began contracting after 1998 but it took a decade before removals exceeded new plantings; and then in the past decade there has been almost no net reduction in the bearing area (Figure 2(b)). Vineyard land prices also reflect delays in adjustment to expectations, with those prices peaking in 2006 and rising again after 2020 despite declining wine export prices (Figure 2(c)).

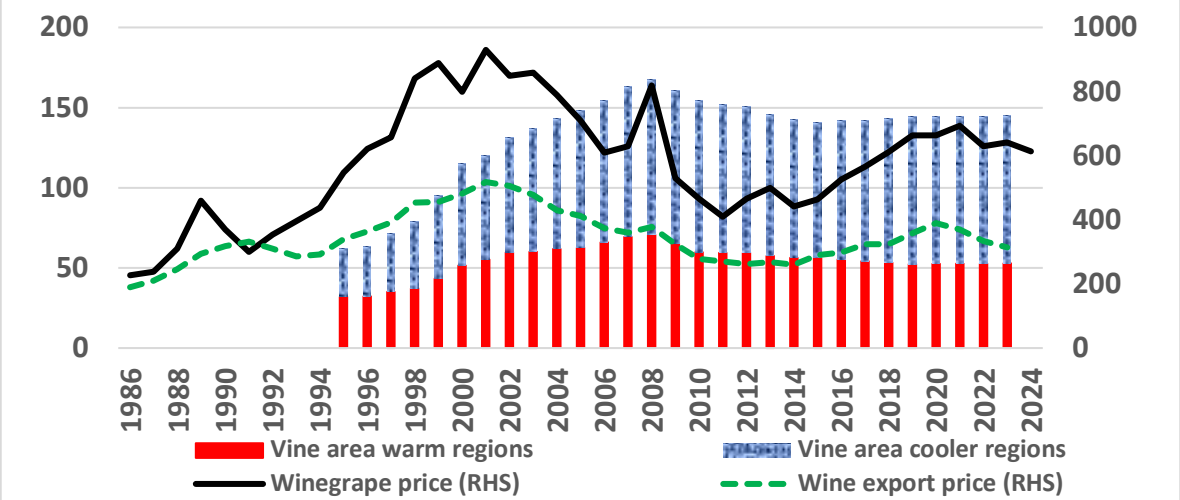
In November 2009, a statement on the outlook for the Australia wine industry was co-released by the Winemakers' Federation of Australia (WFA), Wine Grape Growers' Australia (WGGA), the Australian Wine and Brandy Corporation (AWBC) and the Grape and Wine Research and Development Corporation (GWRDC). [The first two are now combined as Australian Grape and Wine (AGW), the last two are now combined as Wine Australia.] The statement referred to work undertaken as part of the Wine Industry Restructuring Agenda (WRAA), and declared that the "wine industry must confront the reality of oversupply". It claimed "Structural surpluses of grapes and wine are now so large that they are causing long-term damage to our industry by devaluing the Australian brand, entrenching discounting, undermining profitability, and hampering our ability to pursue the vision and activities set out in the Directions to 2025 industry strategy". The statement continued "Comprehensive analysis and consultation suggests at least 20% of bearing vines in Australia are surplus to requirements, with few long-term prospects. On cost of production alone, at least 17% of vineyard capacity is uneconomic." (Quoted in van der Lee 2010). WGGA (2009) believed an

---

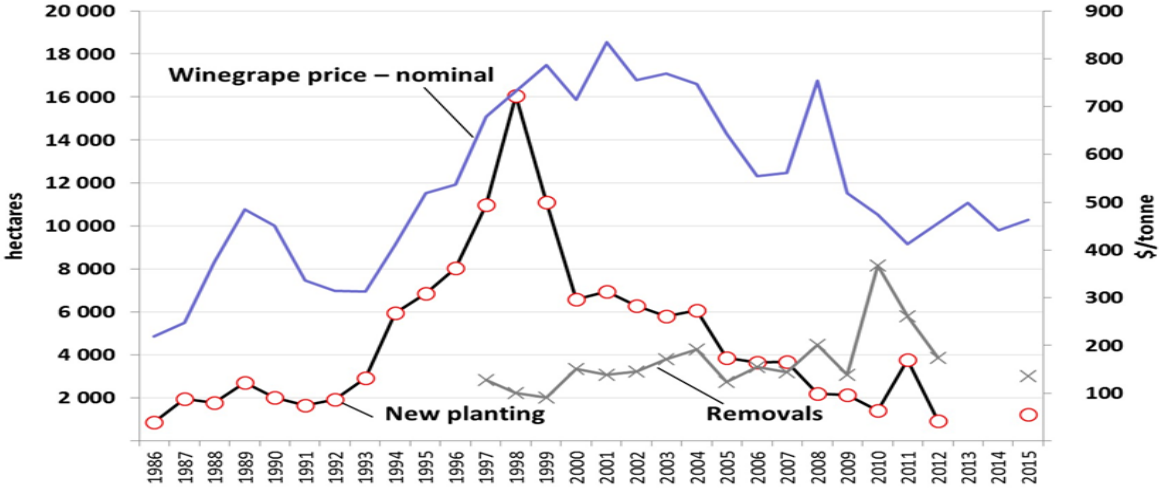
earlier). For comparison, the average vineyard area per grower in Bordeaux has been slightly smaller, at 12 ha in 2005, 16 ha in 2014, and 20 ha by 2020.

Figure 2: Vine bearing and non-bearing areas, average winegrape price, new vine plantings and removals, wine export price and vineyard land prices, Australia, 1986 to 2024[a]

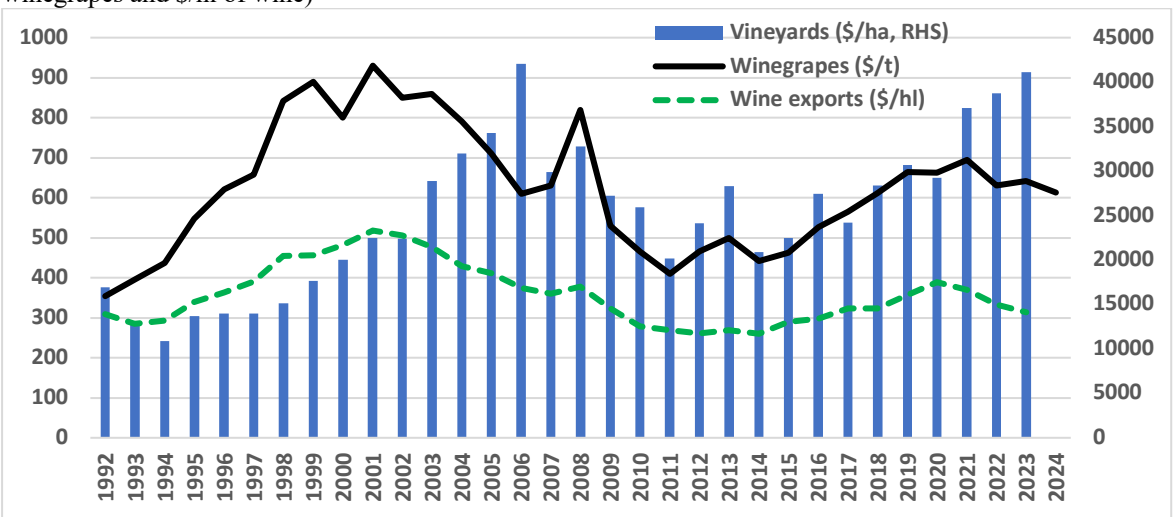
(a) Vine bearing area, average winegrape price, and wine export price ('000 ha, $ per tonne, and $ per hectolitre FOB)



(b) Average winegrape price and new vineyard plantings and removals ($/tonne and hectares)



(c) Average prices of vineyard land, of winegrapes and of wine exports ($/ha of vines, $/t of winegrapes and $/hl of wine)



[a] See Appendix 1 on the basic determinants on winegrape prices and their relationship with wine export prices.

Sources: (a): Anderson and Puga (2023a), which draws on bearing area data from Wine Australia (2023b and earlier) for South Australia and ABS Cat. No. 1329.0 for non-SA states; (b), Stanford (2015); and (c) ABARES (2024b).

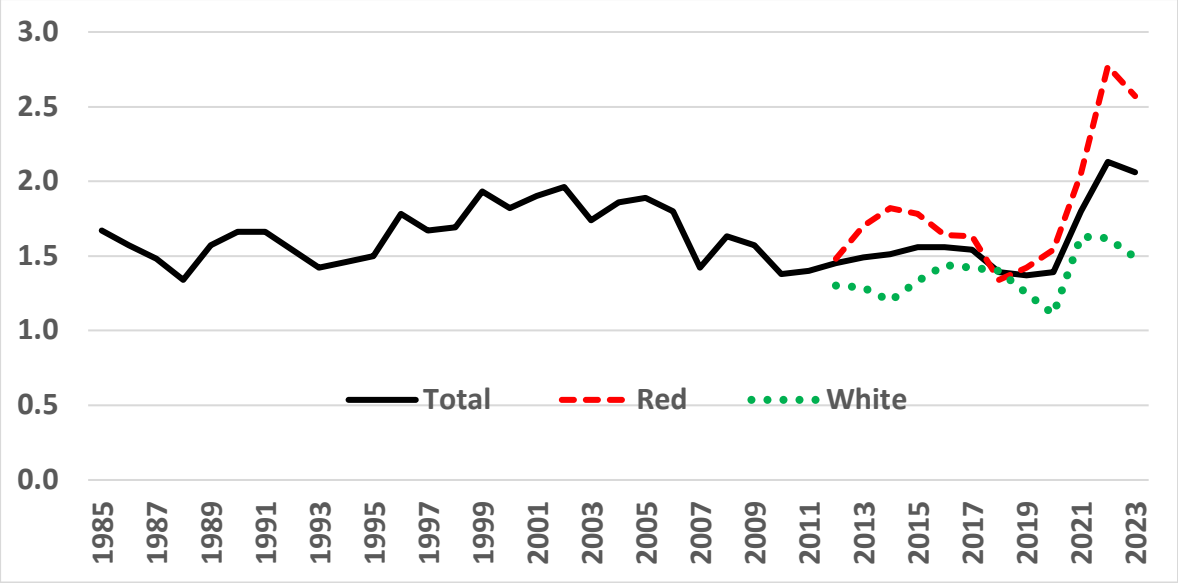
even higher estimate of 25% of the national vineyard estate would not be required in the 2010s. WGCSA (2009) went further to suggest as much as 30% or 40,000 hectares was surplus to requirements then, and called for the creation of an industry self-funded structural adjustment scheme.

The troubled state of the industry in 2009 was reported at length in the Business Day section of the 4 July issue of *The New York Times* (Foley 2009). Much of the wording in that article is just as true today as it was those 15 years ago.

A further indication of the state of the industry has been the decline in advertising expenditure by producers and their input suppliers. Casualties include *Winestate* magazine, which closed in March 2023 after 45 years and, after 38 years, Winetitles' *Wine & Viticulture Journal.* The Winter 2024 issue of that technical journal was the last to be published before it was merged with that publisher's other producer-focused journal, the monthly *Australian and New Zealand Grapegrower & Winemaker***.** Meanwhile, the number of wine journalists in mass media newspapers also has shrunk gradually over the past two decades.

Adjustment to price declines was very slow for two reasons, one being the two decades of rapid growth after 2001 in sales of Casella Family Wines' [yellow tail] wine. That brand grew to become the biggest-selling Australian brand in the US. But that on its own was not enough to stop the wine stocks-to-sales ratio from rising in the first half of the 2010s (Figure 3).

Figure 3: Stock-to-sales ratio,[a] red, white and all wines, Australia, 1985 to 2023



[a] As of 30 June. Since 2012 the estimates are based on responses from 30 wineries, including 18 of the top 20 by volume, accounting for 74% of the total grape crush in 2023. That sample is not representative of smaller wine business models and is likely to under-state the average sales value for the whole wine industry.
Source: Wine Australia (2023c).

The second reason for delayed adjustment was the emergence in the 2010s of China as a new large wine export market, helped for Australia following the signing of the Australia-China free trade agreement (FTA) in January 2015. The latter was the main reason for nominal prices of red winegrapes to rise between 2015 and 2020, and for the wine stocks-to-sales ratio falling in the second half of the 2010s (Figure 3). Australia has signed FTAs also with most of the other countries of northeast and southeast Asia, and most recently with India. All have helped to expand market access for Australian wine exports via reductions in both import tariffs and non-tariff barriers such as technical standards, but none as substantially as the one with China.

But Australia's exports to China came to an abrupt stop in December 2020 when China imposed prohibitive tariffs on imports of bottled Australian wine. Its cessation also contributed – along with COVID-19 and a downturn in red wine demand in the rest of the world – to Australia's stock-to-sales ratio for red wine again spiking and to a record high of 2.67 in 2022-23. That represents more than a full year's sales of red wine when compared with the average ratio of 1.63 in the preceding decade (Figure 3).

Wars in Ukraine and Gaza have added to the current logistical problems depressing FOB export prices of Australia's bulk red wine in international markets. According to Ciatti (2024), as of March 2024 Australian non-vintage bulk reds were selling for between 23 and 29 US cents per litre (free-on-board). The 2022 reds were fetching only a few cents higher (e.g. 26-39 US cents for Cabernet Sauvignon), and even 2023 Cabernet, Shiraz and Merlot were attracting only 36-43 US cents (compared with twice that for whites). By contrast, other exporters' Cabernet prices for the latest vintage were two to four times higher (Table 1). Even Australian Chardonnay was lower-priced than most of its competitors in 2024, suggesting that shipping costs for Australia are still relatively high compared with those of its competitors.

Table 1: Bulk wine export prices, Cabernet Sauvignon and Chardonnay, Australia and competitors, as of March 2024 versus March 2019 (US cents per litre FOB)

	Cabernet Sauvignon		**Chardonnay**	
	2024	***2019***	**2024**	***2019***
Australia -- NV	23-29	*28-30*	56-62	*60-67*
Latest vintage:				
Australia	36-43	*102-116*	72-82	*67-78*
Argentina	140-160	*60-70*	100-110	*60-70*
California	129-149	*125-185*	140-180	*132-198*
Chile	58-68	*68-75*	78-85	*80-90*
France	82-109	*95-124*	98-125	*101-124*
Italy	98-125	*73-107*	92-109	*67-101*
South Africa	66-71	*73-91*	66-71	*70-80*
Spain	57-65	*67-84*	82-89	*79-101*

Source: Ciatti (2019 and 2024).

Cycles are normal in the wine industry, as they are in lots of agricultural-based industries and moreso for perennial than annual crops. Booms are typically triggered by a positive shock that attracts new investors who are less than fully aware of the cyclical nature of perennial crop production. Their exuberance in high-priced periods leads to excessive supplies and low prices a decade or so later when the required negative supply response is slow in coming because of the fixed nature of the capital invested.[3] In fact the initial response

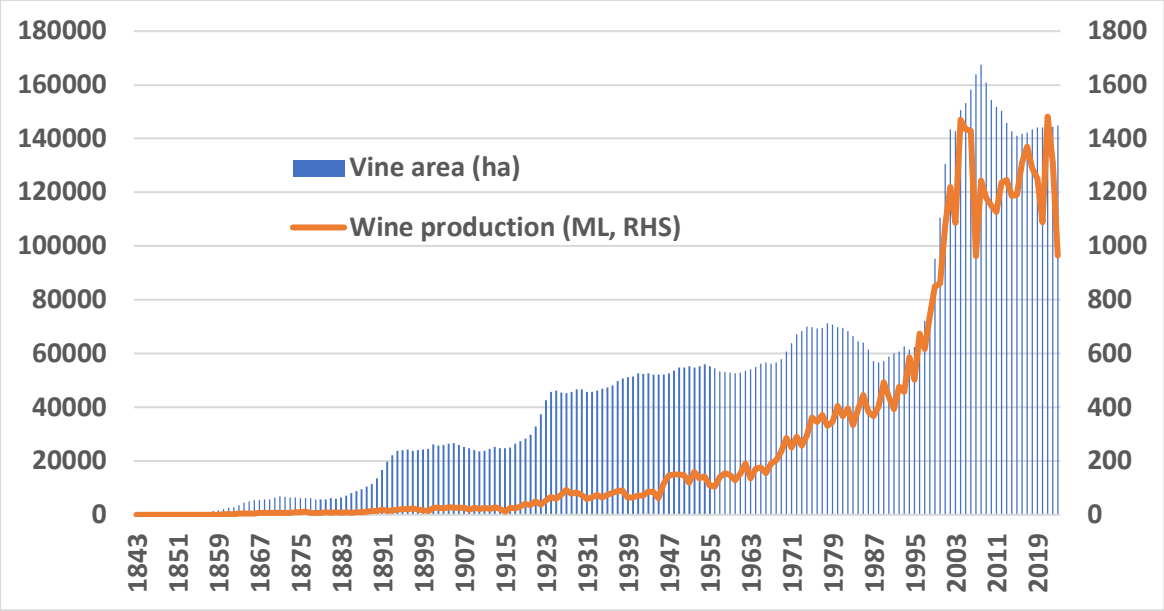
[3] Historical examples include the supply responses following (a) the eruption of Mt Vesuvius in 79AD and (b) the frosts in and near northern France in January-February 1709 – each of which caused a spike in winegrape prices. Excessive replanting followed, causing winegrape prices to plummet such that, 15 years later, government bans on new vineyard plantings were imposed (Unwin 1991).

to a slump in prices is often to boost yields, at least for those whose yields are not constrained by a contract with their winemaker, and that exacerbates the surplus problem.

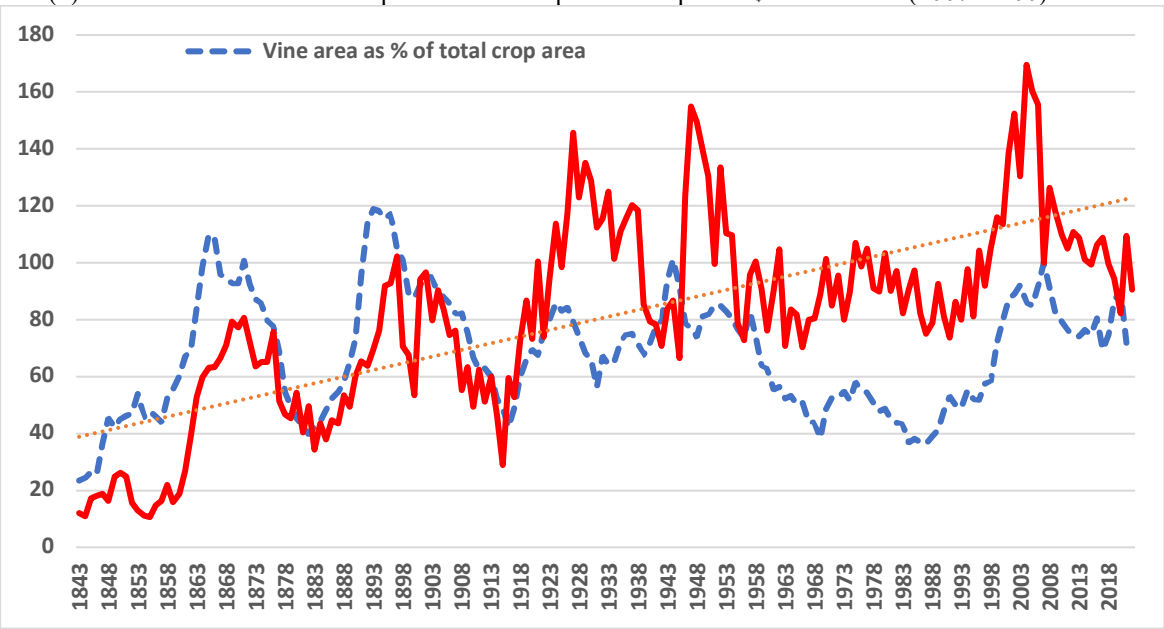
The current cycle, Australia's fifth, has involved the longest boom but now is suffering a long slump (Figure 4). The four previous booms lasted an average of 11 years, while the latest one lasted 21 years (1987 to 2007). Ignoring the long interwar hiatus, the previous slumps averaged 14 years. The current one has had some hiccups but is now in its 17th year, with no turnaround yet in sight.

Figure 4: Indicators of wine industry expansion and cycles, Australia, 1843 to 2023

(a) Vine bearing area and wine production (ha and ML)



(b) Vine area as % of total crop area and wine production per US$ of real GDP (2007 = 100)



[a] Vines provide fresh table grapes as well as ones used to produce dried vine fruit, brandy, fortified wines, sparkling wines and still red and white wines. Less than half were used for winemaking pre-1973 but that rose to three-fifths in the 1980s and more than 90% from 2001. Hence the faster rise in wine production than in vine area from the late 1960s.

Source: Updated from Anderson (2015, 2018).

Given the warnings as early as late last century that the fortuitous good times in Australia then would not become a new normal,[4] and in 2000 from the industry's lead organizations,[5] growers would have been wise to save some of those extraordinary profits in those good times in readiness for riding out tougher times such as now. Times could get even tougher than now if seasons were to become drier, as that would raise the current very low lease price of temporary water and current low volumes of water being applied by irrigators. Meanwhile, today's low price of temporary water means moth-balling vines and leasing out one's water is not a big alternative source of income.

This present situation calls for various types of responses, since it is not expected to improve in the short term according to ABARES (2024a) and SVB (2024). Local, state and federal governments are being called on to provide immediate relief such as cash handouts to financially stressed winegrape-growing households. Several state governments are also providing financial assistance to wine exporters, especially those seeking to return to the China market.

Welcome though such immediate financial relief would be for recipients, it does not address the industry's current surplus of red wine, nor underlying structural issues. An urgent task is to get the stocks-to-sales ratio back to normal so there is room in storage tanks for the next vintages. But even if and when that short-term problem is solved, the bigger task of getting the industry back onto a firm sustainable footing would remain. Both challenges cannot be solved by just one region or even one state of Australia.

Numerous other countries are facing similar problems, and together their and Australia's surpluses are depressing the international market for (especially red) wine. But since there is no mechanism for addressing the problem globally, the best Australians can do is address it nationally and be grateful meanwhile for whatever other countries do to ease the situation.

The purpose of this report is to explore the pros and cons of various options for (a) reducing the current over-supply of red wine stocks and (b) nudging the industry toward a better supply-demand balance in the years ahead. Returning the industry to sustainable profitability will not be easy, nor quick. On the contrary, it will require facing issues that have long been kicked down the road. The need to do so was clearly identified 15 years ago, but the required action was not taken. The growth in wine demand in China in the latter 2010s saved that situation from getting worse, but the events of the 2020s have brought it back.

The rest of this Review is structured as follow. Identifying the options going forward requires first examining in more detail the production and export developments during the current boom-slump cycle, particularly as between warm inland versus cooler regions (Section 2). Section 3 examines contributors to recent trends and shocks affecting the demand

---

[4] See Osmond and Anderson (1998, p.21). Yet in 1999, when PIRSA provided with a spreadsheet for potential investors to project their own costs and returns, its default example (for the development of a 20-hectare vineyard producing 20 tonnes/ha) assumed $1000/t would continue to be received. Taking account of all expected capital and operating costs of $7100/ha, the internal rate of return on total capital was then projected to be 17% -- and even higher (22%) on owner equity (Taylor 1999). Various so-called Managed Investment Schemes, taking advantage of government-provided tax concessions, also continued claiming at the end of last century that investors would receive very high rates of return. But according to that 1999 study's figures, at prices below $355/t the enterprise would be making a loss, and at $175/t it would not even cover annual operating costs.

[5] While still very optimistic about the future of Australia's wine industry, WFA and AWBC (2000) and Stanford (2001) foreshadowed at the start of this century that oversupply problems were likely. Those documents made clear that while in recent years demand for premium (especially red) wines had exceeded supply, supply was rapidly catching up and, with plantings coming on stream over the first five years of this century, a surplus was likely. Established grower leaders also warned that the rate of planting expansion was far too rapid.

for Australian wine and hence winegrapes, and Section 4 examines those affecting their supply. In both of those sections global forces are noted first, followed by additional domestic forces. In light of that background, Section 5 explores the pros and cons of ways of reducing the current over-supply of red wine stocks, before Section 6 scrutinizes options for nudging the industry toward a sustainable supply-demand balance. The report concludes in Section 7 by summarizing key actions needed by producers and their industry organizations, and government policymakers.

Given the very short time provided for this Independent Review, it has not been possible to undertake new empirical analysis of the various options and possible actions discussed. Given that most would involve losers as well as winners even within the industry, such analysis would be an obvious next step so as to be able to anticipate the magnitude and distributional consequences of outcomes and possibly to assist those likely to lose most.

2

Anatomy of the current boom-slump cycle

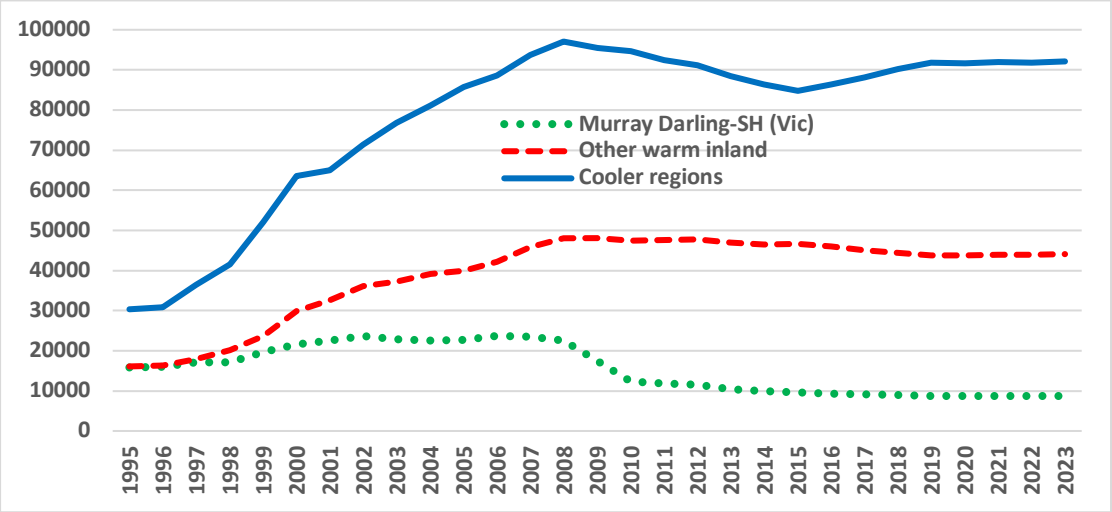
Since the current surpluses, like those in the early 2010s, are commercial red wines that will sell wholesale for less than $5/litre, many observers assume they mostly originate from the warm inland regions when in fact they come from many regions. To see the extent of that range, this section examines trends in the various regions' bearing areas, production and exports (but keep in mind that not all winegrapes are processed in their own region).

This matters because unsold wine in premium regions puts downward pressure on the prices of the commercial wines from warm inland regions, as buyers can benefit from purchasing higher-quality product in lieu of commercial product in times of surplus. The warm inland regions that produce most of the country's non-premium wine are thus harmed most from such surpluses when sales slump.

2.1 Bearing area and winegrape production changes

It is not widely recognized that Australia's bearing area expanded less in the warm inland regions[6] than in the rest of Australia between 1995 and the peak in 2008, and that it also shrunk more between 2008 and 2023 than in the rest of Australia. The rises were 120% vs 220%, and the declines were 25% vs 5% (Figure 2(a)). In particular, the bearing area in Victoria's Murray Darling-Swan Hill region fell considerably in the early 2010s, as producers moved to more-profitable crops. But in the rest of the warm inland regions the area has declined only slightly over the past 15 years. The cooler regions saw a one-eighth decline in their combined bearing area during 2008-15, but then it rose again in response to the boom in China's import demand (Figure 5). So the net change since the peak of 2008 is only a one-seventh reduction in the nation's bearing area.

Figure 5: Vine bearing areas in Victoria's Murray Darling-Swan Hill region, other warm inland regions, and cooler regions, 1995 to 2023 (ha)



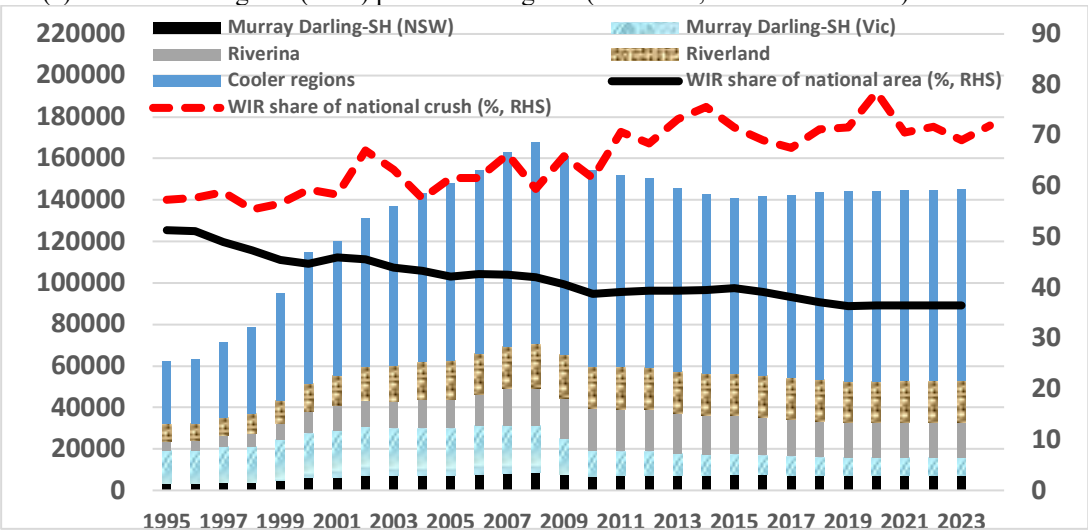
Sources: Anderson and Puga (2023a) and ABS Cat. No. 1329.0.

[6] Warm inland regions are defined as South Australia's Riverland, Victoria's Murray Darling-Swan Hill, and New South Wales' Murray Darling-Swan Hill and Riverina.

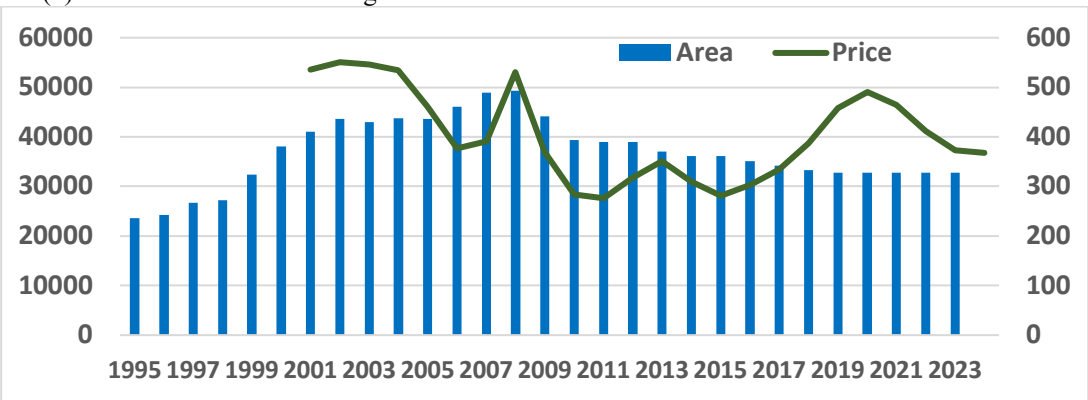
However, in South Australia's Riverland there has been almost no bearing area response to the huge changes in its winegrape prices this century. Presumably that is due to the long-term contract between Accolade Wines and the CCW co-operative of growers. This contrast with the eastern states' warm inland regions (Figure 6), especially in Victoria: it has seen, over the past 15 years, the number of wine producers fall by 19%, the vine bearing area by 37% and the (weather-affected) winegrape crush by 60% (Winetitles 2024, Anderson and Puga 2023a).

Figure 6: Vine bearing area, crush and average winegrape price, SA Riverland, NSW/Vic warm inland regions,[a] and cooler regions, 1995 to 2024 (ha and $ per tonne)

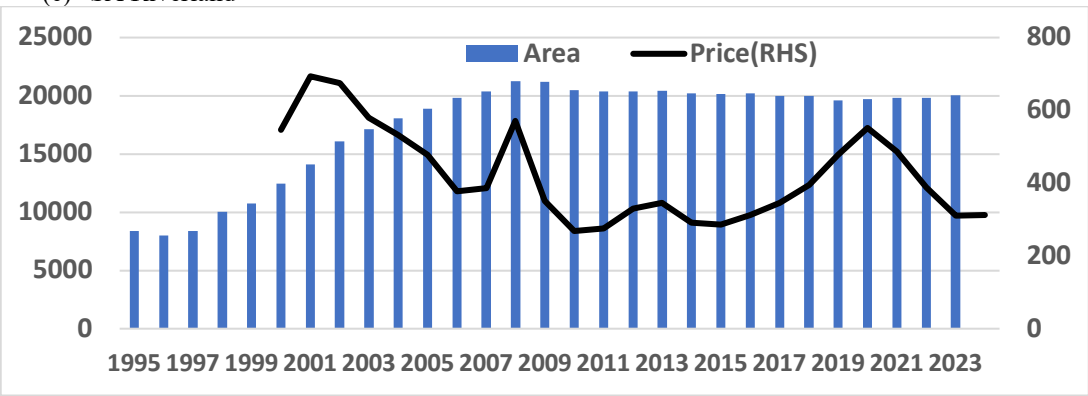
(a) Four warm regions (WIR) plus cooler regions (area in ha, and WIR % share)



(b) NSW/Vic warm inland regions[a]



(c) SA Riverland



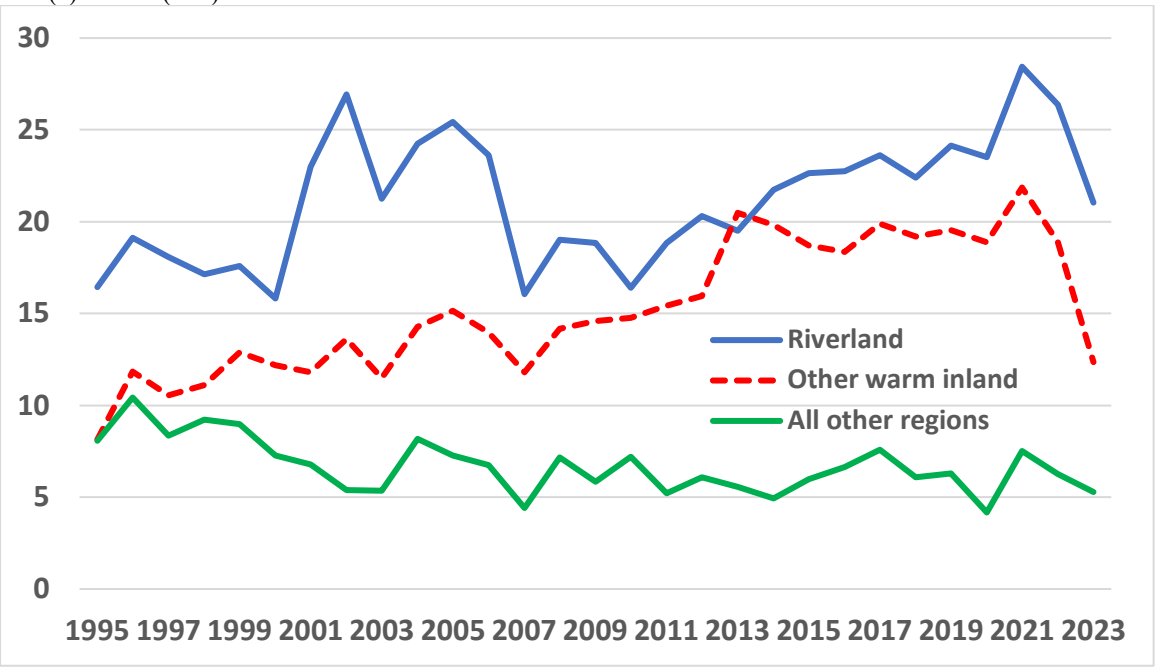
[a] Murray Darling-Swan Hill (NSW and Vic) and Riverina.

Sources: Wine Australia (2024d), Anderson and Puga (2023a) and ABS Cat. No. 1329.0.

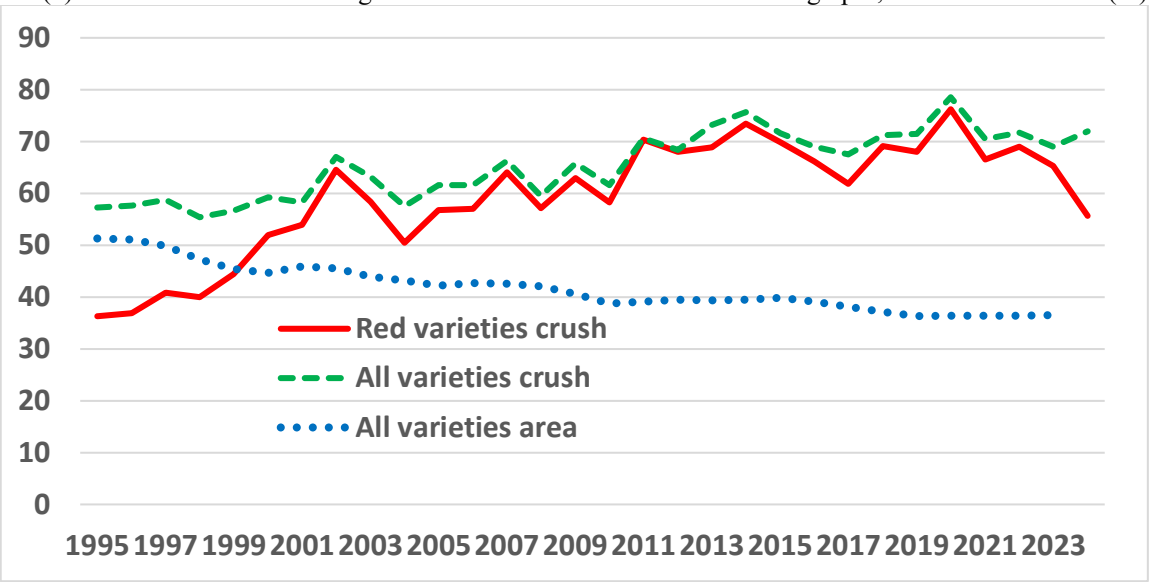
Meanwhile, both Riverland and other warm inland growers have raised their yields and hence their shares of Australia's winegrape production (Figure 6(a)), which has offset their price declines and the fall in their shares of bearing area. That contrasts with the cooler regions whose yields have been reduced, possibly striving for higher quality (Figure 7(a)). The warm inland regions' share of national winegrape production grew from 57% in the latter 1990s to 70% in the latter 2010s, but of red grapes their share nearly doubled just between 1995 and 2002, rising from 36% to 67% (Figure 7(b)). During 2021-23, 51% of the bearing area in those warm regions was Shiraz, Cabernet Sauvignon and Merlot and another 21% was Chardonnay.

Figure 7: Winegrape yield and share of national crush and area, Riverland, Other warm inland, and cooler regions in Australia, 1995 to 2024 (t/ha and %)

(a) Yield (t/ha)



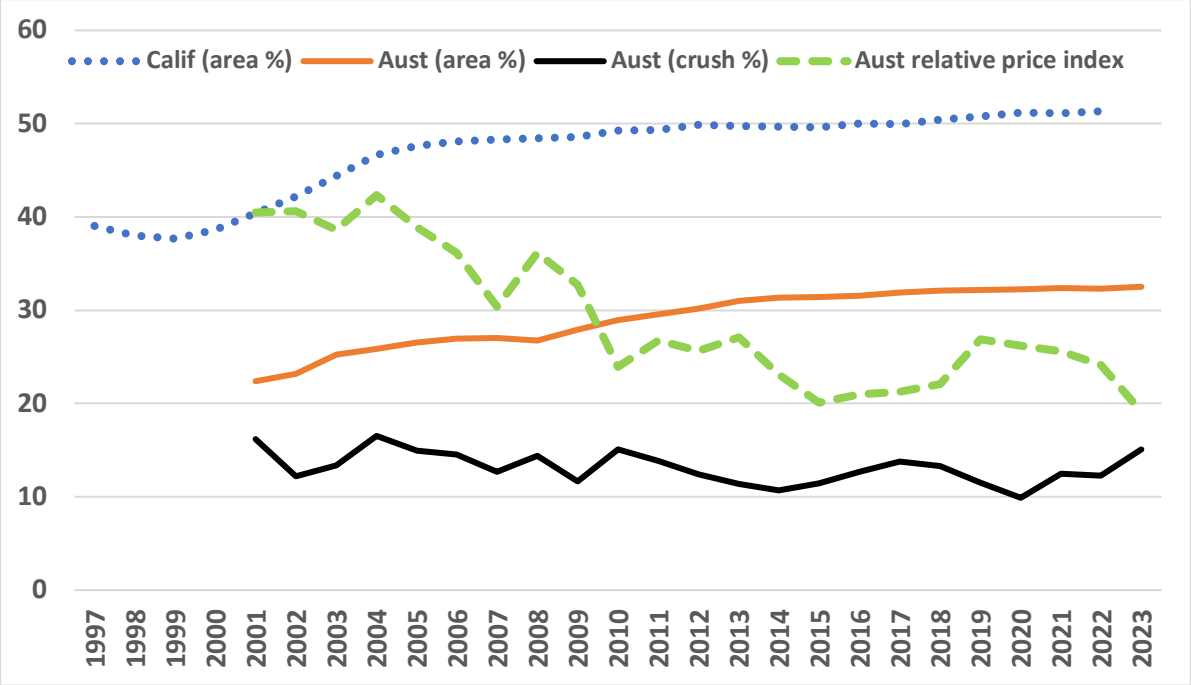
(b) Shares of warm inland regions in national crush of red and all winegrapes, and of national area (%)



Sources: Wine Australia (2024d), Anderson and Puga (2023a) and ABS Cat. No. 1329.0.

A pertinent comparator is California. Like Australia it has warm inland areas reliant on irrigation plus cooler regions and most notably Napa, Sonoma and Central Coast. The latter regions comprise a larger share of that State's bearing area than is true of Australia's premium regions and, while both have expanded this century, in Australia the share of the national crush volume coming from premium regions has been declining and so has its average price relative to that in non-premium regions (Figure 8). Meanwhile, the average price of California's red winegrapes has risen by nearly 50% over the past decade, from US$815 in 2011-13 to US$1,201 per ton in 2021-23, while the average price of their white winegrapes has risen one-sixth to US$699 (CDFA 2024). By contrast, the average winegrape price in Australia, when converted to the same US dollars, dropped about 1% over that same period.

Figure 8: Shares of premium regions[a] in total winegrape bearing area and crush, and price index,[b] Australia and California, 1997 to 2023 (%)



[a] Australian premium areas are assumed to be (based on average winegrape price in 2021-23) Barossa Valley, Beechworth, Clare Valley, Coonawarra, Eden Valley, Geelong, Margaret River, McLaren Vale, Mornington Peninsula, Tasmania, Tumbarumba and Yarra Valley. California premium regions are Coastal, Napa and Sonoma.

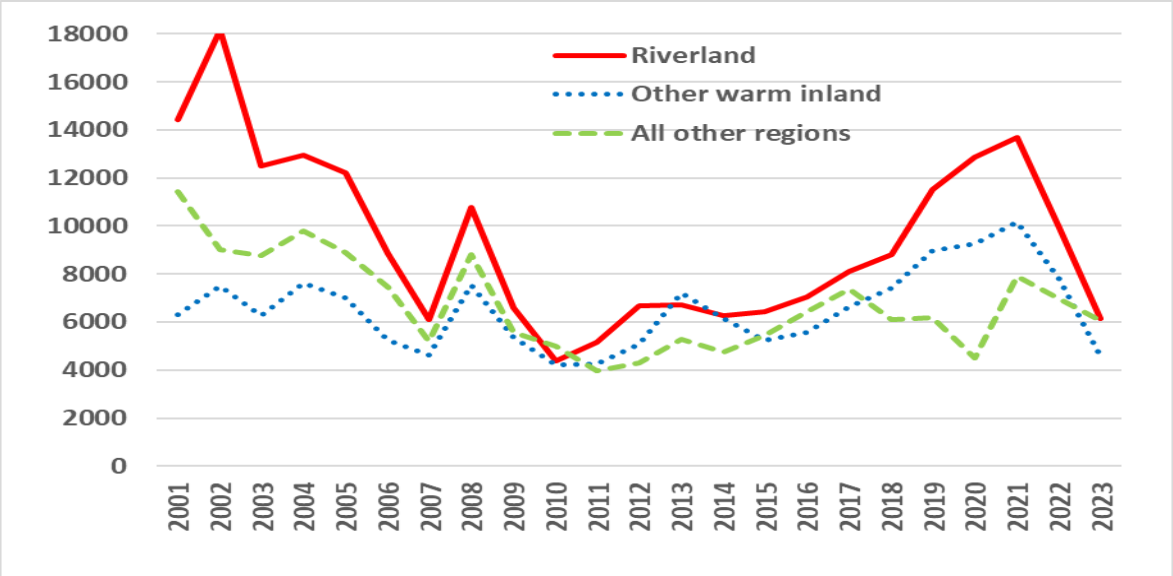
[b] Price index is the weighted average price of Australia's other-than-premium regions' grapes as a % of that for premium regions in Australia.

Sources: Anderson and Puga (2023a) and Julian Alston (UC Davis, personal communication).

2.2 Winegrape revenue per hectare

In terms of gross revenue per hectare of winegrapes, the Riverland fared considerably better than both other warm inland region and the country's cooler wine regions in most recent years, as it did also in the opening vintages of this century (Figure 9). However, the Riverland's economy is less diversified and its towns are smaller than those of most other regions, so its communities are particularly vulnerable to the downturn in winegrape earnings.

Figure 9: Gross revenue per hectare of winegrapes, Riverland, Other warm inland, and cooler regions in Australia, 2001 to 2023 ($)



Source: Anderson and Puga (2023a).

The net revenue per hectare of producing commercial winegrapes in Australia's warm inland regions has been held up in recent vintages because irrigation water has been ample and thus low-priced. Indeed in most vintages since 2011, the average gross revenue per hectare of winegrapes in those warm regions has exceeded the average for cooler regions (Figure 9). If costs per hectare are similar, this could suggest the warmer regions are as competitive as the cooler ones. Indeed as much as half of the current bulk red wine surplus may have come from lower-quality producers in cooler regions, according to Brian Croser (personal communication).

However, in future drier and hotter years the price of water leasing could rise several-fold and reverse that ranking, wiping out profits on the least-efficient vineyards in those warm inland regions – but also in other irrigation-intensive regions such as Langhorne Creek and the Limestone Coast.

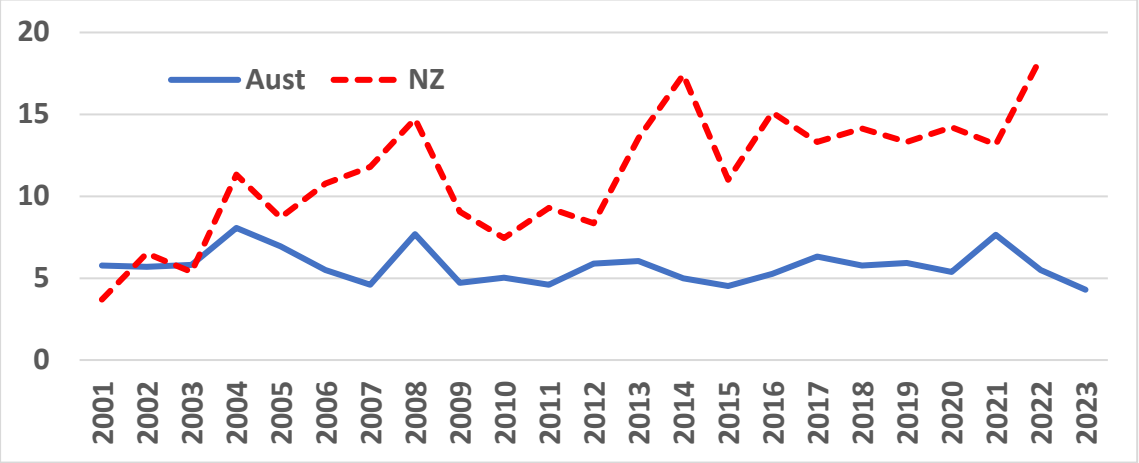
Gross revenue per hectare of winegrapes can also serve as a crude indicator of Australia's international competitiveness. In 2003 New Zealand's was almost the same as Australia's but in 2022 and 2023 it was more than three times greater (Figure 10(a)). This is despite the fact that both countries' average export prices in US$ terms have declined at similar rates (Figure 10(b)). And some costs of wine production are lower in New Zealand (since the vast majority of its output is Sauvignon Blanc that requires no aging in oak). New Zealand's export price and hence winegrape price fell during the global financial crisis the same as did Australia's during 2008-11, but since then New Zealand's winegrape price and hence bearing area have continued to climb even though its export price has been trending slightly downward in US dollars like Australia's (Figure 11), thanks partly to a rise in their shares of exports transported in bulk.

2.3 Wine production and exports

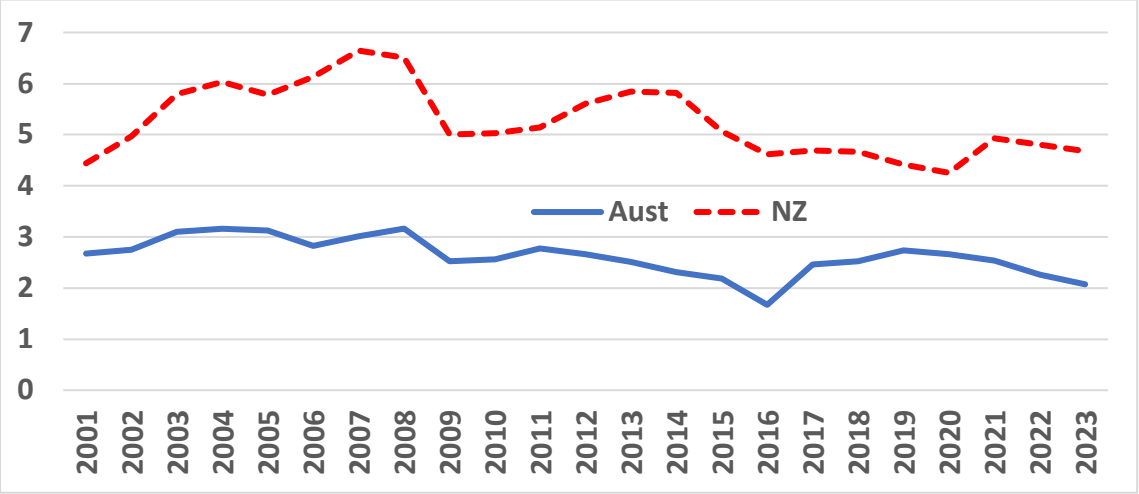
While the shocks at the start of this decade of China's wine tariff hike and COVID were unexpected, the decline in Australia's international competitiveness in wine started well before 2020. Australia's share of global wine production has fallen by nearly one-third from its peak of 5.2% in 2005 to just 3.7% in 2023. Likewise, the value of Australia's wine

Figure 10: Gross revenue per hectare of winegrapes and average wine export price, Australia and New Zealand, 2001 to 2023 (US$)

(a) Gross revenue per hectare of winegrapes (US$ '000)

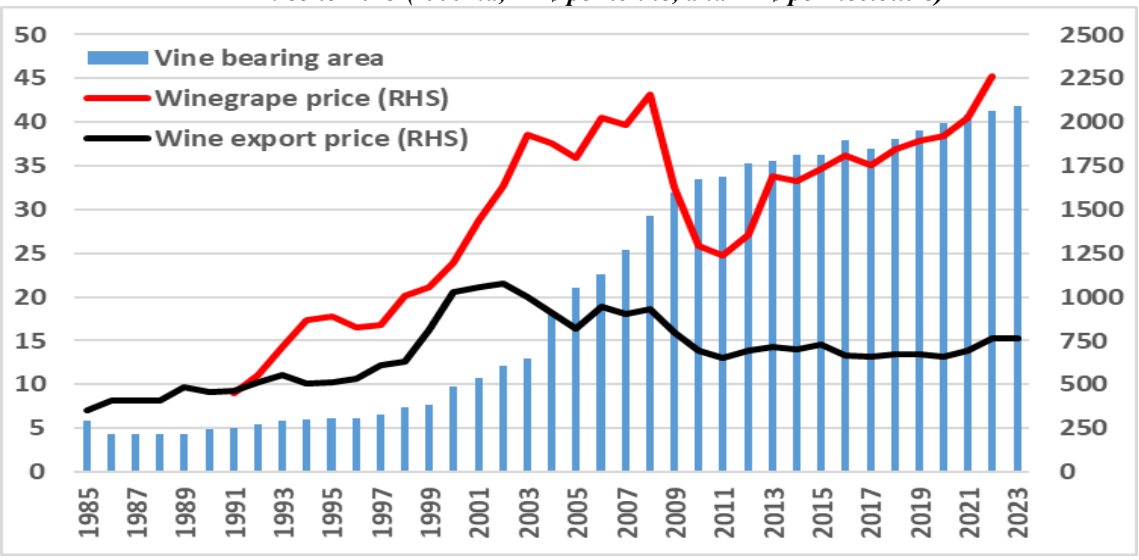


(b) Average wine export price (US$/litre)



Sources: Anderson and Pinilla (2023), Anderson and Puga (2023a) and New Zealand Winegrowers (2023 and earlier).

Figure 11: Vine bearing area, average winegrape price, and wine export price, New Zealand, 1985 to 2023 ('000 ha, NZ$ per tonne, and NZ$ per hectolitre)

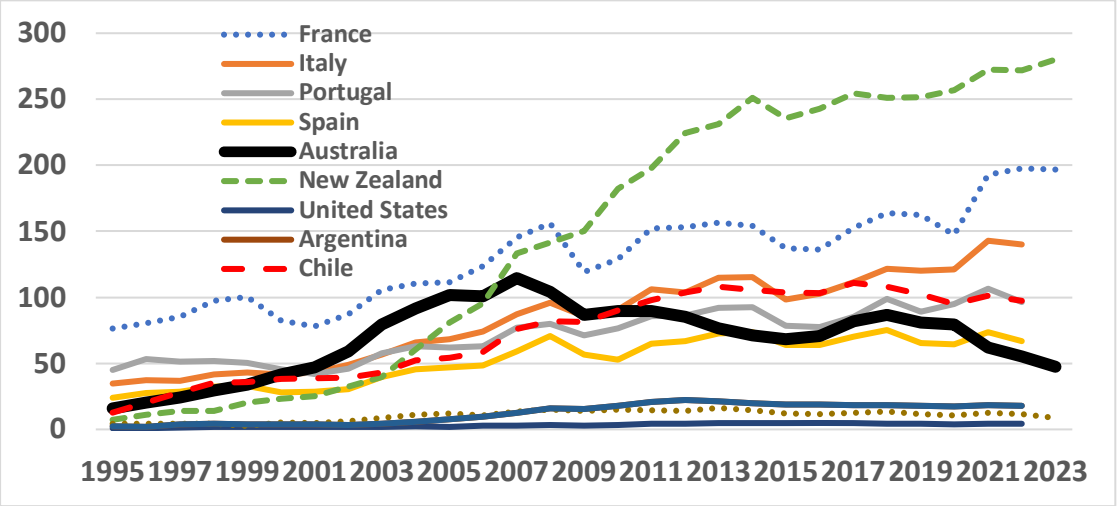


Source: New Zealand Winegrowers (2023 and earlier).

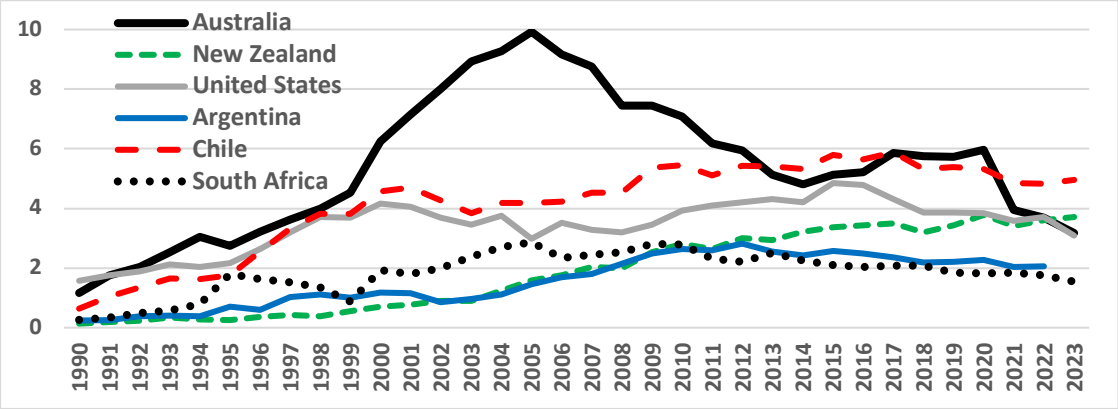
exports per capita has more than halved since 2007, and Australia's share in the value of global wine exports – which rose from 1% to 10% between 1990 and 2004 – has fallen to 4% (Figure 12).

Figure 12: Value of wine exports per capita, national share in the value of global wine exports, and index of revealed comparative advantage in wine,[a] Australia and competitor countries, 1985 to 2023 (US$ and %)

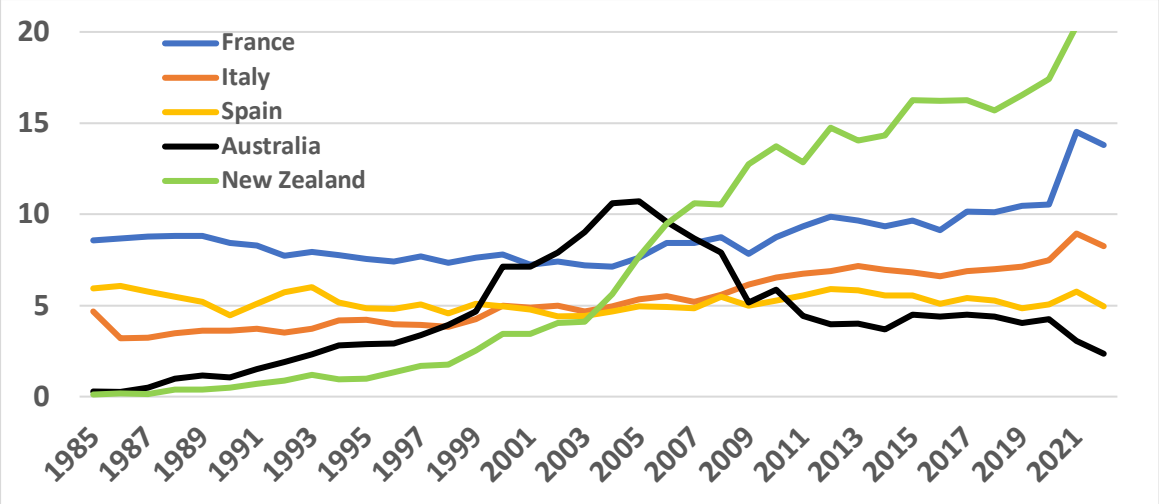
(a) Value of wine exports per capita (current US$)



(b) Share of global wine export value (%)



(c) Index of revealed comparative advantage in wine

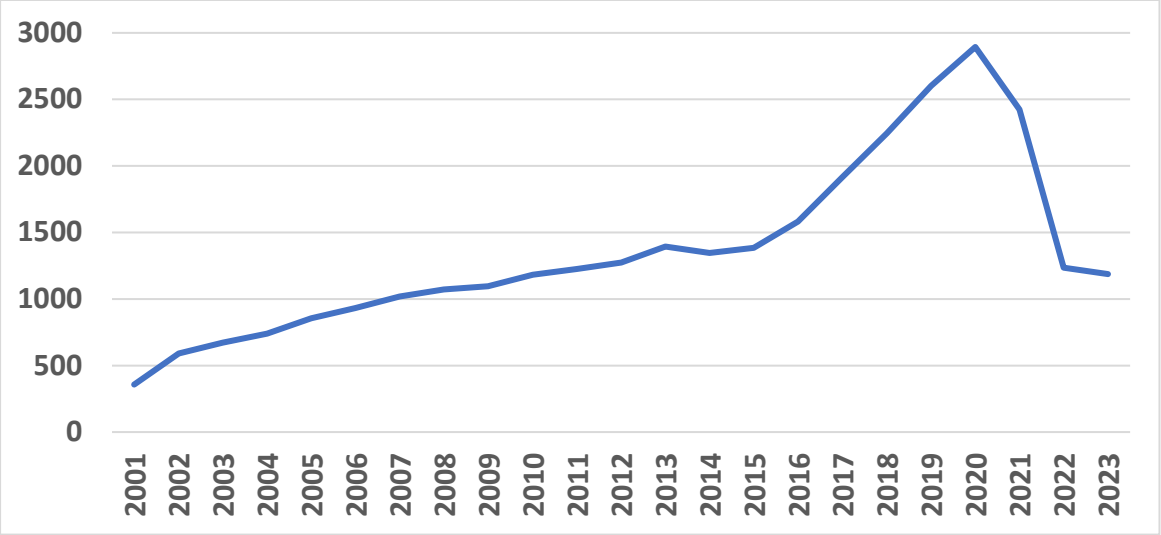


[a] Share of wine in the value of a country's exports of all goods divided by wine's share of the value of global goods trade.

Source: Anderson and Pinilla (2023).

The number of wine-exporting firms, which trebled between 2001 and 2007, grew only slowly for the next decade. Then, thanks to the China boom and halt, it doubled in the remainder of the 2010s and then shrank 60% (Figure 13).

Figure 13: Number of firms exporting Australian wine, 2001 to 2023



Source: Wine Australia.

Demand for and thus sales of commercial wines (<$5/litre pre-tax wholesale, roughly <$10 a bottle off-trade retail) have shrunk at home and abroad, in contrast to premium wine sales. The former's share of the volume of Australian wine sales in the domestic market was 85% in the mid-1990s (Anderson 2015), but it is less than 60% now (Figure 9 in Wine Australia 2022).

However, the volume of Australia's premium wine export sales also has shrunk in recent years. It first happened thanks to the collapse in sales to the US after 2007, when the annual export volume fell almost two-thirds (from 197 ML to 69 ML) by 2012-14.[7] It built up with the China boom in the latter 2010s but then, thanks to China's tariff hike, it halved between 2018-20 and 2023, dropping from 121 ML to 62 ML (Figure 14(a)). The share of the volume of exports that is greater than AUD5/litre to all major destinations has plummeted since 2007 (Figure 14(b)).

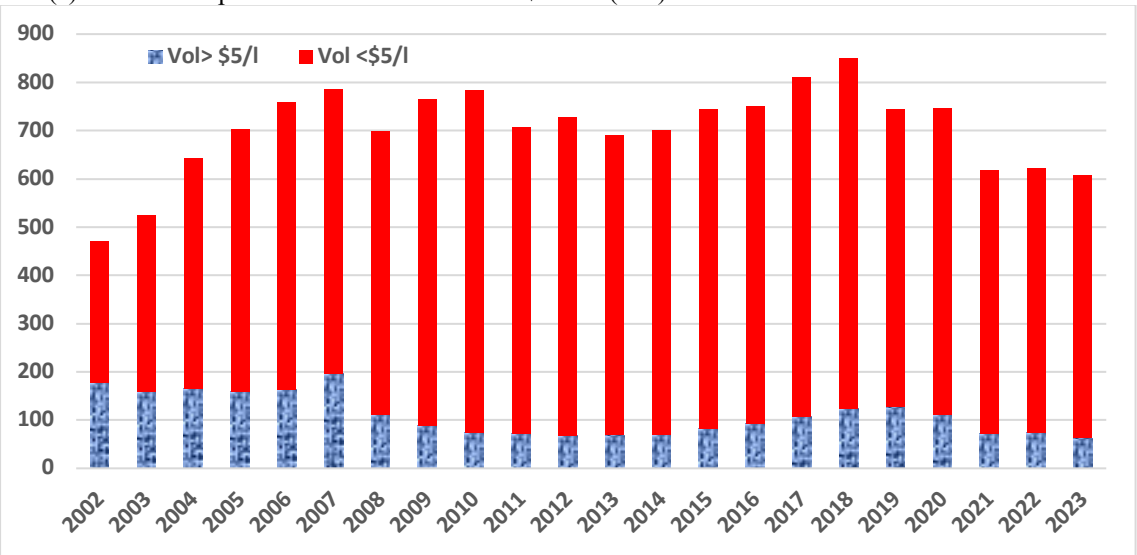
Encouragingly, the average AUD price of Australia's wine exports sold above $5/litre has risen since 2007, by more than 50% (Figure 14(c)), and the average price of bottled wine exports has kept pace with the rest of the world's (Figure 39(a)), while the average AUD price of Australia's exports sold below $5/litre has fallen by one-third and its bulk wine average price has trended similarly to the global average (Figures 14(c) and 30(a)).

Not all the cooler regions' new plantings were on ideal sites or the best variety for its location, so non-trivial shares of their exports have been sold for less than $5 per litre, particularly when the average export price has slumped, e.g. during 2010-13 (Table 2). Thus it is not surprising that wines from cooler regions have been part of the surplus bulk wines available for sale this year. Table 3 shows that as of 1 March 2024, one South Australian broker had 77 ML on the market from warm inland regions and the broader Zones (at an average offer price of $0.85 per litre) but also had 48 ML from cooler GI regions (albeit at a higher average offer price of $2.95 cents per litre).

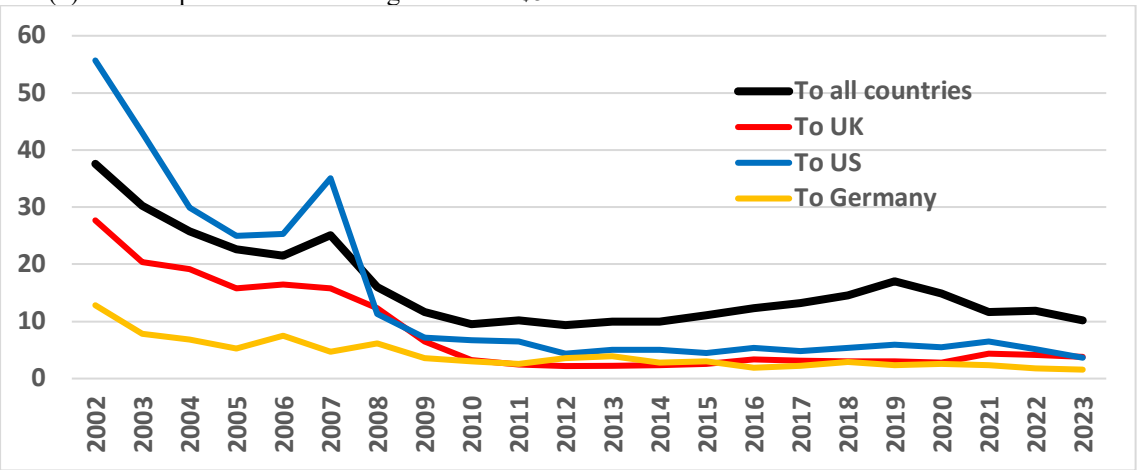
[7] That collapse of Australia's premium wine sales to the US coincided with the almost doubling of the winegrape bearing area in the cooler regions of California (Figure 25(b)).

Figure 14: Volumes of Australian premium and non-premium wine exported (sold at more and less than $5/litre), their average price, and premium shares of volumes to the UK, US, Germany and all countries, 2001 to 2023 (ML and %)

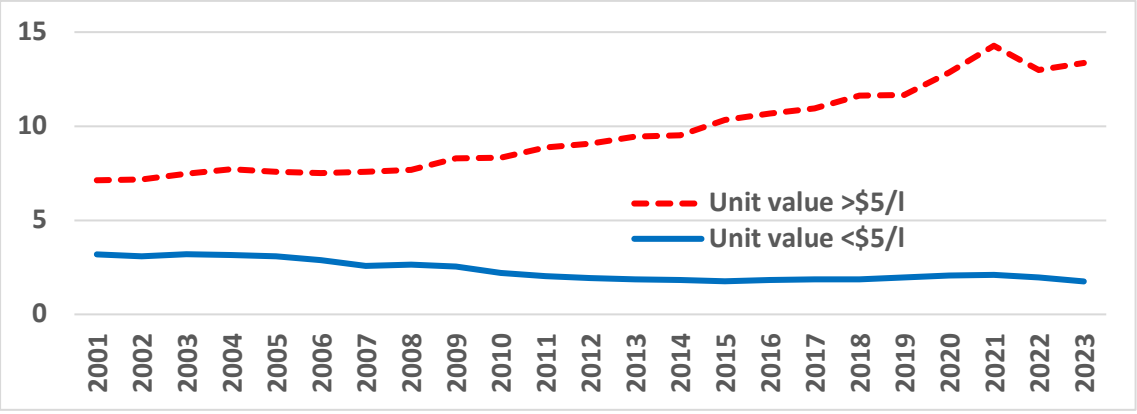
(a) volumes exported at more and less than $5/litre (ML)



(b) % of export volume that is greater than $5/litre



(c) Average unit values of wine exports sold below & above $5/litre, Australia, 2001 to 2023 ($/litre FOB)



Source: Wine Australia.

Table 2: Share of export volume from cooler regions sold at less than $5 per litre, by GI region, 2001 to 2023 (%)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Adelaide Hills	0	0	0	0	1	1	2	1	2	5	8	5	8	4	5	3	5	4	3	1	0	3	1
Barossa	11	12	8	7	9	11	13	17	12	22	20	21	24	21	13	11	12	17	13	13	15	14	18
Clare Valley	1	4	0	2	4	4	3	3	7	15	15	17	8	12	11	13	13	16	9	6	6	13	17
Coonawarra	33	11	2	9	11	8	13	13	23	19	29	16	22	19	16	20	16	30	31	32	26	30	27
Langhorne Creek	14	16	4	8	14	39	45	34	32	36	23	34	39	38	49	62	42	48	51	50	40	35	19
Margaret River	3	9	2	4	4	14	12	10	12	16	21	23	13	8	8	8	20	20	12	6	5	5	11
McLaren Vale	3	1	8	7	18	29	14	10	7	16	33	38	25	17	7	11	12	12	14	17	15	19	14
Padthaway	30	9	4	27	1	49	15	46	46	71	65	64	64	32	55	62	68	62	67	53	12	15	16
Wrattonbully	0	0	11	1	3	8	25	22	14	22	9	33	22	0	50	53	28	13	16	23	39	3	2
Unweighted average of above GIs	**11**	**7**	**4**	**7**	**7**	**18**	**16**	**17**	**17**	**25**	**25**	**28**	**25**	**17**	**24**	**27**	**24**	**25**	**24**	**22**	**18**	**15**	**14**

Source: Wine Australia.

Table 3: Average offer price, volume and value of bulk wine for sale, by GI region or Zone, 1 March 2024 ($/litre, ML and $million)

	Ave. price	ML	$million
Warm inland regions/Zones:			
Riverland	0.90	5	4
South Eastern Australia	0.73	56	41
South Australia	1.22	14	17
Victoria	1.54	3	4
Sub-total	**0.85**	77	66
Cooler GI regions:			
Barossa Valley	4.07	10	42
Clare Valley	3.19	5	14
Coonawarra	2.88	9	26
Langhorne Creek	2.30	6	14
Limestone Coast	2.07	8	16
McLaren Vale	3.37	5	18
Padthaway	2.08	2	4
Wrattonbully	2.26	3	7
Sub-total	**2.95**	48	141

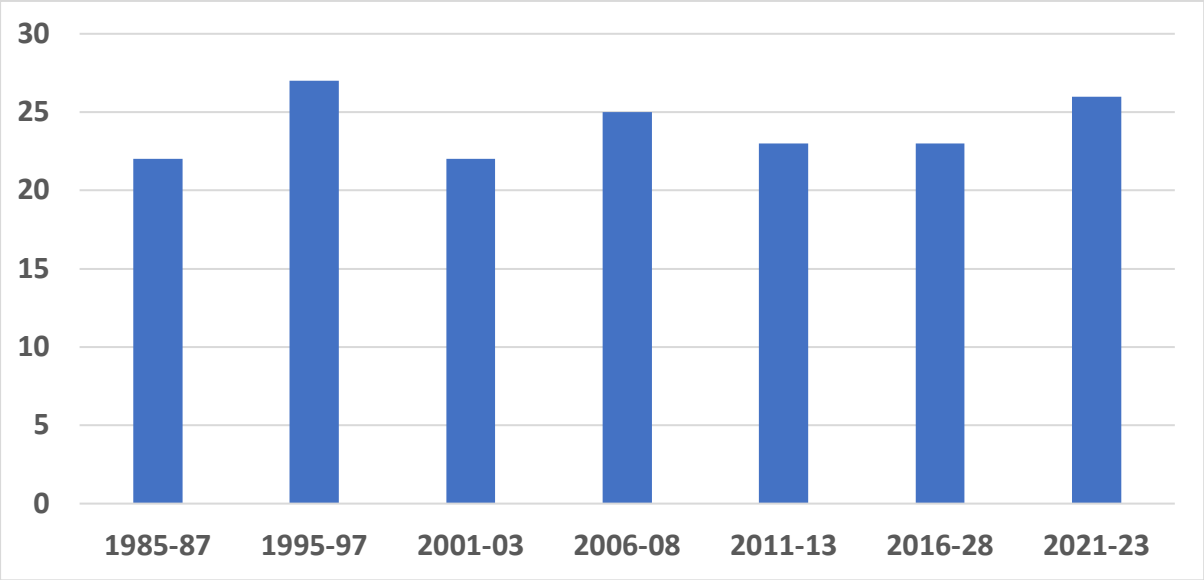
Source: WyattMunk Winebrokers.

3

Contributions of recent demand trends and shocks

Three-fifths of Australia's wine production over the past decade was exported, and now one bottle in five consumed domestically contains imported wine that is sold in competition with local wines, so international market conditions have a dominant impact on local winegrape and wine prices. Even so, domestic factors such as excise taxes have an additional effect on the volume and types of wines demanded locally. All of these demand trends affect wineries as well as grapegrowers. Growers often consider wineries have the capacity to pass a disproportionate share of the adverse effects up the value chain to them, but Figure 15 suggests that over time that share has been in a narrow range of 22% to 27%.

Figure 15: Grapegrowers' share of wine pre-tax wholesale sales revenue,[a] Australia, 1985 to 2023 (%)



[a] Assumes the average pre-tax wholesale price of domestic sales is the same as that for export sales FOB. In 2022/23, domestic sales averaged $7.02 per litre and exported 750ml bottles averaged $7.78 in the 12 months to February 2024.

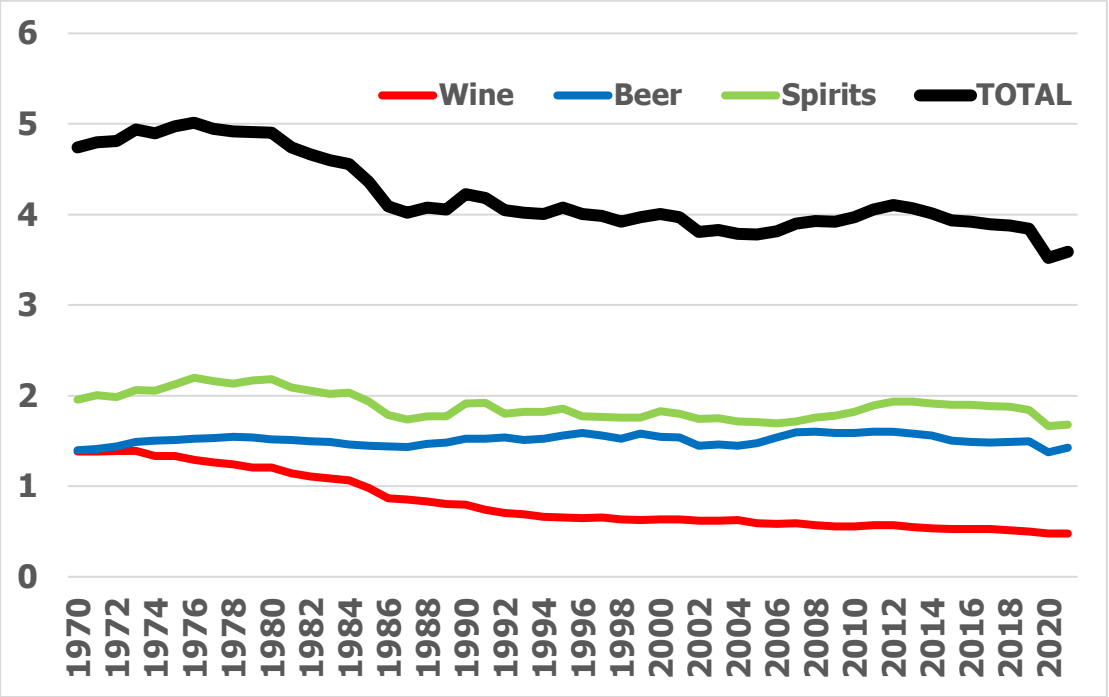
Sources: Author's estimate based on data in Anderson and Pinilla (2023), Anderson and Puga (2023a), Wine Australia (2023c) and https://marketexplorer.wineaustralia.com/export-dashboard.

3.1 Global

Alcohol consumption per adult is declining globally (as is the rate of growth in the world's adult population), and almost all of that shrinkage in alcohol sales is due to the declining popularity of wine (Figure 16). Wine's share of all alcohol consumption halved in the final four decades of the 20th century, and since then it has fallen from 16% to 13%. That is, there is no sign yet that wine's relative demise among the world's alcoholic beverage consumers has bottomed out. In particular, young consumers are showing less interest than their forebears in alcohol and especially wine.[8]

[8] This is true even in France, where beer now accounts for more than half of all alcohol bought in French supermarkets. A quarter of French 18- to 34-year-olds say they never drink alcohol, and 39% of those under-35s say that they do not drink wine.

Figure 16: Global recorded alcohol consumption per adult, 1970 to 2022 (litres)



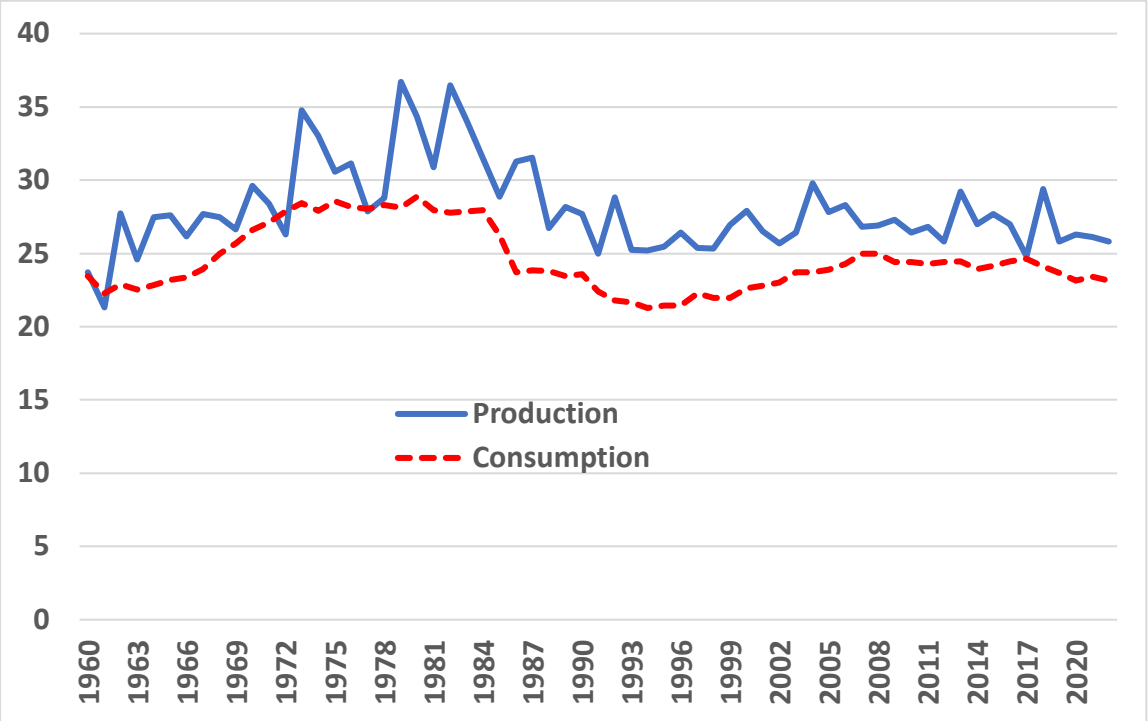
Source: Anderson and Pinilla (2023).

Health concerns/lifestyle choices in high-income countries explain part of the move away from alcohol. Health and temperance lobbies and the World Health Organization (WHO) not only are reinforcing that preference shift but also are encouraging governments to impose stricter restraints on alcohol consumption (via taxes, drink-driving laws, liquor shopping regulations, official dietary guidelines, etc.). The most recent tax example is the change in the alcohol tax regime in the UK, which now imposes higher taxes on wines above 12% alcohol. The most-recent dietary guideline change is in Canada: the previous guidelines set a standard weekly limit of 15 drinks a week for men and 10 for women; but in August 2023, after a two-year review, they were changed to a maximum of two standard drinks a week for both men and women. The US is currently reviewing its official alcohol guidelines and may well lower them substantially too. WHO now claims there is ***no*** safe level of alcohol consumption (WHO 2023).[9]

The overall volume of wine consumption globally peaked in the 1970s, and over the past 40 years has not exceeded the 1985 level (Figure 17). The growth in demand in developing countries has been more than offset by a decline in consumption in Europe's traditional wine-producing countries. The relatively rapid income growth in Asia's (and eventually Africa's) non-Islamic countries is likely to continue to boost demand for purchased alcoholic beverages there, but from a very low base in the case of wine (Anderson 2020a). Hence that growth in wine demand in developing countries may continue to be insufficient to offset the decline in demand in high-income countries.

[9] This view has been developed at WHO with the help of many anti-alcohol civil society groups, some of whom consider this cause to be the natural one to follow the campaign to rid the world of tobacco smoking (Carter 2024). WHO draws on meta-analyses such as by Griswold et al. (2018), which suggest less alcohol is better. Yet other meta-analyses such as by Tian et al. (2023) continue to suggest there is a J-curve: moderate (especially red) wine consumption is good for health (see also Tsai, Gao and Wen 2023). When that view was aired on a *60 minutes* TV program in the US in 1991 (referring to what became known as the French Paradox) it generated a huge uptake in red wine consumption in the US. For a recent critique of the wine and health literature, see also Edwards (2023) and Carter (2024).

Figure 17: Global wine production and consumption, 1960 to 2022 (billion litres)



Sources: OIV (2023a) and (pre-2000) Anderson and Pinilla (2023).

In addition to overall consumption of wine shrinking, red's share of world wine consumption fell from 51% to 48% between 2000-04 and 2017-21 (OIV 2023b). Part of the move in demand away from red wines is associated with a greater interest in sparkling wines[10] and rosé (OIV 2020), and part is because there has been an unwelcomed rise in the alcohol content of reds relative to whites (Godden, Wilkes and Johnson 2015). But much of the fall in red wine consumption is recent and due largely to developments in China.

China accounted for a huge increase in global red wine consumption in the first two decades of this century, but wine sales there have slumped recently. In 2023 China's apparent consumption was barely one-quarter of what it was at its peak in 2017, and it was one-quarter below 2022.

Even though China's domestic production of wine also has shrunk, the annual volume of its wine imports declined by two-thirds between 2017 and 2023 (Figure 18), and China's share of the global value of wine imports halved from 8% to 4%. COVID lockdowns and the associated slowdown in Chinese income growth explain only a part of that, and only from 2020. The move away from wine has its origins in the austerity measures introduced by President Xi from 2013 that frowned upon lavish official dinners and other conspicuous consumption and gift-giving, and more recently he also discouraged consumption of exotic/imported goods (Anderson 2023a).

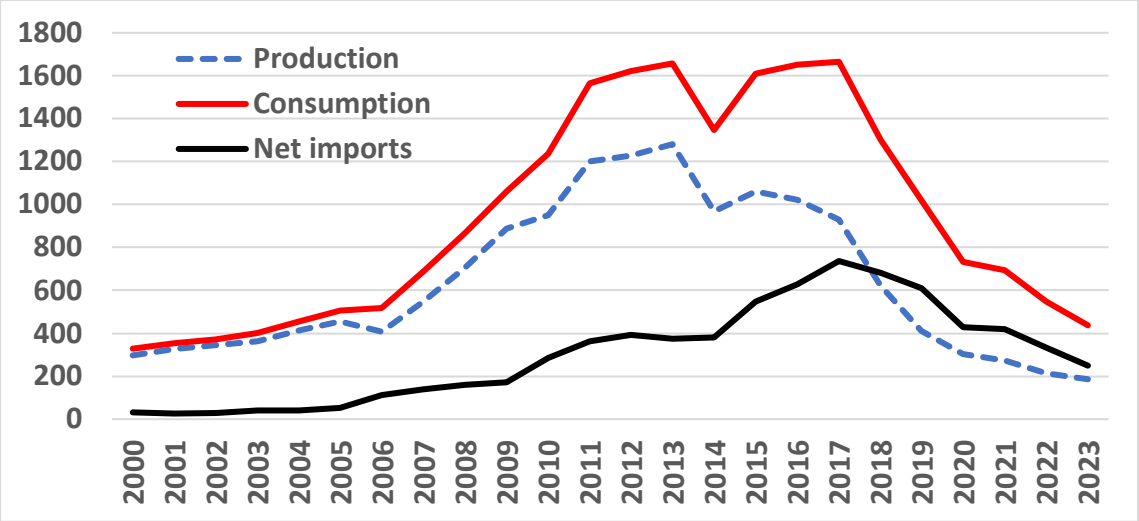
China's imports from Australia virtually ceased from late 2020, thanks to the almost-prohibitive tariff China unilaterally imposed on them. As soon as that happened, France and Chile began raising their share of that shrinking market (Figure 19). But in 2023 alone imports by China of French wine fell by 29%, of Chilean by 18%, Italian by 31% and Spanish by 48%. China removed its punitive tariffs on Australian wine at the end of March 2024, but that will not immediately solve Australia's over-supply of red wine: it will take

[10] Throughout this review, 'sparkling' refers to wines produced via both the classic method involving second fermentation in the bottle (as with Champagne) and the Charmat Method (as with Prosecco) where the second fermentation takes place inside stainless steel fermenters prior to bottling.

effort for Australia to regain its former share and, even if it did, the annual value of that trade initially is likely to be no more than half what it was at the end of the 2010s.

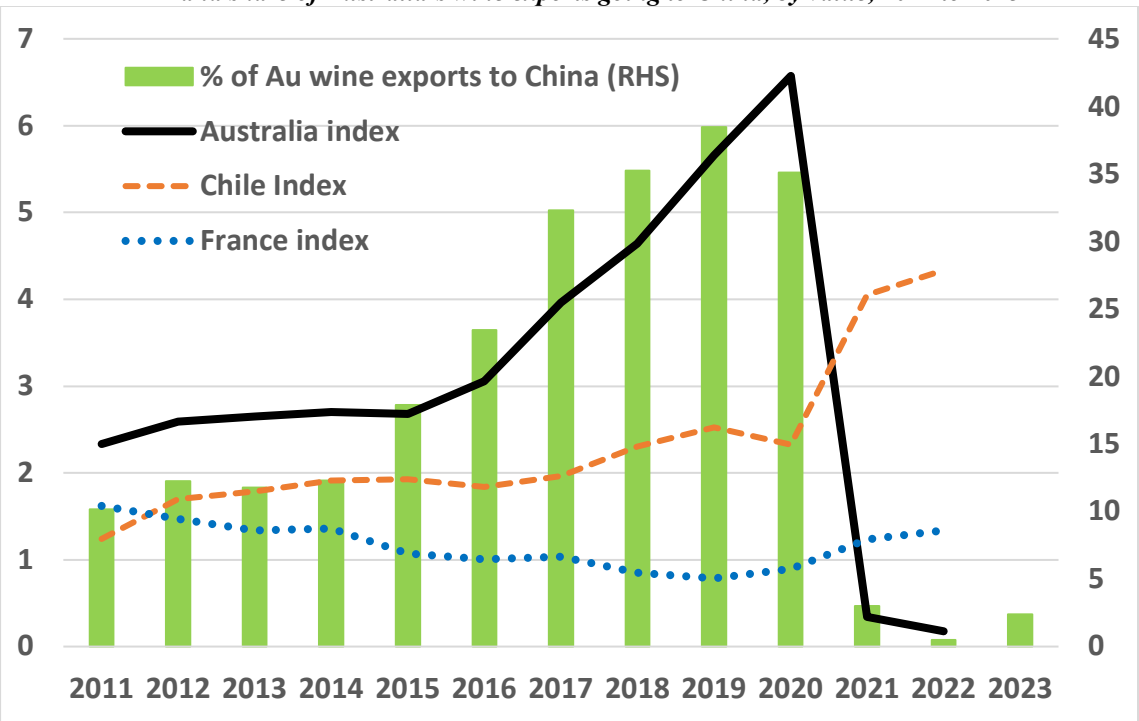
There is scope for wine consumption in China to rise over the longer term, but that prospect is too far off for it to absorb very much of Australia's current excess supply of red wine. Growth is expected not least because in 2023 China's per adult consumption was less than half a litre per year and wine accounted for less than 1.5% of all alcohol consumption there.

Figure 18: Volume of China's production, net imports and apparent consumption of wine, 2000 to 2023 (ML)



Source: Updated from Anderson (2023a).

Figure 19: Index of intensity of the value of wine exports to China[a] from Australia, Chile and France, and share of Australia's wine exports going to China, by value, 2011 to 2023



[a] That index is the share of a country's total wine export earnings that are accounted for by China divided by China's share of the value of global wine imports.

Source: Updated from Anderson (2023a).

Consumption of items as discretionary as wine also is being dampened by the slowdown in global economic growth and the increasing market uncertainty thanks to COVID-19, wars and geopolitical tensions – all of which are lowering consumer confidence. COVID restrictions impacted heavily on on-premise wine consumption (restaurants, pubs, airplanes, cruise ships) and on wine tourism/cellar door visits. The boost they gave to off-premise and especially online wine sales proved to be only temporary, and to have left higher inventories such that sales in 2023/24 have slumped as concerns about inflation, interest rates, and housing and other living costs mount. In the US, for example, wine sales grew at 2.4% per year during 2003-18 but declined at 1.8% during 2018-23.

One response of beverage producers to the health-driven declining interest in alcohol has been to develop lower-alcohol products. The beer industry has successfully developed mid-, low- and no-alcohol beers, and hard seltzers (carbonated water with up to 5% alcohol) have become popular in some countries.

However, most wineries have struggled to develop mid- low- and no-alcohol wines that appeal either to regular wine drinkers or to abstainers (Anderson 2023c). That is something Wine Australia hopes to change through sponsoring pertinent R&D. Some growth in no-lo wine demand is expected over the rest of this decade, but the category is projected to account for no more than 2% of global wine sales by 2027 (Wine Australia 2024b).

Two other pertinent demand trends in high-income countries are the increasing consumer preferences for premium products (quality rather than quantity), and for products that are produced, packaged and distributed in more environmentally sustainable ways. All countries are striving to premiumize (Del Ray and Loose 2023), so Australia needs to upgrade faster than the average country if its competitiveness is to not slip further behind. Grapegrowers and wineries are thus under pressure to keep raising the quality of their product, and at the same time to lower their use of chemical inputs and heavy bottles, to consider regenerative viticultural techniques, and to keep moving toward carbon neutrality. Unfortunately, however, it seems consumers do not expect to have to pay more for wines that are produced more sustainably (Wine Australia 2024b). It is thus yet another set of costs that growers need to absorb, or risk finding it harder to secure a buyer for their grapes.

3.2 Domestic

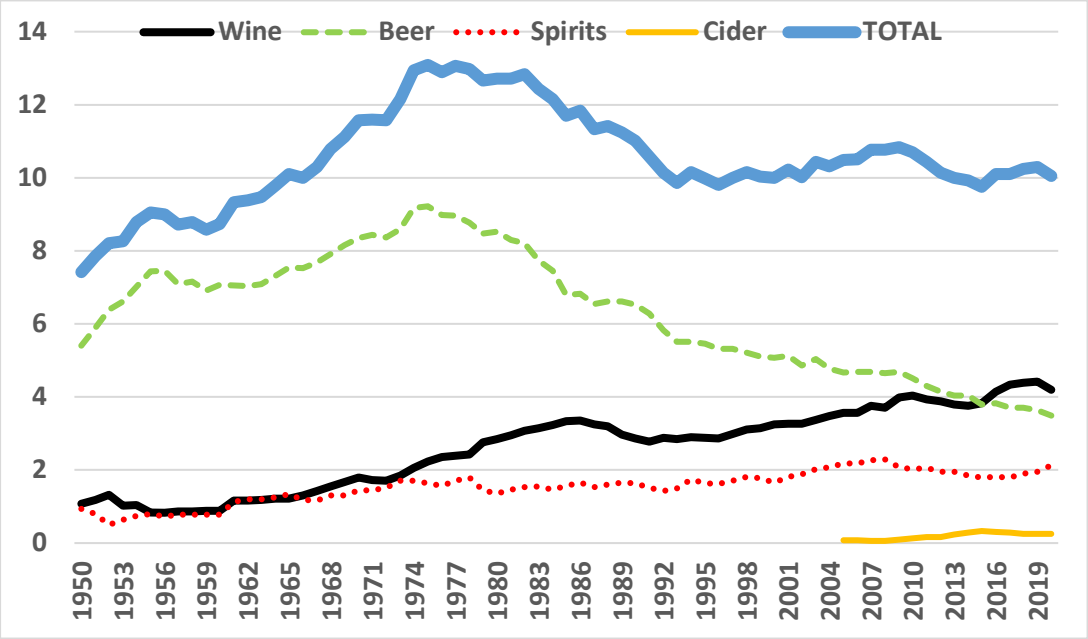
In Australia too, consumption per adult of alcohol from both wine and all beverages have stagnated: both were no higher at the end than at the beginning of the 2010s (Figure 20). Health concerns and lifestyle choices are contributing to that consumer trend. As well, Australian consumers are revealing an increasing preference for premium and novel products (including imports of Champagne from France, Sauvignon Blanc from New Zealand and Prosecco from Italy) and for ones produced in more environmentally sustainable ways.

The global trend away from reds is reflected also in local sales of Australian wine. Between 2018-19 and COVID-affected 2022-23, for example, local sales volumes fell 18% for reds but only 10% for whites. The shares of off-trade volumes in 2023 were 46% still white (half of which was Sauvignon Blanc and Chardonnay), 32% still red, 13% sparkling, 5% still rosé, and the remaining 4% included fortifieds. Of those domestic off-trade retail sales (which account for 81% of the total sales volume in Australia), the shares of imported wines were 15% by volume and 25% by value in 2023 (Wine Australia 2024a).

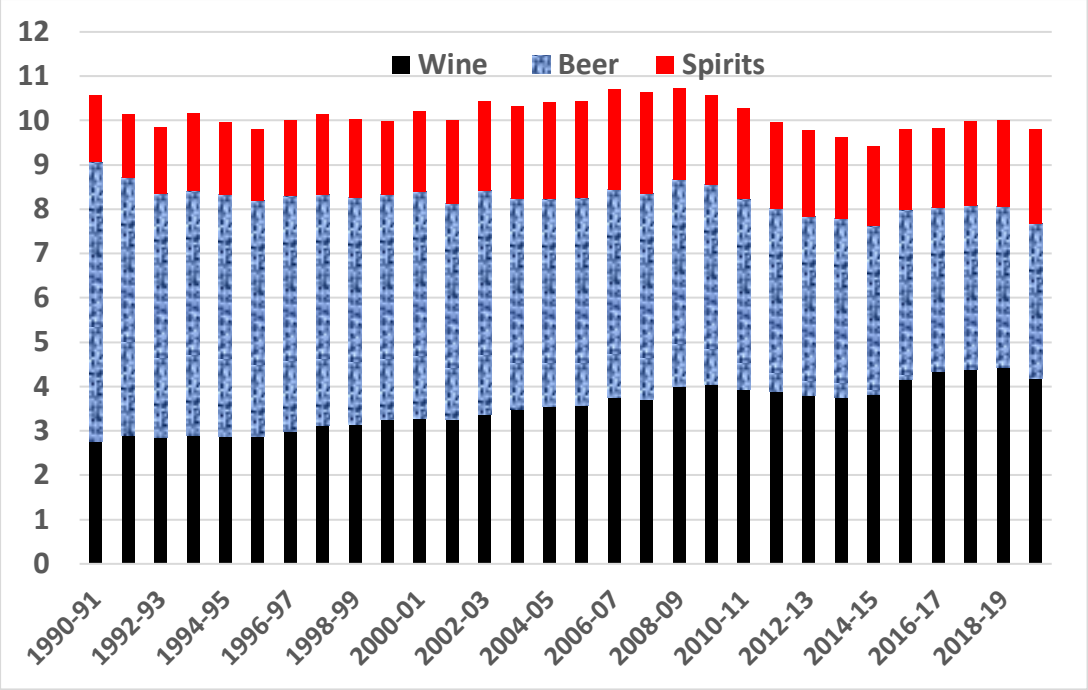
The domestic demand for wine is influenced as well by the heavy concentration of retail sales by the two largest supermarket chains. In 2023 they accounted for 80% of the off-trade sales value, with Endeavour Group's Dan Murphy's and BWS stores comprising 62% alone (Wine Australia 2024a). They are each becoming vertically integrated and are

Figure 20: Apparent alcohol consumption per adult, Australia, 1950 to 2020 (litres)[a]

(a) Since 1950



(b) Since 1990



[a] Based primarily on taxation data, including for wine from 2014-15. For wine, the ABVs (alcohol by volume) in 2019-20 were 12.4% for whites, 13.7% for reds, 11.2% for sparkling and 17.9% for fortified wine.
Sources: AIHW (2023) and pre-1960, Anderson (2020c).

developing their own brands, which are tending to crowd out other wineries' products on shop shelves. Their market power may also be putting downward pressure on the prices of purchased winegrapes, especially at the lower-quality end where supplies are super-abundant.

Another important domestic market condition is Australia's alcohol tax regime. That regime involves relatively heavy excise duties at the wholesale level on the volume of alcohol in each bottle or barrel of beer or spirits sold, and they are raised every six months in line with inflation. It also has involved, since 1984, an *ad valorem* wholesale tax on domestic

wine sales that became re-badged as the wine equalization tax (WET) from 2000 and set at 29%.[11]

The ad valorem wine tax regime ensures that commercial wines are taxed lightly compared with beer and spirits while the opposite is true for fine wines (Table 4). Were there to be a switch from an *ad valorem* WET to a volumetric excise tax on wine (as operates in most other countries), vignerons would be encouraged to move up market in terms of quality and hence pre-tax price. But the overall volume of domestic wine sales would shrink as consumers chose quality over quantity in response to the relative retail price change that would result from such a tax reform. As well, newcomers to wine consumption would be discouraged by a rise in the tax-inclusive price of entry wines, which could then mean fewer premium wine consumers in future as those would-be new consumers age. That lowering of the volume of wine sold domestically would be even more likely if the government took the opportunity (a) to raise the tax on wine more towards the beer rate or (b) to set a common tax on the alcohol content of each beverage at a rate that raised the same aggregate tax revenue or, even more so, (c) copied the UK's recent reform and set a series of common rates with higher rates for higher-alcohol products.

Also, there is a WET rebate that helps to keep small wineries afloat financially and discourages them from amalgamating and exporting. It amounts to the first $350,000 of any Australian winery's WET paid each year (down from $500,000 prior to July 2018). That scheme adds to the alcohol tax regime heavily favouring alcohol consumption via wine as compared with beer and spirits: wine currently accounts for about 42% of national alcohol consumption (Figure 20) but the WET system with its rebate contributes only about 12% of alcohol tax revenue. The largest wineries, which account for 88% of the wine produced in Australia, bear the burden of the WET: only 9% of wineries pay any WET at all (Treasury 2016). Moreover, the WET rebate means that if two entities that were claiming the maximum allowable rebate under the cap chose to merge, the new consolidated entity would lose half that rebate (Treasury 2016). The WET rebate also was being rorted by non-wine producers further down the value chain until the government reformed the scheme in 2018.[12]

---

[11] Australia's per adult consumption of alcohol from wine peaked in 1985 and it took until 2002 before that peak was exceeded (AIHW 2023). The Hawke Labor Government imposed a 10% wholesale sales tax in its August 1984 budget. That tax was subsequently raised to 20% in the August 1986 budget, and it stayed at that level until the Keating Labor Government raised it to 31% in the August 1993 budget. The outcry that followed led to its reduction to 22% in October of that year and the setting up of an official study into the industry and its taxation (Industry Commission 1995). While the study was under way, the wine tax was raised by two percentage points in July 1994, and again in July 1995, to 26 per cent. Meanwhile, state government franchise fees on wine sales had risen to close to 15% at the wholesale level, but from August 1997 those fees were collected by the Federal Government on behalf of the states following a High Court ruling declaring state franchise fees unconstitutional. That made the wine tax a total of 41%. Then when the Federal Government introduced a general goods and services tax (GST) in 2000 to replace a plethora of wholesale sales taxes, it chose to add a Wine Equalization Tax (WET) of 29% at the wholesale level which, together with the new 10% GST at the retail level, brought in roughly the same tax revenue from domestic wine consumers as the tax it replaced. That system has been unchanged since then, except that a capped rebate was introduced in 2004 and capped at the first $290,000 of tax paid. (Prior to 2004, wine producers had access to a maximum rebate of $42,000 for cellar door and mail order sales under the Australian Government Cellar Door Rebate scheme.) The rebate cap was raised to $500,000 in 2006 but lowered to $350,000 in July 2018, as it was found that in 2014-15 less than 10% of producers claimed more than $350,000 worth of rebate and producers claiming over $350,000 worth of rebate represented more than half the value of all claims. In 2015-16 the WET accounted for $853 million in Federal .Government revenue, net of rebate payments of $315 million (Treasury 2016).

[12] A detailed discussion of various issues to do with the WET can be found in Rural and Regional Affairs and Transport References Committee (2016) and (Treasury 2016).

Table 4: Excise taxes on alcohol consumption by type, and VAT/GST, high-income countries, 2018 (% ad valorem equivalent)

	Commercial wine excise tax (%)	Beer excise tax (%)	Spirits excise tax (%)	VAT/ GST (%)
Australia	29	81	165	10
Austria	0	13	31	20
Canada	7	55	25	5
Denmark	24	19	61	25
Finland	57	90	143	24
France	1	19	52	20
Italy	0	19	31	22
Japan	10	98	10	8
Netherlands	13	22	51	21
New Zealand	28	46	100	15
Norway	96	27	244	25
Spain	0	6	27	21
Sweden	41	53	161	25
Switzerland	0	13	78	8
United Kingdom	49	55	98	20
United States	6	11	27	0
Unweighted average of above excluding Australia	***21***	***34***	***71***	***16***

Source: Anderson (2020b).

4

Contributions of recent supply trends and shocks

How the future for vignerons plays out depends, in the short term, on how they collectively adjust to the huge current surplus of red wine in Australia and abroad and, in the longer term, on their responses to the above-mentioned trends in demand and to on-going climate changes and associated policies plus the development of new production technologies.

4.1 Global

Global wine production has exceeded declining global consumption of beverage wine for many years (Figure 17). That was true even in 2023 when weather events reduced production by 11% below the average of the previous five years (OIV 2024). According to Cardebat (2024), most of that difference is because there are other uses for produced wine such as for brandy, vinegar, and ethanol for industrial and pharmaceutical purposes (OIV 2019). But those other uses are typically much less financially rewarding for wineries and are often used only with the help of distillation subsidies from the EU or elsewhere. Even then, there are periods when one or more countries accumulates an excessive stock of wine. The European Union has often been generous in supporting winegrowers with various measures, to the point that surpluses emerge that are then disposed of via distillation subsidies. That practice reduces the incentive for EU growers to reduce their areas under vines, and in doing so it depresses prices of (especially the lowest-quality) winegrapes.

Since the world currently is awash with red wine stocks from previous vintages despite 2023 being the lowest global crush since 1961, numerous countries are actively considering adjustment options. France is offering a €160 million subsidy to dispose of some of their surplus through its distillation into industrial alcohol, and – in the wake of Bordeaux wines being available in French supermarkets at less than €2 a bottle – growers in Bordeaux are being subsidized €6,000 per hectare to pull up as many as 9% of the region's less-profitable vines (up to 9,500 hectares). Following the 2023 vintage, €14.7 million was given to 103 wineries in La Rioja, Spain to distill 17 ML of red wine.[13] There have been calls for vine pulls there, given their current huge surplus of red wine, as there have in Germany and also in California. The head of Allied Grape Grower of California said in January 2024 that a net reduction of at least 12,000 hectares (7% of that state's current area) is needed across several of that State's hottest regions.[14] And in his annual report on the US wine markets, Rob McMillan wrote: "The industry is presently built to overproduce. Total wine consumption is decreasing by volume. Retail inventories are backing up into wholesale.

[13] https://nuevecuatrouno.com/2023/12/14/la-destilacion-de-vino-en-la-rioja-elimina-17-millones-de-litros

[14] And another 8,000 ha in other Californian regions also needs removal in his view. But removals are slow, because prospective alternative crops are also unprofitable currently. For example, 65,000 ha of almond and walnut trees were removed during 2021-23, and prices of tomatoes and alfalfa also are currently low in California (https://www.winebusiness.com/news/article/284711). Removing vines in California has been made more expensive this year by new state legislation that prevents them from being burnt. Instead, growers now have to extract the cordon wires and irrigation piping and then mulch the vines, rather than just burn piles of pulled material. Smaller growers have been offered a subsidy of between US$200 and $700 per hectare to help cover that extra cost, but that is less than the cost of removal and the sum allocated was constrained to just US$10 million.

Wholesale inventories are bulging, and wineries are being more cautious about carrying inventory in a reduced-demand environment. Without improving demand, retailers can only rebalance inventories by buying less from wholesale while selling through their existing inventory." (SVB 2024, p. 6). If Spain joined in and together those three countries removed 27,000 ha, that would reduce the global winegrape bearing area by just 1%. Clearly that will not bring much immediate relief to Australia's – or the rest of the world's – over-supplied wine industry.

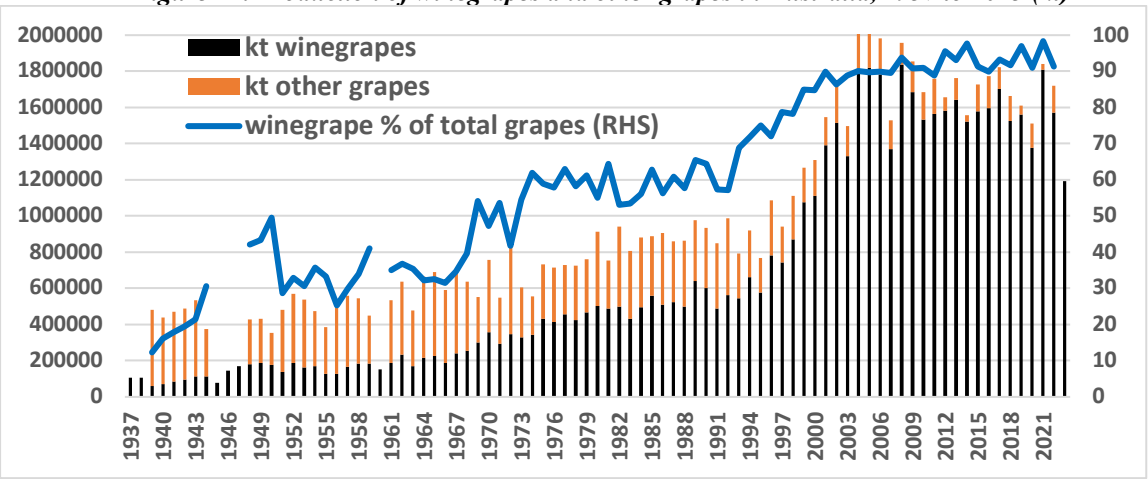
Climate change is raising costs of production in most current lower-latitude wine regions and so might be expected to lead to them producing less wine once they exhaust the roles that changes in vineyard management and varietal mixes can play in adaptation. At the same time, global warming is making wine production more profitable in cooler locations (fine red wines in Germany, sparkling wines in southern England and Tasmania), which is reducing slightly the net effect on global winegrape supply but also altering comparative advantages (van Leeuwen et al. 2024). The pressure on the industry to contribute to mitigation, both directly from consumers and also via evolving policy responses to climate change, is adding further to winegrpeers' production costs.

Logistical issues and the rising cost of inputs associated with COVID-19 and then the wars in Ukraine and the Middle East have raised the cost of producing and exporting wine in many locations. But with the demand for at least commercial wine being quite price-sensitive, those higher costs have been mainly absorbed by producers. That hurts winegrowers more, the further they are from their markets in terms of travel/logistics costs. So Australian (and presumably New Zealand) wine exporters may have been especially disadvantaged by this since 2020.

4.2 Domestic

Since the turn of this century more than 90% of Australia's grapes have been pressed into wines, and increasingly still reds. Historically, vines have provided fresh table grapes dried vine fruit, brandy, fortified wines, sparkling wines and still red and white wines. Less than half the grape harvest was directed to winemaking pre-1973, but that rose to three-fifths in the 1980s and more than 90% since the turn of this century (Figure 21). That, plus the move from fortified to still wine (noting that each litre of fortified wine requires around two litres of still wine) allowed a faster rise in wine production than in vine area from the late 1960s, as depicted in Figure 4.

Figure 21: Production of winegrapes and other grapes in Australia, 1937 to 2023 (kt)



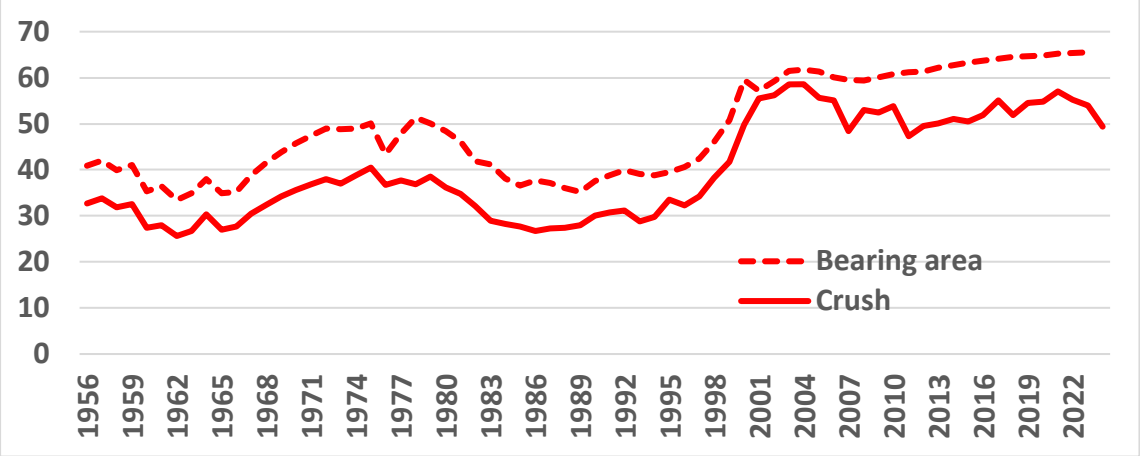
Source: Updated from Anderson (2015).

Red's share of Australia's total vine bearing area rose from less than 40% in 1984-93 to two-thirds in the 2020s, and its share of the total crush rose from less than 30% in 1984-93 to more than half in the past decade (Figure 22). The recent difference in those two shares reflects the decline in average yields of reds relative to whites over the past three decades.

The expansion of export-focused winegrape production from the late 1980s was so dramatic as to raise wine's share of Australia's total merchandise value above 1% for the first time in 1999, and to 2.3% in 2004 just as the boom in mineral exports to China began. Australia's wine export volume and value continued to grow until 2007, as did its value share of global wine exports and its index of wine comparative advantage (Figure 12).

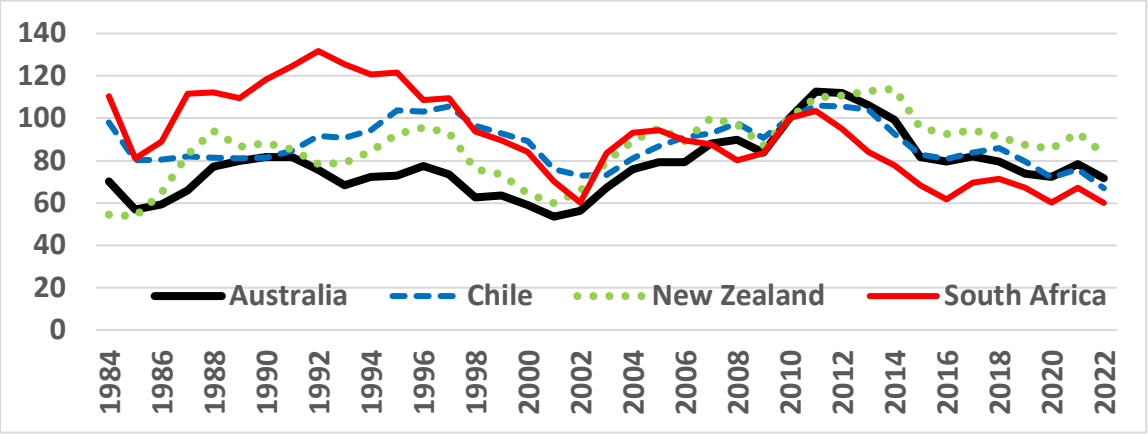
The boom began not with a vine planting expansion but rather with a steady increase in exports, taking advantage of the historically low value of the Australian dollar at the time. That weak exchange rate (Figure 23) reflected historically very low prices of Australia's coal, grain and other primary export products in the mid-1980s. The initial wine export growth was possible by depleting excess stocks as domestic consumers were reducing their wine consumption following the excise tax announced in the 1984 August budget. (It took until 2002 before the domestic consumption of wine per adult got back to its 1985 level.) Those exports brought the stocks-to-sales ratio for still wines down to an historic low of 1.36 by 1993-95 (which compares with 1.76 during 1996-2006 and 1.34 in the severe drought year of 2007).

Figure 22: Shares of red varieties in the vine bearing area and crush, Australia, 1956 to 2024 (%)



Source: Updated from Anderson (2015) and Anderson and Puga (2023a) from Wine Australia (2024d).

Figure 23: Real effective exchange rate indexes, Australia, Chile, New Zealand and South Africa, 1984 to 2022 (2010 = 100)



Source: World Bank (2024).

The exchange rate temporarily appreciated in the late 1980s but then declined through to the early 2000s which, together with initially low domestic prices for premium red winegrapes, incentivized wineries to invest in developing overseas markets for Australian wine. Other late-1980s factors expanding demand abroad for Australian wine were food-safety scares associated with the Chernobyl nuclear plant accident in April 1986 and scandals involving additives in Austrian and Italian wines.

Competition from other New World countries was initially minimal: from South Africa because of anti-apartheid sentiment, from South America because of that region's macroeconomic and political instability, and from the US because of the high value of its dollar relative to European currencies.

Another contributor to this early export growth was increasing concentration in the corporate ownership of Australia's wineries, which helped them raise the enormous amounts of capital required for rapid expansion and reap large economies of scale not only in grape growing and winemaking but also in export distribution and brand promotion [15] (see Appendix 2 for details). It also helped them establish sales offices abroad rather than relying on distributors.

The large volumes of grapes grown and purchased[16] by these firms from numerous regions enabled them, through blending, to produce large volumes of consistent, popular commercial wines for specific markets abroad, which suited perfectly those who shopped in the large UK supermarkets. By the mid-1980s supermarkets, dominated by Sainsbury's, Marks and Spencer, Waitrose and Tesco, accounted for more than half of all retail wine sales in the UK (Unwin 1991, p. 341). Indeed some new wine types (e.g., Lindemans Bin 65 Chardonnay) were sold only in export markets initially and not released in Australia until several years later.

Initially the UK dominated the purchasing of Australia's new wine exports: by the mid-1990s more than half the value of Australian wine export earnings were coming from there. This was three times the UK's share of the value of global wine imports. That bilateral trade was further helped by the signing in 1994 of the Australia-EU Wine Agreement, which liberalized trade in wine between Australia and the UK.

Then in the 1990s the US began taking a keen interest in all things Australian, including its wine and its tourist destinations. That new US interest was initially due to the release of the *Crocodile Dundee* movies in 1986 and 1988. It was further stimulated following the *60 Minutes* TV show on 19 November 1991 on the 'French Paradox', which suggested the French were healthier than others because of the regular inclusion of red wine in their diet. California was initially handicapped in meeting that switch in demand toward reds because much of the Napa Valley at the time was being replanted following an outbreak of phylloxera due to the use of a susceptible rootstock (Alston et al. 2018). That provided Australia an opportunity to sell more into the US market, and it did so to the extent that its share of that market rose in the 15 years to 2004 from being equal to the US's share of the value of global wine imports to being twice that share (Figure 24).

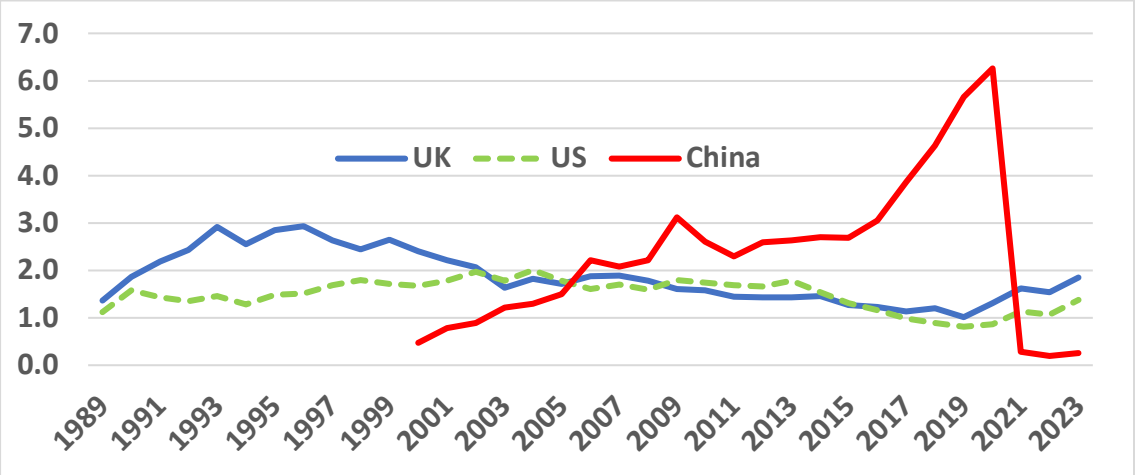
In 1995/96, two important reports were published that affected production decisions, the first being a wide-ranging Research Report by the Federal Government's Industry Commission (now Productivity Commission), on the competitiveness and export potential of the winegrape and wine industry and on impediments to its growth (Industry

[15] The capital intensity of winegrape growing in the late 1990s was about 50% above that of other agriculture, and that of winemaking is more than one-fifth higher than that of other manufacturing.

[16] Wineries that chose to be dependent on purchased grapes went out of their way to build better relationships between the grapegrower and winemaker during the initial expansion phase. Ten-year contracts were not unusual in the 1990s, which encouraged lenders to finance vineyard expansion. However, as the prices of winegrapes fell in the new millennium, renewed contracts were for much shorter periods.

Commission 1995). That report did not attempt to develop an industry plan with future objectives, targets and associated strategies, considering that to be most appropriately developed by the industry itself. But it laid a factual foundation from which wine industry leaders were able to develop a *Strategy 2025* document a year later (AWF 1996).

Figure 24: Wine trade intensity indexes by value,[a] Australia's exports to the UK, the US and China, 1989 to 2023

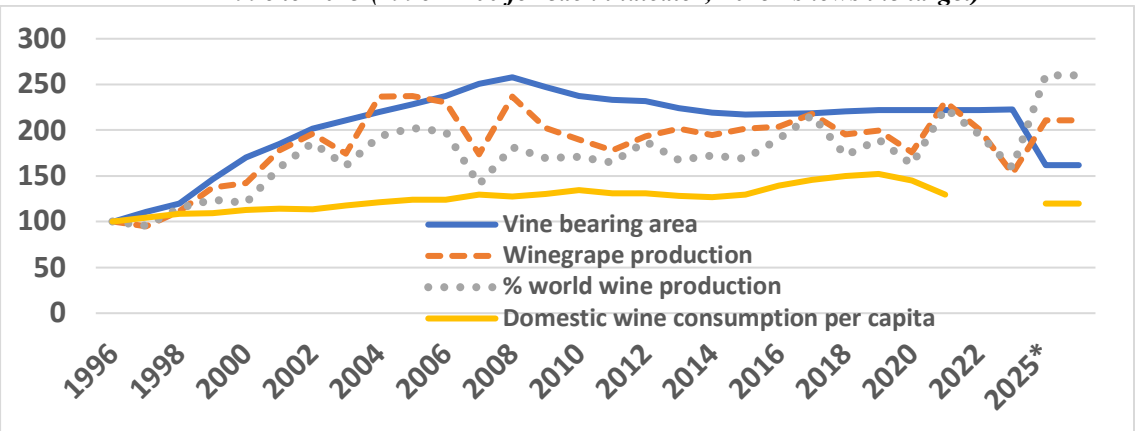


Source: Data from UN COMTRADE.

The second report,* Strategy 2025*, included targets the authors believed to be achievable over the 30 years to 2025, even though at the time of publication the targets were considered very optimistic by many observers. Those targets included a three-fold increase in the real value of wine production, 55% of it for the export market. Getting half way to those targets required having 85,000 hectares of winegrapes bearing enough for a crush of 1200 kt to produce 850 million litres of wine at a wholesale pre-tax value of $3.5 billion ($4.12/litre) in 1996 Australian dollars.

But by the turn of the century – that is, in just five vintages – the industry had reached most of the half-way points for achieving its targets 30 years out. More than that, by the mid-2000s the industry had reached virtually all of its 30-year targets for winegrape production, export volume and value and domestic sales volume and value (Figure 25), having expanded the winegrape bearing area from 50,000 to 120,000 hectares between 1995 and 2001.

Figure 25: Four* Strategy 2025 *target indicators[a] and pathways toward them, Australia, 1996 to 2023 (1996 = 100 for each indicator; 2025* shows the target)



[a] Export indicator targets were more than twice those shown above, and were also reached by 2007.
Sources: AWF (1996) and Anderson and Puga (2023a).

Some have argued that the Strategy 2025 document that was launched in 1995 generated excessive exuberance among investors, that was already being fueled by hikes in the prices of Australian winegrapes from 1991. The average nominal price received for winegrapes in 1999 was four times that in 1986, even though the export price had risen 'only' 140% (Figure 2(a)). The price rises in the 1990s (and new imports of bulk wine from competitor countries by large wineries to boost their supplies)[17] stimulated a tsunami of vine plantings: the total area of vines (including non-bearing) rose from 63,000 hectares in 1993 to 90,000 by 1997 and to a peak of almost 174,000 by 2007.

A delayed and then dramatic response to new investment opportunities is what economic theory predicts: caution accompanies initial uncertainty (Dixit and Pindyck 1994) but, as that uncertainty fades with new information, and evidence appears of new investment by others, a bandwagon effect is triggered leading to excessive investment. Sometimes it is referred to as optimism bias. Nobel Laureate Daniel Kahneman calls it the planning fallacy. To quote: "There is a well-documented trend for people to neglect downside risks when developing and evaluating a new project. This is part of a general tendency for people to be overly optimistic about new projects, including over-stating the likely benefits, under-stating the costs, and neglecting risks that could cause the project to fail" (Kahneman 2011, pp. 249-52).

As often happens with booms, many people along the value chain (including newcomers to the industry) saw short-term income-earning opportunities and thereby contributed to the excessiveness of investor exuberance. The largest wine companies encouraged it by being among the first to plant large new vineyards in the inland irrigated regions, some of which they then sold at what in retrospect were excessive prices by providing buyers with initially attractive long-term contracts. Advisors, consultants and physical input suppliers also had a vested interest in the rapid expansion. Given this nature of human behaviour it is not surprising that most of the *Strategy 2025* targets were met early or even exceeded before the bubble burst.

While this boom was largely market-driven, it was also influenced by changes in government interventions. A steady reduction in Australia's manufacturing protection and in assistance to some of its other agricultural industries paralleled and thus offset the price-reducing effect of reductions in nominal rates of assistance to grape and wine producers after the early 1980s (Anderson 2015, Table A9). Also, the imposition from 1984 of a wholesale tax on wine sales domestically dampened growth in those sales and thereby encouraged exporting.

Investment was also encouraged by two provisions in income tax law that attracted new investments including from outsiders to the industry: accelerated depreciation of vineyard establishment expenses, and generous provisions for so-called Managed Investment Schemes. The first of those came about when the wholesale sales tax on wine was raised again in 1993: by way of consolation, the government altered the provision for accelerated depreciation of vineyard establishment expenses from eight years to just four years for income tax purposes (even though the average life of a new vineyard could be as much as thirty years). Furthermore, it applied to leased as well as grower-owned land. That tax concession change was reversed in 2004, but in the intervening dozen years it provided an extra incentive to plant more vines. As noted by the Industry Commission (1995, pp. 328-30), this provision is of most benefit to individual investors whose other income puts them on a high income-tax bracket. The second income tax provision that stimulated vineyard

[17] During 1995-98, for example, bulk wine was imported each year from countries as diverse as Argentina, Chile, France, Spain, South Africa and the US, at CIF prices ranging from US$0.60 to $1.25 per litre.

investments is one that drew in funds from outside the wine industry via so-called Managed Investment Schemes (MIS).[18]

A key feature of an agricultural MIS is that up-front costs of establishing the activity were 100% deductable for investors' income tax purposes, which made them very attractive for those in the highest income tax bracket. According to WGGA (2009), such schemes were responsible to no less than 16,000 of the 100,000-plus hectares of new vineyards planted in the 1993-2008 growth period. A review by the Treasury (2009) revealed that supporters of MIS viewed them as contributors to regional development but also that many winegrowers felt aggrieved. The review concluded that, for the MIS managers vis-a-vis other producers, the Schemes lowered the cost of capital and the risk involved. They were encouraged via initially generous supply contracts offered by the large wineries – who no doubt anticipated that such contracts would eventually boost their profits by leading to lower prices of winegrapes.

The MIS investments were disliked by established grapegrowers because they expected them to lower grape prices, by generating a net addition to the area under vines, and also to raise the prices of land and water in wine regions and thus make it more costly for such grapegrowers to expand their own vineyards. The MIS projects typically focused on developing large-scale vineyards.

The combination of those two major reports in 1995/96, plus the investment incentives provided by those two income tax concessions, together had a dramatic impact on vine area plantings. There were equally rapid bearing area increases in the Riverina and Riverland as in the cooler regions, with all three areas trebling between the mid-1990s and late 2000s. Somewhat slower vine area increases occurred in the Murray-Darling-Swan Hill regions until 2008, when their area began to shrink rapidly as other crops, most notably almonds, became more profitable.[19] Together the warm inland regions' area rose slower than that of cooler regions, such that the share of its national winegrape bearing area gradually fell from just over 50% in the mid-1990s to just under 40% by 2010 (Figure 6).

This planting binge was taking place at a time when US consumer interest in wine was rising rapidly and more so than its domestic production (Figures 15.2 and 15.3 in Alston et al. 2018) so that for a few years US imports of Australian wine grew exponentially. Annual sales were less than 10 ML and US$20 million prior to 1990 but by 2000 they were greater than 60ML and US$200 million – and by 2005 they exceeded 200 ML and US$700 million. By the early 2000s, more than one-third of Australia's wine export sales were to the US, twice that country's share of the value of global wine imports (Figure 23).

---

[18] Such schemes were operating in the 1980s and were reviewed in 1993 and amended in 1998 to provide less uncertainty over the tax treatment of such schemes (ALRC 1993; Treasury 2009). An MIS allows the pooling of investors' money to ensure an agricultural operation can achieve significant size. Investors pay up-front fees that provide the scheme manager with the necessary funds to establish and operate the scheme subject to a management agreement. The MIS investor does not own any physical assets such as vineyard land, nor have day-to-day control over the operation of the scheme, but simply receives a share of the harvest proceeds for a specified number of years. Nor does the manager own any physical assets, which instead are leased from a third party. The manager is responsible for operating, harvesting, marketing and selling the crop, but may contract these activities out to other entities. The manager receives the proceeds from each vintage, keeping a proportion of the proceeds as a fee and distributing the remainder to MIS investors in proportion to the number of allotments they each hold.

[19] The area planted to almonds in Australia has expanded ten-fold since the early 2000s to more than 62,000 hectares, most notably in Sunraysia where there are now 35,000 hectares compared with almost 15,000 hectares in the Riverina and 11,000 hectares in the Riverland (ABA 2024). Australia also now has more than 25,000 hectares of both table grapes and olives (Horticulture Australia 2024). During that time Sunraysia's winegrape bearing area has fallen from a peak of over 23,000 ha in 2006 to less than 10,000 since 2014.

Optimism among Australian wine industry investors, already sky high, was further boosted in the early 2000s by US wine critic Robert Parker giving very high points to high-alcohol Shiraz wines from several South Australian wineries (Parker 2005).

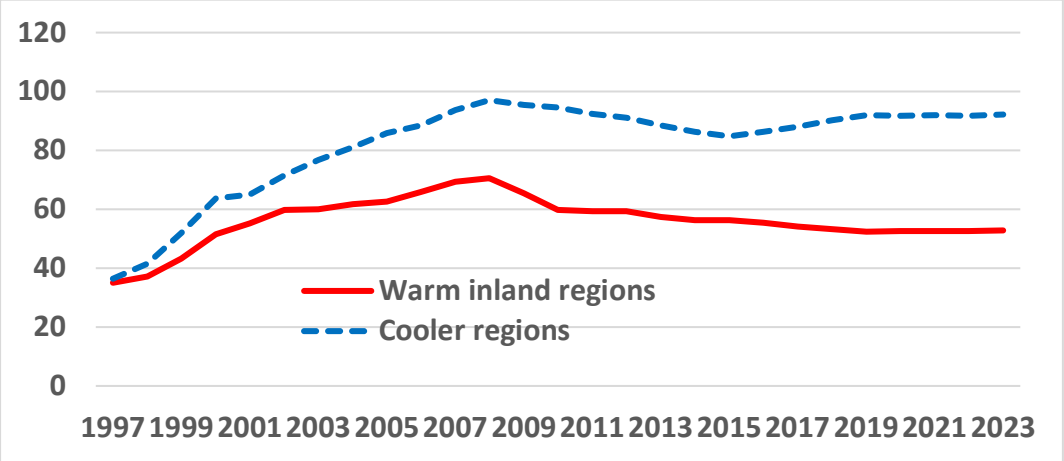
Then the global financial crisis hit, so after peaking in 2007 the value of wine exports to the US has since shrunk by almost two-thirds: in the 15 years from 2004 the intensity of that bilateral trade fell back to what it started at in the late 1980s (Figure 24). A fall in exports to the US was not surprising given that California's winegrape area grew by 60% between 1992 and 2001, mostly of premium red varieties (Alston et al. 2018), and that rapid growth continued into the 2000s (Figure 26(b)).

Importantly, the share of premium wines (>$5/litre FOB) in the volume of Australia's exports to the US fell from more than 50% at the start of this century to less than 5% by 2023 – during which time the average price of premium Californian red wines was growing rapidly (Alston et al. 2018). Much of that change was driven by the increasing popularity of Cabernet Sauvignon from Napa at the expense of Shiraz from anywhere – but that was the variety that dominated Australian exports to the US. In the past 15 years Australia's exports to the US increasingly became dominated by [yellow tail] and similar 'critter' labels plus low-priced (<US$1/litre) bulk wine.

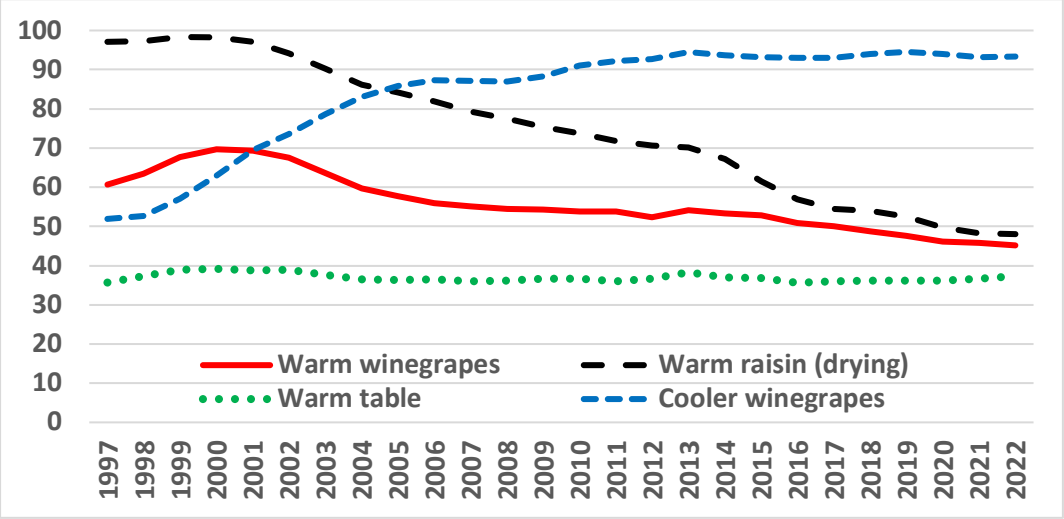
,

Figure 26: Warm inland and cooler regions' grape bearing areas, Australia and California, 1997 to 2023 ('000 ha)

(a) Australia (winegrapes only)



(b) California[a]



[a] Warm refers to San Joaquin Valley South; Cooler to Napa, Sonoma and Coastal

Sources: Anderson and Puga (2023a) and ABS Cat. No. 1329.0 and Californian Department of Agriculture.

Part of the demise in the value of wine exports was due to exchange rate changes in the new century. Between 2001 and 2012, Australia's real effective exchange rate[20] appreciated relative to that of the US by 110%, which was well above that of its wine-exporting competitors (New Zealand 85%, Chile and Spain 40%, Italy and South Africa 35%, and France 30% – see Figure 23).

While the volume of Australia's wine exports didn't peak until 2007, the AUD export price had peaked in 2001. With several New World countries beginning to emulate the Australian export-led experience (Figure 12), Australian exporters began to face increasing competition through the 2000s (Anderson and Wittwer 2013).

The appreciating value of the Australian dollar also encouraged wine imports, which grew dramatically in the first dozen years of this century (Figure 23). The surge in imports from New Zealand was particularly sharp from 2005 when, as part of the Australia-New Zealand Closer Economic Relations Trade Agreement, the Australian Government agreed that New Zealand wineries could receive the same rebate as Australian producers of the 29% wholesale tax on their wines sold in Australia (up to the ceiling of initially $500,000 and then from July 2018 to $350,000 of rebate per winery per year).

When the AUD was at its lowest point in 2001 (at around 50 US cents), Casella Family Wines launched its [yellow tail] brand and, despite the AUD's appreciation in the 2000s, it became one of the most profitable and recognised wine brands in the world (Andrivet 2023). It created a huge new market at a time when prices for winegrapes in Australia's warm inland irrigated regions were falling, thereby slowing their fall and thus providing a win-win for those growers and for Casella.[21]

Some of Australia's fine wine producers complained that exports of such 'cheerful and cheap' wines were eroding Australia's quality reputation as an exporter. Certainly the share of the volume of Australian wine being exported at more than $5/litre FOB shrank hugely in the 2000s and remained very low thereafter, particularly in the US, the UK and Germany (Figure 14(b)).[22] While key Australian winery brands became more prominent in the world in the 2000s, their rankings began falling in the 2010s (Table 5).

Table 5: Global rankings of Australian brands of light still wine among the top 15, 2006, 2010 and 2015[a]

2006 (7 in top 100)[b]	**2010** (15 in top 100)[b]	**2015** (14 in top 100)[b]
2 Hardy's	4 [yellow tail]	5 [yellow tail]
5 Jacob's Creek	5 Hardy's	7 Hardy's
	7 Jacob's Creek	8 Lindermans
	9 Lindermans	10 Jacob's Creek
	13 Wolf Blass	14 Wolf Blass
	15 Penfolds	

[a] The rankings are available from this source only for the ten years to 2015.
[b] Number of light still wine brands in the top 100 wine and spirits brands, which includes fortified wines and sparkling wines as two separate additional categories.
Source: Intangible Business (2015 and earlier).

[20] The real effective exchange rate is a trade-weighted average of nominal exchange rates across trading partners and adjusted for differences in national inflation rates.
[21] [yellow tail] wines have accounted for around 8% of Australian wine sales since 2001. They contributed to a rise in the Riverina region's share of the national winegrape bearing area from 10% in the early 2000s to 13% in the early 2010s (and still 12% by the early 2020s).
[22] $5/litre FOB export translates to about US$10 and £11 per 750ml bottle retail in the US and UK markets. Figure 14 is in nominal terms, meaning that $5 is an even lower bar now than it was early this century.

Some of the decline in the share of wine being exported at more than $5/litre was because an increasing fraction was being exported in bulk containers. That raised the average price of exports above $5/litre. Even so, the average price of <$5/litre exports since 2001 has fallen from $3.20 to $1.75 a litre (Figure 14(c)). Since 2000 the share of <$5/litre wine exports coming from the warm inland regions or from the broader state or national GI zones (or no-named regions) has averaged 96%.

Following the global financial crisis of 2007/08, excess supplies of wine in tanks depressed winegrape prices through to 2011 (Figure 2(a)).[23]

But then AUD prices began to rise as the exchange rate depreciated and demand by China began to take off, and a new group of investors were attracted into the industry by a combination of that growth in China's wine import demand plus Australia's business migration schemes. Since a person with at least $1.5 million to invest can relatively easily obtain a visa leading to permanent residence, numerous Chinese business people set up wine businesses in Australia in the 2010s. According to Oliver (2023), this avenue accounted for around half of Australia's revenue from exporting wine to China prior to the tariff hike. As of April 2021, at least 41 wine businesses with vineyards in Australia were listed as being Chinese owned (https://buyausmag.com.au/2021/04/30/). They contributed to the considerable expansion in the area of winegrapes in Australia's cooler regions while the area in its warm inland regions remained flat (Figure 26(a)). Other Chinese-owned businesses were grape-buying wineries, and still others were buying bulk wine to export to partners in China (in some cases bottled in Australia before being shipped).

Much of the exports to China were valued at more than $5/litre, which led to a partial re-bound in the volume of premium wine in the country's total exports (Figure 14(a)). This is consistent with the area changes in warm versus cooler regions shown in Figure 26(a). An unknown fraction of the wine exported in the early 2020s was still in warehouses in China at the start of 2024, waiting to find buyers.

The growing demand in China in the 2010s lowered substantially the wine stock-to-sales ratio in Australia and smothered all thoughts of shrinking the supply base – until COVID struck in 2020 and then China imposed punitive tariffs on imports from Australia at end-2020. COVID raised shipping costs and durations hugely, in extreme cases doubling what would have been the landed price of bulk wine sent from Australia to Europe or North America.[24] Following China's tariff hike, the value of Australia's total red wine exports fell 37% in 2021 and another 7% in 2022. By 30 June 2023 the stock-to-sales ratio for reds peaked at 2.6, way above its 2010s average of 1.6 (Figure 3).

One response to China's tariff hike by the biggest wineries in Australia was to make more wine for the Chinese market in other countries during 2021-23 (Chile, France, South Africa and the US, plus in China itself as with the new 'One by Penfolds' brand). That response is a reminder that even if domestic winegrapes are not traded internationally, they effectively face foreign competition because wineries can source fruit from more than one country to supply their commercial branded wines into third-country markets.

While Australia's 5th wine industry cycle boomed for much longer than earlier ones, the country is now experiencing a slump for longer than any previous one (ignoring the interwar hiatus) and with no turnaround yet in sight. To summarize: despite several

---

[23] Grape prices were depressed in Europe at that time too, to the extent that the European Union offered to pay their growers to grub up vines. The scheme was expected to reduce the EU-27's vine area by 5% and its wine production by around 3% during 2009-11 (European Commission 2009).

[24] The adverse impact of COVID lockdowns on domestic sales, including at cellar doors, was somewhat offset by wineries upgrading their wine club/direct-to-consumer offerings. As of 2023, direct-to-consumer accounted for over half the sales revenue of the 1,500 or so small Australian wineries selling less than 50,000 cases a year, according to Wine Australia (2024b).

positive influences this century (the [yellow tail] boom for commercial wine from 2001, and AUD exchange rate depreciation and the boom in China's wine imports in the 2010s), there have been several negative influences as well: AUD exchange rate appreciation in the 2000s, the loss of interest by Robert Parker and other influencers in the US in premium Australian wines as consumers there were blessed with huge growth in wine output from California's premium regions, the recent loss of consumer interest in wine in China plus the punitive tariff China imposed on Australian wines throughout 2021-23, and the adverse impacts of COVID and geo-political disruptions on consumer confidence and logistics since 2020. Both sets of influences underscore the point that market forecasting is a fraught process. But before turning to long-term prospects for various parts of the industry and appropriate responses by governments and industry participants, attention must be given to the current over-supply of red wine stocks.

5

Options for reducing the current over-supply of red wine stocks

Given all the above forces that have contributed to the current difficulties in Australia's wine industry, various suggestions have been made as to what could be done to reduce the current oversupply of red wine and then get back to a better balance between future demand and supply. Some pros and cons of the first of these are explored in this section before Section 5 focuses on the second (longer-term) issue.

5.1 Leave it to market forces?

Many have argued that it should be left to the market to clear the excess stock of red wine.

One reason the market has been slow to clear is logistical: with COVID and then the wars in Ukraine and Gaza, not enough containers and/or ships have been available for shipping from Australia except at prohibitive cost. So owners of those stocks have been holding on in the hope the logistical situation will ease soon and bulk wine FOB export prices will rise as shipping costs fall.

Another reason for stocks not clearing sooner is the two-thirds reduction in China's wine imports since 2017 (Figure 18), most of which were red.

The re-opening of the China market to Australian wine at the end of March 2024 offers only a limited opportunity for holders of bulk red wine, because the red surplus in mid-2023, of about 500 ML above normal stock levels, is about three times the annual amount of red wine China purchased from Australia at its peak in 2018 and purchased from the world as a whole as bulk wine that year; and since then China's wine import volume has shrunk by two-thirds. Furthermore, China's imports are typically of much higher quality than most of Australia's wine currently in surplus.

The lowest-quality stocks could be distilled into industrial alcohol, but typically that pays too little net of transport costs to be anything but a last-resort option for stockholders. Tipping it down the drain might be cheaper but would not be good for the environment, given the huge volumes still to be disposed of. Diluting it with water and using it to irrigate vines sounds as crazy as Europeans feeding surplus milk to cows in decades past, but it could add nutrients to vineyards and would be less environmentally damaging than tipping it down the drain. In the absence of these radical actions, ***the most likely market-driven scenario is that stockholders will sell their excess supplies as shipping costs and availability gradually return to normal.***

5.2 A subsidy or producer levy to dispose of surplus bulk red wine?

Since distillation of surplus wine is not a commercial option, it would occur only if a government subsidy was offered (as in the EU again this year) or a levy was imposed on producers to finance it. An additional levy on wineries at this crisis time would be very unpopular, not least because the current holders of unsaleable stocks would be the main beneficiaries and some of them are not even wine producers and so would not be levied.

From a national economic efficiency viewpoint, both a subsidy and a levy are undesirable because each would raise moral hazard issues: future market participants

would be less risk averse because they would know there is a chance they would be bailed out of subsequent surpluses.[25] An argument has nonetheless been made for a subsidy in this case because the surplus accumulated partly due to the punitive tariff that China imposed from late 2020 in response to Australia calling for an investigation into the origin of COVID-19. But the wine industry was not the only one subjected to collateral damage: others included Australia's barley, beef, coal, lobster and timber industries. Furthermore, China's wine consumption and imports began shrinking several years prior to COVID, so only a portion of Australia's surplus stock of red wine can be attributed to China's 3.3 years of punitive tariffs.

As a WTO member it would be illegal for Australia to subsidize the export of today's surplus bulk wine – not to mention unwise, as it would trigger the imposition of anti-dumping duties by our trading partners. True, that was the government's response in 1924 to the surplus of fortified wines generated by governmental promotion of newly developing inland irrigation schemes. But that was before the post-WW2 creation of the GATT/WTO multilateral trading system. Also, the main buyer at the time (the UK) was not a wine producer but just an importer. Indeed the UK was encouraging that trade by having introduced preferential tariff access to the UK market for Australian fortified wine from June 1925.

5.3 Generate new markets for bulk red wine?

Creating new markets requires a long-term investment and so cannot be a solution to the immediate problem of needing to empty tanks ready for the next vintage. Even the spectacular marketing success of Casella with its [yellow tail] brand was only gradually able to absorb some of the expanding volume of low-priced winegrapes in the 2000s. Then in the 2010s the industry was simply lucky that (a) the AUD began depreciating and (b) the market in China grew rapidly for a few years. That postponed the need to lower Australian production by nearly a decade. But China's annual consumption has since shrunk hugely (Figure 18), so even now that the punitive tariffs have been removed, the immediate impact of that change on international prices is expected to be muted. This is especially so given the reportedly large stocks of unsold Australian and other wine still in storage in China, and the fact that in the recent past China – like other East Asian countries – has imported very little low-quality bulk wine from Australia.

5.4 Subsidize growers to mothball their vineyards?

A subsidy to mothball vineyards would assist some growers to leave their options open for another season, but it would not reduce Australia's long-run supply capacity and so would help save adding to the surplus only so long as the subsidy continued. While it is helpful to keep vineyards in a healthy state until they are brought back into production or removed, so as not to danger neighbouring vineyards, a mothballing subsidy would raise the price of harvested grapes,. That would help those growers who are able to deliver grapes, but at a higher cost to wineries. At least one large winery in late 2022 offered their contracted growers $1,000/ha to mothball their vines for the 2023 vintage (or $1,250 per hectare to help cover the cost of switching from red grapes to white). That action, however, applied to only a

[25] On the economic costs that can be associated with such actions, one need look no further than the folly of wool market intervention that led to a huge stockpile (equivalent to a year's production) by 1991. It took a full decade and billions of dollars for producers to fund the stockpile's eventual disposal (Abbott and Merrett 2019).

small group of better-off (i.e. a subset of contracted) growers. The South Australian Government is offering to reimburse growers $40/ha for taking part in a trial in which Ethephon (a plant growth regulator) is applied at the end of flowering to rest a vineyard. The first year's trial (2023-24) suggests this could save growers at least $2,000/ha in other inputs for those growers wishing to not harvest next season but maintain healthy vines (PIRSA 2024). That rebate is limited to just 5,000 hectares though, suggesting the South Australian Government does not foresee providing large cash handouts to entice growers to drop their crop to the ground next vintage. Even then, its jurisdiction covers only half of the nation's winegrape production, so agreement with the other mainland states for similar subsidies there would be needed for the fiscal burden to be shared equitably.

5.5 Provide temporary financial assistance in worst-affected communities

Meanwhile, there are more-generic ways in which governments can and have been helping financially stressed winegrowers, including through the Federal Government's Rural Financial Counselling Service. On 21 March 2024 a further $1.7 million was provided to the Rural Financial Counselling Service to offer tailored support unique to each primary producer's financial situation, at no cost to the producer. As well, the national Farm Household Allowance scheme provides financial assistance to growers with net (farm plus non-farm) assets below $5.5 million (see https://www.servicesaustralia.gov.au/farm-household-allowance). In October 2023, the South Australian Government reminded vignerons of numerous other forms of assistance available to primary producers under stress (PIRSA 2023).

6

Nudging the industry toward a sustainable supply-demand balance

As well as getting the country's surplus stock of red wine back to normal, it is equally essential to get back to a supply-demand balance that is sustainable over the longer term. In doing so, recall that the country was becoming internationally competitive in still red wine in the last one-third of the nineteenth century and the lead-up to World War I, before government policies diverted the industry's attention toward lower-quality fortified wines (see Appendix 3). Post-WW2 it took until the late 1960s before depressed wine prices attracted the attention of domestic consumers and a swing in their preferences toward table wines buoyed the industry. Then the introduction of a wholesale tax on wine in 1984 slowed that domestic sales growth and contributed to the surplus problem of the mid-1980s. That in turn led the South Australian and Federal Governments to co-finance a vine-pull scheme in the first five months of 1986: by paying growers $3,250 per hectare for the first 8 hectares and $2,000 for additional hectares of vines removed, it contributed to the 15% net reduction in the nation's winegrape bearing area between 1985 and 1987 (see Appendix 4). Ironically a long boom followed shortly after, not peaking until the mid-2000s. That history is a sober reminder that governments have a poor record of imagining the future competitiveness of the various segments of Australia's wine industry.

6.1 Subsidize another vine-pull scheme?

The results of its 1986 vine-pull subsidy program were not viewed favourably in retrospect, even from within the industry. It was considered unsuccessful because it was not effectively means tested and so many growers who already had the financial resources to restructure their farms took advantage of the scheme; nor did the administrators focus on the particular grape varieties that needed to be removed (Barrett 1989). In fact, the scheme led to the removal of varieties, and some of the oldest vines in the world, that since became strongly demanded. And it did so just on the cusp of a recovery in the industry's fortunes.

Even so, there have been calls recently by some growers for the government to pay them to drop red grapes to the ground, or to remove those varieties and replant with white grapes, or to replace vines with other crops. Others have requested subsidies to cover at least the cost of disposing of CCA posts, which is a non-trivial part of the expense of pulling up vines. The most extreme call came, on 16 May 2024, from the First Families of Wine: they suggested a downsizing of 25-30% is needed. If that referred to Australia's vine area, it suggests up to 40,000 hectares should be ripped out, or more than two-thirds of the total area in the warm inland regions if the vine-pull was focused just there. That is far bigger than the 2,350 hectares (5.7% of the national winegrape area) that governments helped induce to be pulled up in 1986, and thus would require a much larger government subsidy. (The group also asked for a $150 million subsidy to wineries for them to be able to travel more and better promote their products abroad.)[26]

The Australian Government's response has been that, through its Regional Investment Corporation, there are already loans available to support the long-term

[26] See https://winetitles.com.au/australias-first-families-of-wine-call-to-save-a-wine-industry-in-crisis/

strength, resilience and profitability of Australian farm businesses. This is despite the EU subsidies being offered this year to pull out vines in Bordeaux.[27] There is a moral hazard reason for not making a habit of such payments: as witnessed in France for decades, it encourages producers to converge on the cities in their tractors at every profit downturn and demand more handouts. True, government-funded structural adjustment schemes for various industries have a long history in Australia. Lots of them have been associated with the removal of import protection or other government assistance to industries perceived to be in long-term decline. There they were seen as a way to overcome political resistance to an efficiency-improving policy reform. Edwards and Bates (2016) extensively review that experience as it relates to rural industries, and conclude that such assistance is almost never justifiable on efficiency grounds and can even impede helpful adjustment. Because of that, such programs had been all but abandoned by Federal governments by 2015. The economist's role often is to explain why it is likely to be unhelpful to intervene and why policy makers would serve the nation better if they were to "not just do something, (but rather) stand there!".

6.2 Leave it to market forces?

There will always be excess investment in the wine industry in the sense that long-run returns will be below the average of other investment opportunities, one reason being lifestyle appeal. That is as true in Australia as in the rest of the world: being a vigneron has appeals to many, including people who take it on as a leisure activity alongside another (often higher) income-earning one.

Another reason is that both vineyards and wineries are very capital intensive, so a delay in selling them when returns are low is understandable. Even ignoring the land and water, those assets have a long life but are only able to produce grapes and wine. So it is equally understandable that diverting them to other enterprises is a major decision, especially in high-wage Australia given the labour-intensity of converting those assets.[28]

Some with access to enough finance will take opportunities to enlarge their operation by buying others' assets at distressed prices in the hope of reaping greater economies of scale in future, which can make economic sense to the buyer but it does not contribute to a shrinkage of the industry. That is true not only for vineyards but also for winery assets, an example being Treasury Wine Estates' 50-year old Karadoc winery in northwest Victoria that was abandoned in 2023: unless it is converted to some other use such as general warehousing, it could be sought after to produce low-end wine whenever grape prices are at their lowest.

Since there is never a consensus on where the industry's future lies, and each firm has its own unique projected outlook and business plan, many argue it is better to leave firms to make their own decisions on the timing as to when to create, dispose of or convert their assets. Similarly, winegrowers are best placed to decide what regions and what varieties to expand or contract.

---

[27] See https://agriculture.ec.europa.eu/news/european-commission-adopts-market-measures-support-eu-wine-producers-2023-06-23_en#:~:text=At%20EU%20level%2C%20the%20wine,restructure%20and%20insure%20their%20harvests

[28] A recent study estimated that the elasticities of winegrape acreage response to price changes in Australia are very low, at 0.07 in the short run and 0.33 in the long run (Puga and Anderson 2024b). They are averages over the period 2001 to 2023, thus incorporating both rising and falling winegrape prices. Had the time series been long enough to estimate elasticities for those sub-periods separately, they would almost certainly have been even lower for the years of falling prices.

Many also argue against interventions such as placing a moratorium on new plantings, because it handicaps producers' future options as and when opportunities improve – as they have unexpectedly a number of times already in the present cycle (e.g., sudden US demand growth, [yellow tail] success, China's import growth). Climate change is adding to the need for flexibility in planting decisions. Despite the higher costs of producing wine in cool climates, the premiumization of wine preferences in high-income countries has raised prices of wines from such regions globally. That has stimulated more plantings in cool regions, including in Australia (most strikingly in Tasmania), despite the greater variability of earnings in cooler regions (Puga and Anderson 2024a).

An economic case* can *be made, though, for assisting individual producers' decision-making by collectively compiling and disseminating data on market conditions and publishing results from analyses of market prospects. That includes data by variety and region on bearing area and annual changes in plantings as well as on crush volumes and prices. Funding the compilation of such industry-specific data and its analysis is an industry responsibility, but ***governments are needed to legislate for the collection of levies to fund data collecting agreed to by a majority of producers***.[29]

Levies also are needed to fund both generic promotion to boost aggregate demand for the industry's wine and investments in R&D to boost productivity. As with the collection and analysis of market information, each of these activities generates industry public goods, that is, ones each participant can benefit from without diminishing their benefits to others. Market forces alone would lead to under-provision of these services to the industry because of the free-rider problem of unregulated collective action (Olson 1965). While a complex set of levies is already in place for funding these activities, primarily through Wine Australia, there is potentially room for improving on that set through a levy review and reform process.

6.3 Boost generic marketing/promotion?[30]

Boosting demand for Australian wine at home or abroad can raise prices for both growers and wineries, and almost equally according to a study by Zhao et al. (2003). But it is never crystal clear as to what the optimal level of such investment is, which types of wines or regions to promote, and which markets to target, over and above what individual firms and regions do in marketing their own products.[31]

---

[29] More precisely, the criterion is a majority of those who choose to vote, so long as the government is convinced there has been appropriate consultation within the industry. See DAWE (2020).

[30] General export market development grants were suspended until late 2024/early 2025, but Austrade has been allocated $488 million in the Federal Government's May 2024 forward estimates to assist small and medium enterprises to promote their products globally. See https://www.austrade.gov.au/en/how-we-can-help-you/grants/export-market-development-grants. Those forward estimates also provide $40 million for the Wine Tourism and Cellar Door Grant Program, which supports wine businesses to invest in their cellar doors and encourage agritourism.

[31] A summary of a series of reviews of California's efforts at generic promotion of agrifood products (including table grapes but not wine) has been compiled by Alston et al. (2006). They conclude that those programs have been very profitable investments of levies for California's agricultural producers. A new empirical study by Chandra, Moschini and Lade (2024) finds find that US consumers place a high value on wines' geographic origins, distinct from the value of brand and varietal information, as estimated by their marginal willingness to pay. The national economic welfare gain attributable to US geographic origin designation is estimated to be $5.1 billion per year, with wine producers and retailers capturing 77% of that gain. See also Menapace and Moschini (2024). This is consistent with empirical evidence of the value of the French appellation system developed over the 20th century (Mérel, Ortiz-Bobea and Paroissien 2021), which reduced the 'lemons' problem in a free market whereby lower-quality products drive out higher-quality ones when consumers lack credible information about product quality (Akerlof 1970).

There is a split in producer views over the extent to which such generic promotion should be directed mainly at finer wines and premium regions rather than promoting the aggregate offering. It has been argued that commercial wine producers and regions already benefit from private promotion of large-volume brands, and have an offering less-differentiated from competitors than do fine wine producers. Commercial producers would in any case share some of the benefits from the building up of Australia's reputation as a fine wine producer. Hence the argument by fine wine producers that much more generic promotion effort should focus on Australia's under-appreciated fine wine offerings. If that were to be linked to regions' and fine wineries' own promotion efforts through co-funding arrangements, a bigger aggregate investment could be made with the current national levies.

Currently the wine marketing annual levy is based on winegrape crush volume. It involves a base fee of $200 plus a per tonne of winegrapes fee that ranges from $4.20 for those producing just 10 tonnes to $48,880 plus 40 cents per tonne above 40,000 tonnes for the largest producers (DAFF 2023). This has amounted to more than $1 million per year.

If this levy was set as a percentage of the rising value rather than volume of winegrape production, that would slow and potentially reverse the recent decline in that marketing budget.

An export charge that is collected to help cover the cost of promoting Australian wine abroad is set as a percentage of the export price, ranging from 0.2% for shipments up to $20 million to 0.1% for shipments between $20 and $70 million and to 0.05% for shipments of $70 million or more (DAFF 2023). Over the period 2019-23 these export charges averaged $2.9 million.

It would be simpler if the export charge was expressed as a single percentage of the gross value of exports or, since exports are more than 60% of sales, as a percentage of the gross value of winegrape production so that part of that revenue could then be used also for promotion in the domestic wine market.

That roughly $5 million per year generic marketing budget of Wine Australia's, which is all producer funded, is equivalent to 0.4 cents per litre of 2019-23 annual wine production volume or less than 0.3% of its value. By contrast, the European Union's budget for assisting wine promotion during 2014-18 was equivalent to 1.3 cents per litre of EU annual wine production (European Court of Auditors 2014) – to which are added grants from national governments which can match the EU payments, as well as regions' own sums spent on promotion. National government expenditure alone on wine promotion in the EU as a whole in 2019-23 averaged $140 per hectare, compared with Australia's $35/ha. ***The Bordeaux region, with almost the same vine bearing area as Australia, has an annual marketing budget of around €30 million or almost ten times Australia's, which suggests the industry should consider raising its marketing levies substantially.***

An argument in support of government financing of marketing is that exported high-quality wines help build Australia's reputation/image generally over and above boosting demand for its wines, and more so than would promotion of most other products. In 2018 the Federal Government did provide a one-off grant of $50 million over four years (2018-21) to boost promotion of wine exports and showcase abroad the nation's wine tourism offerings. Australia Grape and Wine requested another $56 million promotional grant in its latest submission to the Federal Government (AGW 2024a). However, no such new government support was forthcoming in the May 2024 Budget. Even so, in the light of the demonstrated gains from the recent one-off grant of $50 million spent during 2018-21 (Deloitte Access Economics 2021), Australian producers should consider levying themselves more so as to expand its promotion budget and get closer to the EU's far higher rate of spending on generic wine promotion.

Promotion efforts could be broadened geographically to diversify the country's wine export destinations. Australia's wine exports have mostly been directed to just four English-language markets (the UK, US, Canada and New Zealand) plus China (Tables 6 and 7). Of the world's 25 largest wine-consuming countries, listed in Table 8, five of them do not appear in Table 7: Russia, Brazil, Switzerland, Norway and Finland. Russia is facing sanctions, but the other four might be considered candidates for closer attention by Australian exporters and promoters, together with three others where Australian exports are low relative to their market size (see last 3 columns of Table 8): Ireland, Sweden and especially Germany. Appendix 5 ends by noting that the Gulf States and the fastest-growing of Africa's non-Muslim countries are worth keeping an eye on as potential new wine markets over the longer term.

Table 6: Shares of Australian wine exports to key markets, by volume and value, and average unit values, 1990 to 2023 (% and nominal US$/litre)

VOLUME	United Kingdom	Other Europe	US and Canada	Asia	New Zealand	Other
1990-95	41	21	16	7	14	1
1996-01	49	15	22	6	8	1
2002-07	38	17	34	5	4	1
2008-11	35	14	36	11	3	1
2012-15	34	10	35	16	4	1
2016-20	31	13	28	23	4	1
2021-23	37	16	32	9	5	1
VALUE	United Kingdom	Other Europe	US and Canada	Asia	New Zealand	Other
1990-95	40	20	23	8	9	1
1996-01	44	14	29	7	5	1
2002-07	35	13	41	7	4	1
2008-11	27	14	37	17	4	1
2012-15	20	12	34	29	4	1
2016-20	15	8	24	48	4	1
2021-23	21	10	28	34	5	2
UNIT VALUE (US$/litre)	United Kingdom	Other Europe	US and Canada	Asia	New Zealand	**WORLD**
1990-95	1.50	2.21	3.24	2.37	1.51	**2.28**
1996-01	2.00	2.03	2.92	2.55	1.54	**2.22**
2002-07	2.67	2.57	3.49	3.85	2.48	**2.94**
2008-11	2.02	2.19	2.72	4.12	2.97	**2.64**
2012-15	1.42	1.63	2.18	4.00	2.26	**2.25**
2016-20	1.20	1.27	2.16	5.94	2.17	**2.63**
2021-23	1.31	1.32	2.02	7.89	2.67	**2.23**

Sources: Updated from Anderson, Nelgen and Pinilla (2017) based on the Wine Australia Export Database at https://marketexplorer.wineaustralia.com/export-dashboard.

6.4 Invest more in research/innovation?

The Australian wine industry is rightly proud of its long history of high-payoff investments in grape and wine research and innovation (see Appendix 6). Its researchers traditionally

have contributed well above their weight in terms of scientific journal articles, although increasingly less so over time (Table 9). Returns from last century's research have had huge benefit-cost ratios, ranging from 7 to 76 (McCloud 2002).

Table 7: Indicators of Australian wine exports to key markets, 12 months ended February 2024

	Total value (US$m)	Total volume (ML)	Bulk volume (ML)	% vol in bulk	Av price of bottles (US$/litre)	Av price of bulk (US$/litre)
All countries	**1410**	**610**	**422**	**69**	**4.94**	**0.77**
United Kingdom	286	185	153	83	3.78	1.06
United States	270	142	78	55	3.24	0.78
Hong Kong	207	13	0	0	16.16	
Canada	116	71	55	77	5.45	0.52
Singapore	82	7	0	1	11.67	2.62
New Zealand	76	31	12	40	3.51	0.92
Germany	49	36	31	87	4.49	0.89
Denmark	43	22	17	75	4.36	1.13
Malaysia	41	4	0	0	10.80	
Japan	38	12	5	43	4.32	1.37
Thailand	38	5	1	13	9.53	1.08
Ireland	32	9	0	0	3.71	
Netherlands	29	7	0	4	4.06	2.53
Vietnam	24	3	1	52	18.45	0.68
Korea	21	4	1	19	6.33	1.92
Taiwan	20	3	0	14	7.84	1.80
Belgium	13	9	7	81	3.76	0.92
Sweden	13	4	0	0	4.82	
Philippines	10	1	0	0	3.78	
India (yr to 07/23)	8	2	0	8	3.02	
China[a]	5	2	2	86	6.08	1.70

[a] Australia's annual average exports to China during 2017-20 of $990 million and 136 ML meant an average unit value of $7.26/litre.

Source: Wine Australia (https://marketexplorer.wineaustralia.com/export-dashboard).

Additional investment returns are likely to continue to be high thanks to global warming and the increasing frequency and severity of extreme weather events, which are adding to producers' costs and thus to their demand for more climate-smart viticultural technologies that are more sustainable. Water and other resource and environmental policy reforms are adding to those producer demands for new R&D, as is the digital revolution and AI. Public R&D can speed this process of learning, and it democratizes its spread. R&D also contributes by helping to raise the quality of wine produced, making it easier for wineries to remain competitive as wine qualities in the rest of the world continue their rise.

Whatever the optimal bearing area is for each region under expected future market and climate conditions, ***faster rates of innovation in production and marketing are needed***

to help restore the competitiveness of Australia's wine industry through boosting its productivity, premiumization, resilience and environmental sustainability.[32]

Table 8: National shares (%) of global wine consumption and import volumes and of import values, and indexes of Australian wine exports to those nations, 2020[a]

	GLOBAL SHARES			AUSTRALIAN INDEXES		
	% world consumption volume	% world import volume	% world import value	Aust export volume %/ global consumption volume %	Aust export volume %/ global import volume %	Aust export value %/ global import value %
United States	14.2	11.6	17.2	1.28	1.57	0.87
Germany	8.6	13.8	8.9	0.27	0.17	0.12
United Kingdom	5.7	13.4	13.0	6.29	2.68	1.30
Russia	4.4	5.3	3.2	0.01	0.00	0.02
China, PR	3.2	4.0	5.3	4.00	3.14	6.25
Canada	2.3	4.2	5.8	3.21	1.74	1.13
Brazil	1.8	1.4	1.3	0.03	0.03	0.05
Netherlands	1.6	4.3	4.4	1.90	0.70	0.43
Belgium-Lux	1.2	2.8	3.6	3.19	1.32	0.44
Japan	1.1	2.4	4.6	1.45	0.66	0.31
Switzerland	1.1	1.7	3.6	0.03	0.02	0.01
Sweden	0.9	1.8	2.5	0.84	0.42	0.37
Denmark	0.7	1.9	2.3	3.91	1.35	0.59
Ireland	0.5	1.2	1.2	1.06	0.39	0.42
New Zealand	0.4	0.4	0.4	10.74	9.90	8.86
Norway	0.4	0.7	1.3	0.86	0.47	0.22
Finland	0.3	0.8	0.7	2.35	0.93	0.64
Korea	0.2	0.5	1.0	2.21	1.02	0.94
Hong Kong	0.1	0.3	2.8	8.84	3.26	1.72
India	0.1	0.0	0.0	1.98	6.77	6.10
Taiwan	0.1	0.2	0.4	3.64	1.72	1.61
Philippines	0.1	0.1	0.1	2.50	2.19	4.20
Singapore	0.1	0.2	1.6	12.53	3.78	1.77
Malaysia	0.0	0.1	0.2	12.57	5.76	7.56
Thailand	0.0	0.1	0.1		4.20	5.42

[a] The indexes are the shares of Australian wine exports going to each country in fiscal year 2020 (i.e. just prior to the disruptions caused by COVID and the hike in China's tariff on imports of Australian wine) divided by that country's share of global wine consumption or imports in 2020.
Sources: Anderson and Pinilla (2023) and Wine Australia (https://marketexplorer.wineaustralia.com/export-dashboard).

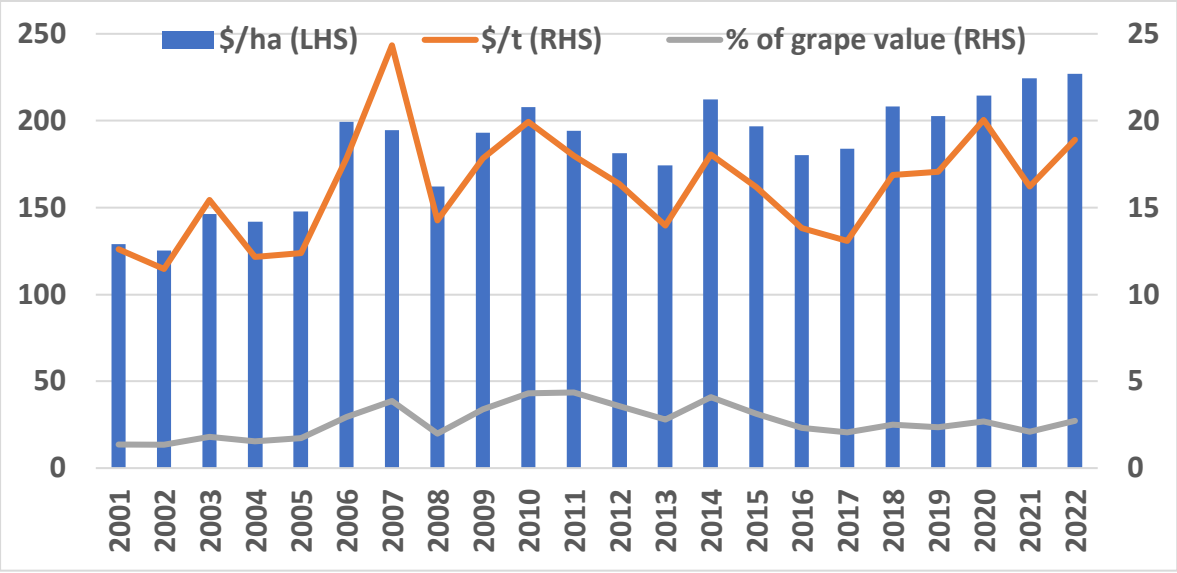
[32] In this sense the wine industry is similar to other rural industries in Australia: according to a new report by CSIRO (2024), greater investment in innovation will be essential if producers are to retain their international competitiveness.

However, just when the digital revolution, AI, climate change and pressures to become more environmentally sustainable are boosting the industry's opportunities to embark on new high-return investments in grape and wine research, funds for such research in Australia have stagnated because the levies generating them are tied to the volume of grape and wine production. With production declining, that has also shrunk the funds available to pay university lecturers to train the next generation of vignerons and researchers (demand for which also has stagnated along with the industry).

Currently industry funding for grape and wine R&D comes from levies on growers and wineries that are based on the tonnes of grapes crushed (plus government funding that matches investments of levy funds up to 0.5% of the gross value of winegrape production). The levy on grapegrowers is $2 per tonne harvested and on winemakers it is at least $5 per tonne of grapes crushed (depending on volume, a small fraction of which goes to Plant Health Australia). Those levy funds are supplemented by in-kind services contributed by universities, state government departments and CSIRO, which together close to double the resources available for grape and wine research. Additional service income is generated by the country's key research institution, the Australian Wine Research Institute (AWRI 2023 and earlier), on a fee-for-service basis for contract research (not necessarily shared beyond the client to the industry at large). That has expanded AWRI's budget such that the share that comes from Wine Australia (or its predecessor, GWRDC) has shrunk from 85% to 37% over the past 20 years. Wine Australia's annual R&D investments are smoothed somewhat by drawing, in low-yield vintages, on reserves accumulated during high-yield vintages. Even so, they (including the additional earnings by AWRI) amounted to an annual investment of less than $20 per tonne or $195 per hectare over the 2008-22 period.

That R&D investment as a share of winegrape value has halved over the past decade, dropping from more than 4% in the early 2010s to 2.5% in 2020-22 (Figure 27), because the sizes of the per-tonne levies on grape producers and processors have been unchanged since 2005 and the volume of winegrape production has stagnated this century (Figure 21).

Figure 27: Investment in grape and wine research and development in Australia,[a] 2001 to 2022 (current AUD and %)



[a] Investments by the Australian Wine Research Institute and the Grape and Wine Research and Development Corporation (which in 2014-15 was incorporated within Wine Australia), so not including small additional amounts spent by private firms, state departments of agriculture and the CSIRO. Spending is expressed relative to winegrape bearing area and to the volume and value of winegrape production.
Sources: AWRI (2023 and earlier) and Wine Australia (2023a and earlier).

Table 9: Grape and wine research publications[a] per litre of wine production, by country, 1992 to 2006 (relative to the world average, so World = 1)

	1992-1996	1997-2001	2002-2006
France	0.71	0.67	0.62
Italy	0.45	0.57	0.67
Spain	1.41	1.20	1.22
United States	3.87	2.65	2.15
Argentina	0.19	0.15	0.21
Australia	**2.80**	**1.63**	**1.45**
Germany	1.31	1.50	1.39
South Africa	0.41	0.33	0.52
Chile	0.27	0.36	0.50
Portugal	1.00	1.61	1.76
Others	0.92	1.14	1.09
WORLD	1.00	1.00	1.00

[a] No adjustment is made for the quality, relevance or impact of publications (as measured by, for example, citations). The source includes predominantly English-language journals and so understates the contributions of continental European and South American countries.
Source: Drawn from wine publication data compiled from the Web of Science of the Institute for Scientific Information by Cassi, Morrison and Rabellotti (2011).

The high marginal rates of returns from past R&D investments suggest a considerably higher levy is warranted, and if the levies were set as a percentage of the rising value of winegrape production then further premiumization of production would ensure some growth in the research budget. That contrasts to the downward trends of the past two decades depicted in Figure 27 in current dollars, which would be even steeper if it was in real terms adjusted for inflation.

6.5 Invest more in wine market analysis and market access negotiations?

Wine Australia is recognised and envied by wine industry leaders in other countries for its continual monitoring of market developments at home and abroad, and its wide array of information and online data to assist producers assess and access market opportunities. An important example is its Export Market Guide portfolio that covers dozens of countries and is regularly updated. That stock of knowledge is used continually to assist the Federal Government in its bilateral, regional and multilateral trade negotiations and its wine agreements (as with the EU and UK), as well as its involvement in the World Wine Trade Group (WWTG). It is also used in developing trade promotion programs in close association with export-focused wineries.

Together those efforts, which expand the demand for Australian wine over and above that achieved through generic brand promotion, could be performed even better with more funds, providing another reason for the industry to consider raising its levies.

6.6 Invest more in winegrape data compilation and analysis?

Official national vine area data on annual winegrape plantings and removals by variety and region – essential for grower and winery planning – have not been collected since 2015 due to lack of funds. Such data have been collected in South Australia, however, as a contribution to the promotion of vine health (Vinehealth Australia 2023 and earlier). Those SA data currently add to the national vintage survey that collects winegrape crush volume

and price data (Wine Australia 2024d and earlier). Since prospective responses by vignerons to climate change include altering the mix of winegrape varieties in their vineyards or seeking cooler-climate sites to avoid changing varieties, similar vineyard information is need from no-SA states to better guide decision-making. Such a broadening of that area data-gathering exercise so as to create an National Vineyard Register was recommended nearly a decade ago by a Senate enquiry (Rural and Regional Affairs and Transport References Committee 2016). A recent effort to estimate missing area data by variety and region that has been employed in this Review is a useful stop-gap (Anderson and Puga 2023a,b), but more-precise information collected each year would encourage more and better analysis.

A commitment to contribute to the set-up cost of establishing a National Vineyard Register, made by the Federal Minister for Agriculture at a press conference in McLaren Vale on 12 June 2024, will kick-start that initiative, but presumably an additional grapegrower levy is needed to fund the annual collecting, collating and analysing of such data. The on-going annual cost would be modest, as the most recently published annual budget of Vinehealth Australia is just $0.8 million for all its activities in South Australia of which data collecting is a small part. Even if all its efforts in collecting data were replicated in non-SA states and its vine biosecurity efforts expanded there to match those in South Australia, the required budget might be $3 million including more staff to compile and analyse the data, but this would save the cost of the survey work currently undertaken for Wine Australia's *National Vintage Report* each year.

7

Ways forward: actions needed by producers and government

A crisis is often the best and sometimes the only time to bring about unpopular but necessary changes that in the past have been kicked down the road because it was perceived they would harm a significant subset of stakeholders.

The industry itself needs to own the problems it faces and step up its leadership in finding appropriate and workable solutions. Based on the above analysis, this section examines other actions by producers, their industry organizations and governments that would help the industry get back onto a more sustainable path for the long term. It requires agreeing at the outset on broad market prospects under various scenarios. They are discussed in the first part of this Section. Since governments are unlikely to provide much increased support without evidence that the industry itself is owning the need for structural adjustment, it also depends on producer levy revenue being raised (a) to expand demand for Australian wine, (b) to lower the costs or boost the productivity of grape growing, wine making and wine marketing or raise the quality of the wines produced, and (c) to improve data compilation, market analysis and vine health. The second part of this Section thus explores the need for a levy review, and scope for levy reform. The third part provides examples of what industry-driven structural adjustment mechanisms might achieve. The fourth part raises the question of whether the industry has scope for improving the major institutions that serve the industry, most notably with respect to the two key investments needed to raise profitability, namely marketing and R&D. The fifth part notes other regulatory changes that could assist the industry. And the final part briefly lists a few things individual producers can do.

7.1 Market prospects for Australian wine

Future market prospects differ for small, medium and large producers, for those in warm inland regions versus cooler regions, and for those producing commercial wine versus premium wine. That lack of a common position within the wine industry makes it easier for governments to not respond to the industry's calls for assistance such as to subsidize a vine-pull scheme.

In parts of the industry there is a consensus that Australia has too many hectares of winegrapes, and needs to reduce the area by perhaps as much as one-quarter or nearly 40,000 hectares. (If only reds were pulled out, that would require a reduction of two-fifths of their area.) Yet very similar claims were made by industry leaders 15 years ago (WGCSA 2009; van der Lee 2010). Such a prospect was even foreshadowed by peak industry bodies a decade earlier and well before the bearing area peaked (WFA and AWBC 2000).

Evidently the various shocks this century have been insufficient for many growers to want to shrink their vine area over the past decade. Within the industry that pleases grape-buying wineries as it keeps down the price of its key input; but it frustrates premium winegrowers who believe their profits are depressed by the large volume of non-premium grapes and wine with which they have to compete domestically and abroad.

An alternative view, particularly among producers in the warm inland regions, is that commercial wine producers are more competitive internationally than many small producers in cooler regions. That would be even truer if the WET exemption (which

effectively subsidizes small wineries most) was to be removed (see Appendix 7). The prognosis of this group is that too little is being done to expand demand for Australian wine exports. This 'undersold' view was juxtaposed with the 'oversupplied' view in a series of interviews of industry leaders a decade ago (Roundtable 2014).

Those with that alternative view note that dropping Australian production by one-quarter via, e.g., a severe vine-pull would reduce global wine production by just 1%. Recall that in 2023 Australia accounted in volume terms for just 4.1% of global wine production, 6.1% of exports and 1.1% of imports, and only 3.2% of global wine export value (down from 9.9% in 2005). If a vine pull was concentrated in the warm inland regions, that may open shelf space for higher-quality Australian wines in retail stores but those wines would still have to compete with the rest of the world's for that shelf space. Hence the suggestion of boosting the country's marketing/promotion investments. Since premium winegrapes are only one-seventh of Australia's total winegrape crush (Figure 8), and generate just 0.6% of global wine production, any feasible expansion of that volume would have only a miniscule effect on world prices. Increasing export sales in the current environment of shrinking markets will be a challenge, but it won't happen without firms marketing their products more vigorously alongside Wine Australia's generic promotion.

The China market is again likely to become an important one for growth in Australia's premium wine exports over coming decades, along with the rest of northeast and southeast Asia, but China's total imports of wine are likely to be less than half what they were at the end of the 2010s for some time yet (see Figure 18).

India is likely to be a slower-growing market for imported wine while ever it retains its strict regulations. Nor is it yet clear where India's future imports will lie on the quality spectrum. However, it may well be the next best opportunity over the longer term for new growth in export sales.

There are some early signs of a turnaround in 2024 in terms of value if not volume of sales of wine in the US, but their wine stocks-to-sales ratio rose from 1.2 to 1.7 in the three years to May 2023 and it is still well above trend (SVB 2024; Wine Australia 2024a).

Exports to New Zealand have ceased to grow since the mid-2000s as it has strengthened its own wine international competitiveness. The value of its wine exports now exceeds Australia's, and its exports strongly compete with Australian white wines both domestically and abroad (see Appendix 8).

Given recent geopolitical developments globally, disruptions to wine export markets are at least as likely in the future as they have been in the first quarter of the present century.[33] Indeed there are signs they may get worse, lowering consumer confidence and altering both trends and fluctuations in currency exchange rates.

Demand growth will be dampened also to the extent health and anti-alcohol lobbies are successful in lobbying for higher taxes and tougher restrictions on wine consumption, and as consumers make their own choices to limit alcohol consumption for personal health or lifestyle reasons, or try alcoholic beverages other than wine including No-Lo options. Young consumers in particular seem to be shying away from wine, although there are some glimmers of premium wine interest among the oldest millennials: an April 2024 study by the US's Wine Market Council shows that they are not only drinking more wine but are also

[33] Modelling such market and policy shocks, both recent and prospective, can assist in imagining how the Australian industry might develop in coming years. Examples of past projections and scenario analyses using a model of global beverage markets are Anderson and Wittwer (2017, 2018, 2022) and Wittwer and Anderson (2020, 2021). A recent example, using a model of the Australian economy that projects effects (e.g. of COVID-19) on its wine regions, is Wittwer and Anderson (2021). Future modelling could focus on such things as a prospective but as-yet-elusive FTA with the EU-27 (where greater access to the EU market might be offset by a ban on the use by Australia of the Prosecco variety name).

opting for pricier bottles for special occasions, with an average spend of US$66 per bottle compared to Baby Boomers' US$37.

Consumer choices within the wine category seem to be favouring whites and rosé in addition to sparkling wines (OIV 2023b). The big surge in global shiraz plantings after Australia established the variety's popularity in the 1990s and early 2000s (the variety's global bearing area rose from 102,000 to 185,000 hectares between 2000 and 2010) has eroded that aspect of Australia's distinctiveness (Anderson and Nelgen 2020a,b). But Australian Merlot and Cabernet Sauvignon also are attracting equally low prices in the market for bulk wine: as of May 2024, the price range was 33-50 US cents per litre for the 2022 vintage and 43-56 cents for the 2023 vintage (Ciatti 2024).

As in the past, some shocks will harm one set of countries while benefitting another set, as is always the case with the signing of FTAs or other preferential trading agreements, for example. And just as China's punitive tariff on Australian wines (notwithstanding the Australia-China FTA) helped EU wine exporters in the early 2020s, so Australian exporters would benefit if China were to impose a high tariff on its imports of EU wines – as it has threatened to do with at least brandy in retaliation for the EU raising tariffs on subsidized Chinese goods such as electric vehicles.

Increased investments in upgrading the quality of current vineyards, wine making and wine marketing would help to focus attention away from vine pulls and toward restoring the country's reputation as a competitive producer of a wide range of wine qualities, from commercial premium to iconic. The key northern hemisphere wine-exporting countries (and even regions within them such as Bordeaux and California) have such a spectrum of wine qualities in their mix, so Australia is not unusual in that respect. That is not to diminish the challenges facing particularly Australia's warm inland regions as global warming continues and as the world's wine consumers look to go up-market, but ***a refreshed focus and a more positive vision for the industry is long overdue.*** New Zealand winegrowers have shown that despite the tough global market conditions since the global financial crisis of 2007-08, continuing export growth has been possible (see Figures 10 and 12 and Appendix 8). So despite the current slump in overall wine demand globally, ***it is not inconceivable that Australian winegrowers, like New Zealand's, could gradually capture a bigger share of that market, provided they boost their generic and firm marketing efforts and investments in R&D.***

Others for a long time have had faith in Australia as a giant in the wine world (see the opening of Appendix 3). Writing just after the 1986 vine pull scheme, Hugh Johnson concluded the Australian chapter of his epic *Story of Wine* as follows: "Australia is the France of the southern hemisphere: there seems to be no limit to her potential (enormously reinforced by modern technology) for producing ideally-balanced, delicate wine very much in the French style (though with original touches of her own)." (Johnson 1989, p. 352). And at the dawn of the current millennium James Halliday was asked where he thought the Australian industry would be ranked in the world 100 years hence, in 2100. His response was he imagined it could be equal first with France.

7.2 The case for reforming producer levies

While the system of producer levies developed in Australia is the envy of rural producers in the US and other countries, because it has successfully overcome the free-rider problem of collective action for generating public goods for the industry (PC 2023), there is much scope to improve the current grape and wine levy structures. Some of the current levies could be increased to generate greater benefits for producers, and some could be reformed so

as to produce a bigger bang for each levy buck and to at least maintain their real value over time. More than that, they could be combined into a single value-based levy and distributed according to a pre-agreed formula that could include funds for structural adjustment as well as for more domestic and export promotion of wine, for grape and wine research and its dissemination, and for vine health and vineyard data collection and analysis.[34]

Levies based on area or crush volume are not growing with the nominal prices of winegrapes, but that can be altered simply by basing them on the gross value rather than volume of winegrape production so that funds would grow over time as the industry premiumizes. For practical purposes, a weighted average of the previous five years' gross value could be used to smooth out fluctuations in yields and prices, an average that would be known at the time of levying the current vintage's crush.

Combining current levies into a single comprehensive levy would lower the overall cost to producers and bureaucracies of levy collecting. Currently those costs of collection for grape and wine R&D levies are, respectively, one-sixth and two-fifths above the average for all agricultural levies of 0.92% of revenue, and so more than double the Australian Tax Office's average cost of 0.57% of all taxes it collects (PC 2023, Figure 2.2).

Another benefit of a single levy is that if growers in states other than South Australia were to agree to be levied (and provide their vineyard area data) in a similar way to those in South Australia, a full national compilation of area, production and price data would be available each vintage. That would avoid the cost of Wine Australia's current survey that is reported each July in the *National Vintage Report* (Wine Australia 2024d and earlier). How that could look for 2024 is laid out in Table 10. There the base to estimate each producer group's levy each year is an average of the gross value of winegrapes over the most-recent five vintages (2019-23, to even out the effect of fluctuations in yields and prices). The estimated effects are shown separately for warm regions and the rest of Australia made up of cooler coastal or more-elevated regions, and also for the eight largest producers (each crushing over 40 kt per vintage) and all other producers.[35] Those estimates suggest a single comprehensive levy of 1.8% of the value of the crush would deliver the same total levy revenue as the current complex system of R&D, marketing/compliance and vine health levies, assuming the matching grant from the Federal Government was unchanged from the 2019-23 average. If the levy was set a fraction higher, that could provide enough extra revenue for Vinehealth Australia to cover the non-South Australian half of the nation's vineyards, including for collecting and compiling data on the area of each variety in each vineyard.

Many winegrowers would argue they can't afford levy rises during this crisis period, but the alternative viewpoint is that producers can't afford* not *to, as it is the most obvious thing to do to get back onto a sustainable, premiumizing growth path.

The potential for a high payoff from increased R&D investment is clear when one compares prices of vineyards in Australia's best regions with those in, for example, Napa

---

[34] Independent of existing levies, the Federal Government hopes to impose a new levy from 1 July 2024 on all of Australia's primary producers and added to consolidated revenue, in principle to help compensate for the cost of Australia's biosecurity system. It aims to collect about $50 million per year in total. It will do so by applying a levy equal to 10% of 2020-21 levy rates for each primary industry (Parliamentary Library 2024), hence any newly added levies by the wine industry will not be 'taxed' by this new biosecurity system.

[35] According to Anderson and Puga (2023a), warm regions (including more than just the four big inland irrigated regions) accounted for 63% of both the total bearing area and the value of winegrape production in 2019-23, and for 81% of the volume of winegrapes crushed. And according to Euromonitor International (2023), the top eight firms in 2021 and 2022 accounted for 80% of the volume of sales of Australian wine. Table 8 assumes that 80% applied during 2019-23 too, and that the large firms' share of the value of winegrapes crushed was 70%.

Table 10: Estimated annual levy payments by the largest firms[a] and all smaller firms in Australia's warm[b] and other regions, 2019-23 ($ million)

	Largest firms[a]	Other firms[a]	Government matching funds for R&D[f]	TOTAL
(a) R&D[c]				
Warm regions[b]	10.3	2.6	11.2	24.2
Other regions	2.4	0.6	2.6	5.7
(b) Marketing[d]				
Warm regions[b]	3.2	0.8		4.0
Other regions	0.8	0.2		0.9
(c) Vine health[e]				
Warm regions[b]	0.3	0.1		0.5
Other regions	0.2	0.1		0.3
(d) Sum of above				
Warm regions[b]	13.9	3.5	11.2	28.7
Other regions	3.4	0.9	2.6	6.9
TOTAL	**17.3**	**4.4**	**13.9**	**35.6**
(e) Single levy[g]				
Warm regions[b]	9.6	4.1	11.2	25.0
Other regions	5.6	2.4	2.6	10.7
TOTAL	**15.2**	**6.5**	**13.9**	**35.7**

[a] Largest eight wineries in Australia, each crushing over 40kt of winegrapes per year. According to Euromonitor International (2023), they have accounted for 80% of the volume of sales of Australian wine. We assume that those large firms' share of the vine area and value of winegrapes crushed was 70% in 2019-23.
[b] The warm regions are defined in Anderson and Puga (2023a) as those with an average growing season temperature above 19^0 C. In 2019-23 they accounted for 63% of both the total bearing area and the value of winegrape production, and for 81% of the volume of winegrapes crushed (Anderson and Puga 2023a). They are a bit more than the four big 'warm inland regions' referred to in the rest of this report.
[c] R&D levy is $2/t for grapegrowers and $5/t for wineries, a total of $7/t of grapes crushed.
[d] The complex system of marketing (including export) levies and related compliance fees is assumed to average $3/t.
[e] The Vinehealth levy until recently of $100 plus $9.69 per hectare of vines on SA growers with at least 0.5 ha is assumed to average $10/ha of all South Australian vines. (That levy was raised to $150 plus $9.98 per ha in 2023-24.)
[f] The government's contribution is assumed to be the same in the single levy case as it has been historically.
[g] The single levy used here is 1.8% of the value of winegrapes crushed: it would generate almost the same revenue as the sum of the levies shown above, including the government's constrained matching grant.
Source: Anderson (2023b).

and Bordeaux: that huge gap suggests there remains much scope for raising the perception abroad of the quality of vines and wines in parts of Australia so as to better compete with higher-priced wines produced in the Northern Hemisphere.[36]

A key reason today's levy structures were created in complex ways had to do with equity issues as between the warm inland regions and cooler coastal regions, and between large and small/medium producers or exporters. The new comprehensive levy reported in part (e) of Table 10, based on the value of winegrape production, doesn't lead to quite the same

[36] Vineyard land prices have fallen considerably this year in France, as in many other countries, because of the current slump in global demand for (particularly red) wine. AOP Bordeaux Rouge vineyards are now worth on average just €9,000/ha ($14,800), which is just 55% of their 2019 value (SAFER 2024). Yet in Napa and several parts of Europe the best vineyards sell for well over $1 million per hectare.

distributional outcome: the hot regions would pay 30% less than currently, and the largest firms would pay about one-eighth less, while other producers would pay more. But that new distribution would be a fairer one, especially if the forthcoming R&D and promotion efforts are focused on generating innovations in production and marketing that strengthen the industry's premiumization and sustainability as it raises its productivity and product quality.

As to how to move from the current levy systems to a single integrated one, perhaps the Wine Australia Act could be amended to accommodate it. Potentially regional levies also could be included in that single payment per grower and per winery, redistribution of which could be built into the formula to be agreed in advance.

7.3 Industry-driven structural adjustment with limited government support

While government enthusiasm for supporting structural adjustment has been lacking, it is more likely to materialize if the industry takes a lead. The reform proposed above and illustrated in Table 10 would not generate extra revenue for investing in the types of structural adjustments needed for the industry to return to profitability. But if producers were to agree to increase producer levies for that purpose, they could make a better case for requesting matching funds from government. Were such an agreement to be reached, myriad possible ways to acquire and then spend the additional levy revenue would be forthcoming. One example is shown in Table 11, as a way of opening discussion. It involves a commitment by the industry to raise levy revenue that is matched for a limited time by a co-commitment from the government. Specifically, it assumes (arbitrarily) an additional $10 million per year of producer levies would be directed to co-investment initiatives and would be matched by a new government grant of (again arbitrarily) $10 million per year just for the first four years. The latter could be used not only to supplement industry investments in promotion to re-build export markets but also to help fund an annually updated National Vineyard Register and the salaries of a larger group to compile and analyze the data so collected. Indeed the Federal Minister for Agriculture already announced on 12 June 2024 that $3.5 million would be provided to the industry, part of which is to be allocated to establishing a National Vineyard Register.

Earmarking new funds for supporting structural adjustments to assist in the disposal of the red wine surplus or some uprooting of vines would be unwise. For example, if all of the $20 million in Table 11 was directed solely to dispose of surplus red wine, a subsidy as small as 10 cents per litre would support the removal of only 200 ML (less than half of the surplus). Alternatively, if all of that $20 million was directed to vine pull support, a subsidy of $10,000 per hectare could finance the pulling of just 2,000 hectares (just 5% of what some leaders have called for).[37] These numbers suggest the returns from spending $20 million on either of these structural adjustment schemes would be modest at best, even if the schemes were perfectly administered – which was not the case with the 1986 vine-pull scheme, according to Barrett (1989).

A much higher-payoff from any new funds for supporting structural adjustments would come from investing them in industry R&D or promotion services in a way that they could be passed back to producers as a group via a competitive tender process. Potentially

[37] In the 1986 vine-pull scheme, a grower removing 20 hectares was paid an average of $2,500 per hectare, which in 2024 dollars is about $8,300 – and it assisted the removal of 2,350 hectares (Barrett 1989). By way of comparison, in Bordeaux, which has almost the same vine bearing area as Australia, €160 million (=A$260 million) is to be spent in 2024 on subsidizing surplus wine disposal and €6,000 (=A$10,000) per hectare is being offered to those willing to remove vines (with a target of 9,500 hectares, so a total spend on vine pull of €57 million or A$95 million).

Table 11: Annual producer levy payments and government grants, recent average (2019-23) and proposed for 2025-28 ($ million)

	Recent producer levy	Proposed producer levy	Recent govt grants	Proposed govt grants	Recent TOTAL	Proposed TOTAL
R&D	16	16	16	16[e]	32	**32**
Marketing	5	5	10[b]	10[c]	15	**15**
Vine health & data[a]	1	3			1	**3**
Structural adjustment[c]		10				**10**
TOTAL	**22[d]**	**34[d]**	**26**	**26**	**48**	**60**

[a] Vinehealth Australia's budget is about to rise following a recent levy increase being phased in over 3 years. It is assumed here that more than twice that would be needed if non-SA growers were to join a similar organization as currently in South Australia and if that made it possible to generate a National Vineyard Register and build a bigger team to analyse the expanded data set and disseminate its findings each year.
[b] The final annual grant from the Govt marketing grant of $50m over 2017-21 was $10m in 2021.
[c] Proposed new annual government grant for marketing to last 4 years, during and after which producers are assumed to commit to contribute $10 million per year to facilitate structural adjustment and boost promotion, R&D and data compiling and market analysis.
[d] 'Recent' producer levy is equivalent to 2.0% of 2019-23 average value of winegrape production; 'Proposed' is equivalent to 3.0%, or 2.5% if the value of winegrapes was to grow back to what it was in 2021.
[e] In the forward estimates of the Federal Government's May 2024 Annual Budget, only $14 million per year is shown, presumably on the assumption the value of the industry's crush will be one-eighth smaller in those years than in the recent past.
Source: Reviewer's compilation based on the assumptions in the notes above.

this could lead to the winning recipients investing in those promotion or R&D activities that have the highest expected returns including via spillover benefits to other producers.[38] With that extra $10 million, the total levy payment by producers would be equivalent to 3.0% of the 2019-23 value of winegrape production, or 2.5% of the value of winegrapes in 2021. That compares with 2.0% currently. However, if that new producer commitment were to be sufficient to attract a total of $40 million from the government ($10 million per year over the next four years), the new promotional investments they would fund could provide a major boost to the industry's financial sustainability – especially if matched by brand promotion efforts of key exporting firms. Hopefully such a marketing commitment could be made by the top 20 wineries (which currently account for 76% of the value and 88% of the volume of Australia's wine exports, according to Wine Australia data).

7.4 Scope for improving the nation's key wine institutions

In dealing with any industry crisis, it is normal to look for potential improvements the institutional arrangements supporting the industry. In this case, talk of increasing levy collections from producers naturally raises questions as to whether the institutions receiving and dispersing those funds are the best for the industry. That question was also asked as part of the crisis talks of 15 years ago. Then there were four key national organizations: the

[38] For a model of this type of co-investment arrangement, see MLA (2024).

Winemakers' Federation of Australia (WFA), Wine Grape Growers' Australia (WGGA), the Australian Wine and Brandy Corporation (AWBC) and the Grape and Wine Research and Development Corporation (GWRDC). The first two are now combined as Australian Grape and Wine (AGW), and the latter two are now combined as Wine Australia. That halved the number of Board members and CEOs, and may have reduced the total number of staff. Meanwhile the Phylloxera and Grape Industry Board of South Australia has become Vinehealth Australia, although it is still operating mostly in South Australia and is funded by only that state's grower levies.

Grape and wine R&D is provided not only by the world-famous Australian Wine Research Institute (AWRI) but also by universities, CSIRO and state government research institutes. All of the latter are willing co-investors (including in-kind in such forms as staff time and research facilities) with Wine Australia as the broker allocating producer levy and Federal Government matching grant funds.

AWRI has been the jewel in the crown of wine research organizations in Australia since its foundation in 1955 and the envy of many other wine-producing countries (Hooke 2015), and has provided a very long list of direct benefits to producers (AWRI 2024). The future of it, and of other research institutions keen to work on grape and wine R&D, is now being threatened by the shrinkage of R&D levy funds, which is yet another reason for producers to support a levy increase.

Australia's rural Research and Development Corporation (RDC) model is widely admired by rural communities in other countries, but there is always room for improvement (PC 2011). Several other RDCs have altered their ways of operating in recent years. For example, Sugar Research Australia (SRA) was created in 2013 as part of an amalgamation of the former Sugar RDC and the former Bureau of Sugar Experiment Stations. But in their case there were fewer other research-providing organizations than is the case for the wine industry.

Levy payers have now had a decade of experience to assess the efficacy of bringing GWRDC and AWBC into what became Wine Australia. There is a recent Independent Performance Review of the blended organization (ACIL Allen 2023), and management's response to that (Wine Australia 2024c), to help levy payers make their own assessment of its performance in both the R&D space and in generic promotion.[39] Also available is the independent review of the $50 million Federal Government grant of 2018-21 to the industry via Wine Australia for a boost in promotion (Deloitte Access Economics 2021).

The producers of commercial-quality grapes and wines have been paying the lion's share of levies to support Wine Australia's generic promotion efforts (Table 10). Contentious though that is, it is arguably in the interest of commercial producers for those generic funds to focus on building the reputation of Australia's premium wines. After all, that is how Australia originally got its reputation in Europe as a high-quality producer of still red wines in the four decades before World War I (see the first footnote in Appendix 3).

It has been suggested that Wine Australia and AGW, the lead organization in terms of advocating and lobbying for the industry (even though not all producers are members), might be more effective if combined to become a single voice like New Zealand Winegrowers (Smart 2024). However, Wine Australia also has regulatory responsibilities and, at least under current legal arrangements (Wine Australia's Statutory Funding Agreement or SFA), it is unable to engage in "agri-political activities".[40]

It has also been suggested that AGW could do more to support generic and firm promotion in export markets, such as assisting the formation of networks of like-minded

[39] The first Independent Review of Wine Australia also is available, see Williams et al. (2018).

[40] All Statutory RDCs were required to enter into SFAs with the Commonwealth to bring their governance into line with industry-owned RDCs (see the Rural Research and Development Legislation Amendment Bill 2013).

wineries by building on the example of Australia's First Families of Wine. There may also be value in AGW establishing a compliance-focused agency to help such networks of small- and medium-sized wineries navigate the 3-tier distribution system in the US, to supplement the US Export Market Guide that is updated periodically by Wine Australia. Also, in the unique regulatory environment of India, fostering a network of Australian wineries to interact first with India's biggest (by far) winery, Sula, may pay dividends now that the Australia-India Economic Cooperation and Trade Agreement process is under way. As in the US, China and other large countries, so in India it will pay to focus initially on just a small number of cities.

Vinehealth Australia has two core functions: keeping phylloxera out of South Australia, and collecting and collating the necessary data on vineyards to undertake that crucial biosecurity role. Those activities are undertaken to a much lesser degree if at all in non-South Australian states. If there was agreement to replicate them there, perhaps through national legislation, the question arises as to what would be the ideal institutional arrangement. One option is for Vinehealth Australia to go national by broadening its current mandate to include non-SA states. An alternative is for it to revert to focusing, through its original Phylloxera and Grape Industry Board of South Australia, just on that state's initial mandate of vine biosecurity (which other states may wish to join at some point). In that case, another institution could take on using the latest digital technologies to create the National Vineyard Register by building on the data-gathering platform that has been developed over decades in South Australia (but as yet is not digitalized). That institution could be an independent agency, or be incorporated within Wine Australia as is the case in South Africa where its wine industry information and systems service (SAWIS) is now housed within the newly formed South Africa Wine.

A new winegrape data-gathering analytical agency housing the National Vineyard Register could provide a suite of services to the industry's producers. The current data collected in South Australia by Vinehealth Australia include the following:

- Property address corresponding with the Land Titles Register
- Registered land owner contact details
- Operator/Manager contact details
- Area (ha) of each block
- Area of each grape variety in each block
- Year of planting each of those varieties in each block
- Any changes in those areas (new plantings, vine pulls, …)
- Whether each is on rootstocks or own roots
- Unique block/patch ID as designated by the owner

Presumably the National Vineyard Register would replace the need for the survey to generate the current annual National Vintage Report, and the tonnes and prices received for grapes would also be collected. If all these data were entered digitally by growers into a new National Vineyard Register immediately following their vintage, the data could be aggregated and made available to producers in real time and thus weeks earlier than the current July release each year of the more-limited *National Vintage Report.* That would thereby improve producers' winter managerial decision-making. It would also make other form-filling for various levies redundant. Regional, state and national averages could be made available for each winegrape variety so growers could benchmark their own indicators such as tonnes/ha and gross revenue/ha against those averages. Once the Register is operating, some growers may wish to join a grower group for the purpose of benchmarking their results against the average for that group (or its region or the nation). Eventually such groups could be offered the option of entering additional data into add-on modules for deeper comparative

analysis (e.g., relating to irrigation performance, or the differences between conventional, organic or biodynamic viticultural methods).

7.5 Other possible regulatory changes

Among the regulatory issues on the domestic front that are exercising the industry at present are two that potentially involve the Australian Competition and Consumer Commission (ACCC). One is the prospect of moving from a code of conduct between growers and wineries that is voluntary to one that is mandatory, since many growers continue to feel they are getting a bad deal. This uneven playing field issue, which has numerous dimensions outlined in ACCC (2019, 2021), was taken up by WGCSA in a June 2024 meeting of its members.

The second competition issue is further down the value chain, where wineries feel the big liquor retailers are competing with them for grapes, developing their own private labels, and crowding out shelf space in the supermarkets with those private labels. The monopsony power of large supermarkets is an issue in many countries, but in Australia the issue is bigger because the two big Australian supermarkets are major competitors (for purchasing fruit or wine) as well as being the main domestic customers of the major wineries. Food supermarket retailing came under some state and federal government scrutiny in 2024 and, even though wine was not included in those investigations, the industry has learnt from them and may raise this issue again with the ACCC.

The other major government policy instrument directly affecting the industry is the Wine Equalization Tax, including the WET rebate. Reforms to that policy could bring net gains to the industry but would inevitably hurt some producers while helping others (see Appendix 7).

Numerous other regulatory issues fall under the environmental heading. Like many environmental issues, they can add more to producer costs than can be recouped in terms of a higher product price. Examples are deposits on wine bottles, to bring them into line with beer and soft drink bottles, and health warnings on labels that seem more heavy-handed than the empirical evidence suggests is warranted (see, for example, Edwards 2023). The industry needs to be ever-vigilant in its representations to ensure future regulations are appropriate rather than excessive.

7.6 What else can individual producers do?

Among the changes going on in society that producers are not required to respond to but may find it in their interest to do so are the increasing demands from consumers, or at least their retail gatekeepers, for evidence of the product being produced sustainably in some sense. Australia's wine industry has responded by developing a voluntary program with flexibility to suit the changing goals and needs of all grape and wine producers. Now promoted as Sustainable Winegrowing Australia (SWA), it in principle (if not yet in practice) informs and contributes to the identification of priorities for wine industry R&D. All major wineries have signed up to it, and they in turn are putting pressure on their growers to do likewise. Growers complain that they are not being offered a higher grape price to cover the cost of complying, but in the current over-supplied situation they would find it difficult to sell their fruit if they did not meet these rising environmental, social and governance (ESG) standards.

Ways to meet ever-expanding ESG demands include becoming organic, or biodynamic, or even regenerative in the vineyard. In 2021 the Regenerative Viticulture Foundation (RVF) formed in the UK to spread that practice globally, and recently it introduced an online tool designed to support winegrowers in their sustainability efforts and to facilitate networking among them.

Wineries are making these demands on growers because their customers are looking for them, but such adjustments also might be triggered by new trade measures such as the European Union's recently introduced Carbon Border Adjustment Mechanism (CBAM). CBAM puts a price on the carbon emitted during the production of carbon-intensive goods that are entering the EU. The UK is considering introducing a very similar policy measure. Should wine come under their purview, every action taken by producers to lower their carbon emissions would help to lower the import tax potentially imposed on wine entering those markets.

Since many long-term contracts between grapegrowers and winemakers are coming up for renewal, that is a good time to ensure any new contracts provide incentives for growers to raise the quality of their grapes and sustainability of their production methods. That includes the biggest contract of all, namely that between CCW and Accolade Wines. Given today's market it is much more in the interest of both the buyer and seller to include quality and ESG rewards in any renewed contract.

Consumer fashions in wine are always subject to change, and changes may accelerate with the spread of social media. Hence vignerons need to become ever-more nimble as well as resilient if they are to remain sustainable financially. That need not mean continually changing their varietal mix though. Red winegrapes can be used to make various styles (e.g., medium-bodied instead of full-bodied) as well as rosé, for example. Meanwhile, growers need to be cautious if they are thinking of just switching from red to white winegrape vines. If many do so, white prices will come under downward pressure too. This underscores the urgency of establishing a National Vineyard Register so all growers have up-to-date information on total area by region and which varieties are bearing, which are being planted and which are being pulled out, including the many but yet minor so-called emerging varieties (see Anderson and Puga 2024).

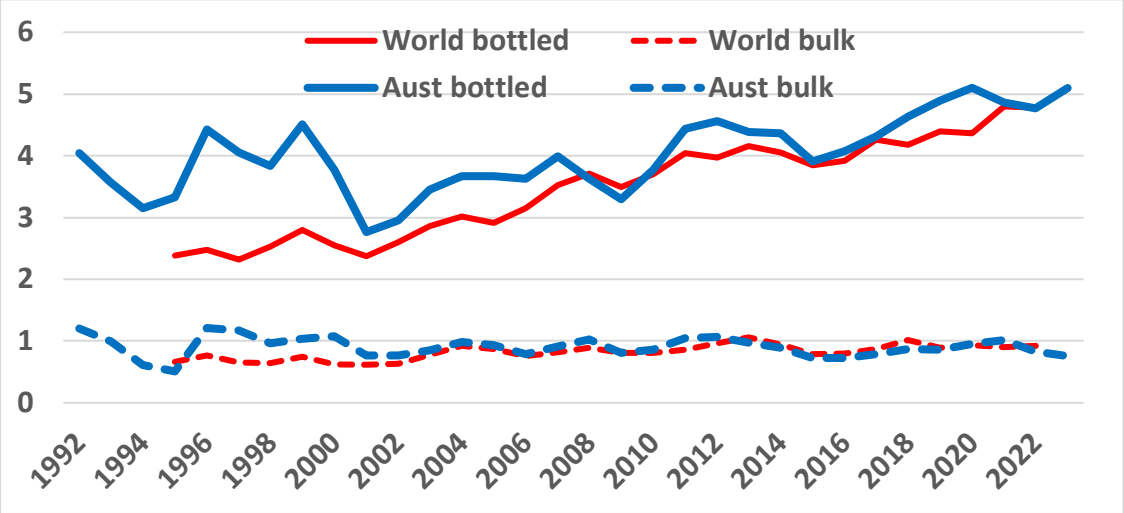
Appendix 1:

Determinants of winegrape prices

Since Australia is a small player in global wine markets (just 4% of global production, 3% of the value of global exports and 1% of the volume of global wine imports in 2023), international markets determine Australian wine prices. The average wine bottle and bulk prices for Australia follow very closely the global averages from 2001 (Figure 28(a)) – but were well above in the 1990s when the US demand for Australia's premium wine boomed. However, the volume of wine exported from Australia in bottles has plummeted since the 2008 global financial crisis (Figure 28(b)). Since the late 1990s the share of the global volume of wine that is exported in bulk has remained mostly in the high 20s-high 30s % range, whereas Australia's bulk share has risen from 15% to almost 70% (Figure 28(c)).

Figure 28: Average price of wine exports in bottles and in bulk, volumes of bottled and bulk wine exports, and bulk's share of the total volume of wine exports, Australia and the world, 1991 to 2023 (current US$/litre, ML and %)

(a) Average prices (current US$/litre)



(b) Volume of Australian exports of bottled and bulk wine (ML)

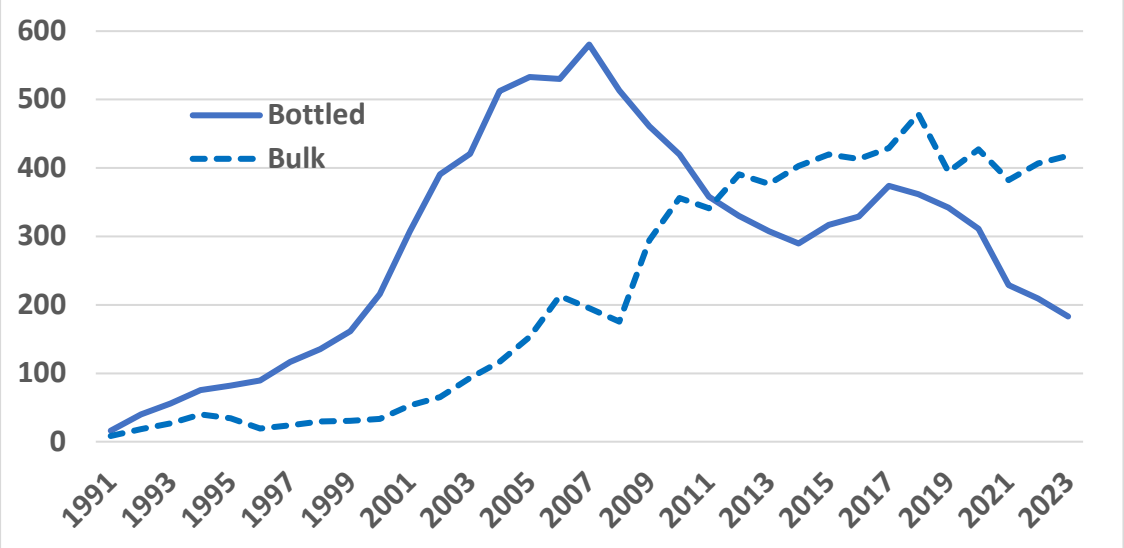
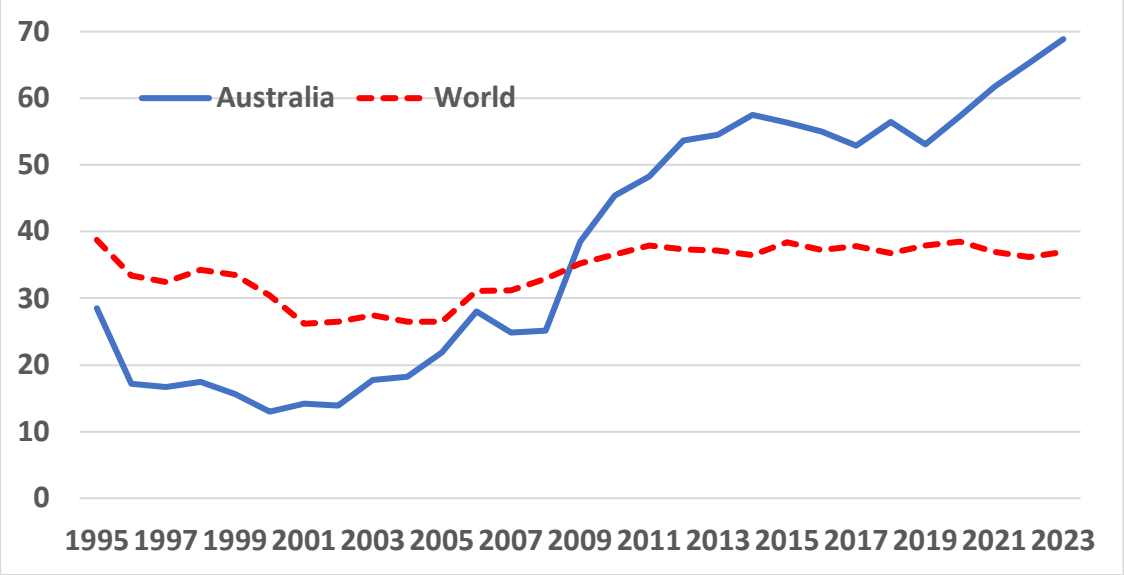


Figure 28 (continued): Average price of wine exports in bottles and in bulk, volumes of bottled and bulk wine exports, and bulk's share of the total volume of wine exports, Australia and the world, 1991 to 2023 (current US$/litre, ML and %)

(c) Bulk's share of the total volume of wine exports (%)



Source: Wine Australia and UN COMTRADE data.

Even though winegrapes are not traded internationally, their domestic prices are determined largely by (a) international wine market prices and (b) real Australian dollar exchange rates. Both are determined by factors affecting their demand and supply.

In turn the demand for domestic winegrapes is derived from the demand for the wine (or other products) that can be made from them, while their supply in any vintage depends on the current bearing area of vineyards and seasonal factors and management decisions affecting yield per hectare. The bearing area itself is a function of earlier planting and uprooting decisions of growers.

The interaction of the supply of and demand for winegrapes determines their price. The effect on prices of shocks to supply or demand depends on the price elasticities of supply and demand (the percentage by which quantity responds to a 1% change in price).

The price elasticity of supply in the short run (within a year) is low and approaches zero as the vintage draws near, since the only decision the grower can make at the time of vintage is whether or not to harvest this highly perishable product. The cost of harvesting per tonne is therefore the lower-bound limit on the price, or a little above for those growers with the option of making their own wine rather than selling their grapes.

The price elasticity of demand for domestic winegrapes by wineries in the short run is higher, the closer are alternative supplies of fresh domestic grapes. Substitutes include previously stored or importable bulk wine (or grape juice concentrate). Especially for non-premium wines, importable bulk wine is a close substitute to domestic winegrapes from the winery's perspective. Thus the price elasticity of demand for domestic winegrapes is quite high.

The lower the supply elasticity and the higher the demand elasticity, the smaller the impact of domestic supply fluctuations and the larger the influence of the price of importable bulk wine on the price of domestic winegrapes. The latter's influence is therefore greater, the lower the quality/less-differentiated is the wine to be produced with those winegrapes or imported bulk wine.

In Australia there has been a strong correlation between movements in wine export prices and the average price of domestic winegrapes. In the boom years of the 1990s, the winegrape price rose faster than the export price, since wineries were outbidding each other by offering long-term contracts to secure fruit to meet their expanding export orders. Both average prices peaked in 2001 though, and both halved over the next ten years before bottoming out (Figure 2(a)).[41]

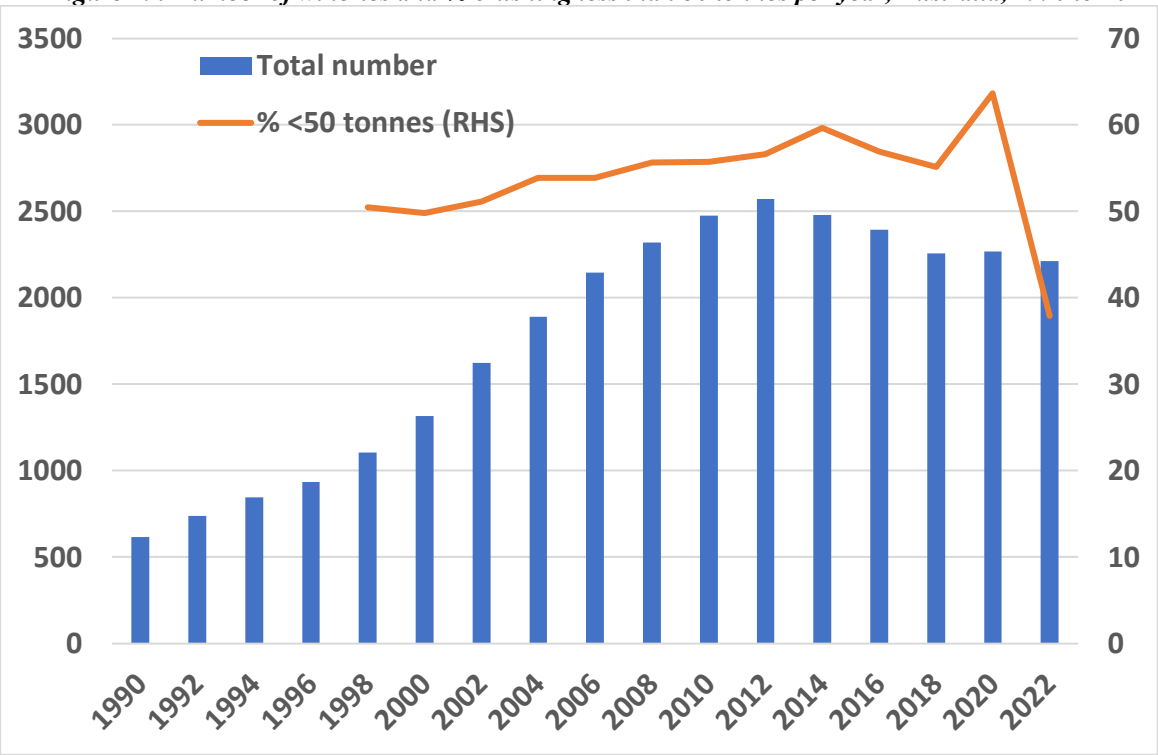
[41] A one-off price spike of 30% occurred in 2008 because of a grape shortfall in the drought-affected 2007 vintage (when yields were down by one-quarter on average), just before the global financial crisis (GFC) hit. It was followed by a 35% price drop the next vintage. The spike is evidence that winegrape prices are not completely immune to domestic winegrape supply fluctuations, but it was paid prior to the escalation of the GFC when Lehman Brothers collapsed on 15 September 2008.

Appendix 2:

Ownership concentration in Australia's wine industry

An important contributor to the industry's production and export growth from the late 1980s relates to increasing concentration in winery ownership (as was also the case in the late 19th century boom in red wine exports, see Caillard 2023). There was a huge increase in the number of Australian wine producers (peaking at 2,573 in 2013 but down to 2,164 in 2021, compared with fewer than 200 in the early 1970s, 300 in the early 1980s and 620 in 1990). Most of the new wineries were very small though, with the number below 50 tonnes accounting for 53% in 2003 and 63% in 2013 (Figure 29).

Figure 29: Number of wineries and % crushing less than 50 tonnes per year, Australia, 1990 to 2022



Source: Winetitles (2024 and earlier).

During the boom there were numerous mergers and takeovers by larger firms to form even larger conglomerates. Currently the four biggest of those in order of total revenue are Treasury Wine Estates, Pernod Ricard Winemakers, Accolade and Casella Family Brands (Winetitles 2024 and earlier).

Accolade has its origin with Thomas Hardy & Sons making its first corporate acquisition in 1976 by purchasing the London-based Emu Wine Company, which included Houghton (Western Australia's largest winery) and Morphett Vale. The company purchased Chateau Reynella in 1982, where Thomas Hardy had commenced his employment south of Adelaide 130 years before, and converted it to its headquarters. Further expansion came in 1992, when Hardy merged with Berri Renmano Limited (itself a merger of two Riverland Cooperatives) to form what then became Australia's second largest wine group, BRL Hardy Limited. In 2003, the brands of BRL Hardy and those of New York-based Constellation Brands were merged to create the world's largest international wine business in volume

terms. Constellation acquired Vincor International in 2006, adding the West Australian brands of Amberley and Goundrey to the Hardy portfolio. In 2008, The Hardy Wine Company changed its name to Constellation Wines Australia. Constellation sold their Australian arm in early 2011 — for a small fraction of their 2003 purchase price — to a private equity firm Champ who re-named it Accolade Wines. Champ sold it to the Carlyle Group in 2018 for AUD 1 billion, who in turn relinquished equity ownership and control in early 2024 to Australian Wine Holdco Limited (AWL, a group of institutional investors).

In 1989 the French spirits company Pernod Ricard purchased Orlando Wines, and then in 1990 it added Wyndham Estate to form the Orlando Wyndham Group. In 2005 Pernod Ricard took over Allied Domecq, and the New Zealand business unit Allied Domecq NZ was integrated into the company which was renamed Pernod Ricard Pacific in 2006, made up of business units throughout the Pacific region. As part of that re-structure, Pernod Ricard Australia was formed to take over the Australian sales marketing and distribution responsibilities of the Pernod Ricard brand portfolio (which includes numerous spirits brands), whilst Orlando Wines focused on the production of the Australian wine brands of Pernod Ricard. In 2010 Pernod Ricard re-named its global wine brand company as Pernod Ricard Winemakers (formerly Premium Wine Brands).

Treasury Wine Estates is a result of a series of mergers, acquisitions and demergers. The Penfolds Wine Group acquired Allied Vinters in 1985 and so added the Wynns, Seaview, Tulloch and Killawarra brands. It was renamed Southcorp in 1994, and it acquired Coldstream Hills and Devil's Lair in 1996. That same year the Australian brewer Foster's bought Rothbury Estate and Mildara Blass (formed in 1991 when Wolf Blass and Mildara Wines combined). Foster's subsequently took over Southcorp, adding it to its Beringer Blass Wine Estates business so named in 2001 when Mildara Blass took over California's Beringer Wine Estates. 2001 also saw Southcorp and Rosemount Estate merge. Beringer Blass added T'Gallant in 2003 before acquiring Southcorp in 2005 to form Foster's Wine Estates. In 2010 that was separated from the beer business to form the listed company Treasury Wine Estates, which claims to be the world's largest premium wine company in value terms.

The net result of all this merger and acquisition activity has been a substantial increase in firm concentration in the Australian wine industry. In 1978 those crushing more than 1000 tonnes accounted for 17% of wine firms, but by 2020 they accounted for just 4% of all wine firms. In 2014 the top three producers accounted for more than 40% of the annual crush, the number of bottles of wine sold, and the value of domestic sales, and for more than 50% of wine exports (Anderson 2015). The total number of wineries quadrupled between 1990 and 2012, but over the next ten years that number dropped by one-seventh; and the share crushing less than 50 tonnes per year rose from 50% to 64% during 2000-20 but fell to just 38% by 2022 (Figure 29).

There is also heavy concentration in Australian wine exporting and in the retailing of wine in Australia. In terms of exporting, just 11 firms account for 70% of exports. As for retailing, in 2023 sales by the two largest supermarket chains accounted for 80% of the off-trade sales value, with Endeavour Group's Dan Murphy's and BWS comprising 62% alone (Wine Australia 2024a). That group is becoming vertically integrated and is developing its own brands, which are tending to crowd out all but the biggest wineries' products on its shop shelves (AGW 2024b). Their market power vis-à-vis grapegrowers could be argued to put downward pressure on the prices of purchased winegrapes too, especially at the lower-quality end where supplies are commonly most abundant. A counter argument was made to a 2016 senate enquiry by WGGA, however: it suggested that private brands were part of the solution in an oversupplied market, as they provide a viable route-to-market for fruit that may not find a home in wine company brands, thereby increasing commercial opportunities for some growers (Rural and Regional Affairs and Transport References Committee 2016, p.36).

Appendix 3:

How government policies diverted Australia away from still wine production and exports in the inter-war years [from Anderson (2015)]

As early as 150 years ago, the Australian industry was seen by Europeans as having a great future for its still red wines.[42] That bright future was disrupted post-World War I by a series of government policies.

Following World War I there was a rapid vine area expansion. This was encouraged by the subsidized settlement on farms of ex-servicemen, particularly in the newly developed Murrumbidgee Irrigation Area of NSW and along the Murray River. Annual output of wine more than doubled in the decade to 1925, leading to a glut especially of Doradillo grapes whose price fell by two-thirds in 1924. Having been fuelled by government assistance with land and water infrastructure development, Australia's federal government decided to respond by further assisting producers in the newly planted areas by offering export assistance in the form of a bounty on wines with at least 34^0 proof spirit (that is, fortified wines with more than 19% alcohol, for which the non-premium Doradillo variety was relatively well suited).

The Wine Export Bounty Act, passed in 1924, provided the equivalent of 6 cents per litre plus excise duty drawback on the fortifying spirit, making a total of 8.8 cents per litre (Laffer 1949, pages 78 and 134). This came at a time when the average unit value of Australia's wine exports was less than 10 cents per litre, so equivalent to an export subsidy of 88%.

Furthermore, in its June 1925 budget, the British Government introduced, by way of thanks for war contributions, a tariff preference for wines from the British Empire. As a result, Australian still wines thereafter faced a British tariff of 2/- and its fortified wines faced 4/- per gallon, compared with 3/- and 8/-, respectively, for wines imported by Britain from Europe.

These two policies were intended to make Australia better able to compete with Portugal and Spain in the British market for sweet fortified wines. It was successful in that Australia's share of British wine imports, which was just 5% in the first two decades of the 20th century, averaged 21% in the 1930s. Both the export bounty and the British preferential tariff were volumetric rather than *ad valorem,* so the boost in production was largest for the lowest-valued grapes and fortified wines.

---

[42] After the International Exhibition in Vienna in 1873, the editorial of the *Morning Post* of 8 June 1874 proclaimed:

> *'Australia promises ere long to become as celebrated for its wines as it is already for its wool and gold. ... Australia carried off the only Diploma of Honour awarded at the Vienna Exhibition for wines in competition with wines of all other countries, and took a larger percentage of the wine prizes generally at that Exhibition in proportion to the number of its entries than any of its rivals. ... We cannot do better that quote the official report made in March last to the Commissioners of Her Majesty's Customs: 'The Australian wines are wonderfully advanced in improvement of quality and area of production since the Exhibition of 1862, while the scope for further increase is ... almost unlimited: they have generally a full, rich, vigorous character and quality. Some few are especially fine in all that constitutes a high-class wine, and will bear comparison with the best European growths, while the average of the remainder, compared with the bulk of Continental wines, omitting the best, is higher in quality, strength and body, as also in character and flavour.'* (quoted from Laffer 1949, pp. 69-70).

Similar accolades (along with some critical reports) flowed from the International Exhibition of 1882, which happened to be in Bordeaux.

The export bounty had been partly a response to a large hike in 1918 in what until then had been a very small excise tax on fortifying spirit. That excise tax rate was raised again (almost doubled) in 1930. Lobbying from the industry caused the government to put the boost in revenue from that second increase into a Wine Export Encouragement Trust Account, which largely financed the export bounty. In the meantime, the excise tax on fortified wine had been cut by two-fifths in the turmoil of government responses to the 1930s Depression (Laffer 1949, pp. 78-79). This, together with the trade policy changes, diverted vignerons away from their earlier-developed comparative advantage in still wine, production of which diminished to one-fifth of its 1923 level by the late 1930s.

As well, when the Australian Government in 1927 gave six months' notice that it was going to reduce the export subsidy by one-quarter, importers of fortified wine in Britain expanded their purchases ahead of sales. Many of the wines shipped in 1927 were rushed in order to qualify for the higher bounty before it was reduced, in the sense that they had not been given time to mature. That, together with poor storage treatment in Britain, ensured they were of low quality by the time they were sold there. This meant they not only fetched a low price but also secured a reputation for Australia as a supplier of poor-quality wine.

In 1929 the Australian Government established the Wine Overseas Marketing Board and. like many marketing boards at the time, it tried to set a minimum price for export wine during 1930-36, but had to abandon it as the market price was barely half the set price. With returns to winemakers falling from the late 1920s, they wanted to reduce by 25% the prices they paid growers for winegrapes. In response, the South Australian Grapegrowers Cooperative was established as a competing winemaker, but that did little to stem the erosion in returns. In 1936 a vine-pull scheme sponsored by the South Australian Government saw two-thirds of Coonawarra vines uprooted. Meanwhile, in Victoria's Yarra Valley, farmers began turning to dairying, and in the Hunter Valley of New South Wales the acreage of vines was eventually halved. Thus the total area of vines in Australia grew very little over the period of the bounty (1925-47).

In short, these government interventions undermined the British and continental European interest in and reputation of Australian still wines that had been slowly building up over the previous few decades, and they dampened the incentive to produce higher-quality wines (by being volumetric rather than *ad valorem*). Australia's reputation as a reliable supplier of quality wines was further damaged by the government giving six months' notice of the intention to reduce the bounty in late 1927.

Following World War II, Britain raised its tariff on fortified wines five-fold in 1947 and kept it very high until the end of the 1950s, and Australia abandoned the fortified wine export bounty in 1947. Britain hiked its tariff on fortified wines again in the late 1960s before joining the European Economic Community (EEC) in 1973, which thereafter gave duty-free access to wines from the other EEC member countries.

Appendix 4:

Domestic demand growth and supply response, 1960 to mid-1980s

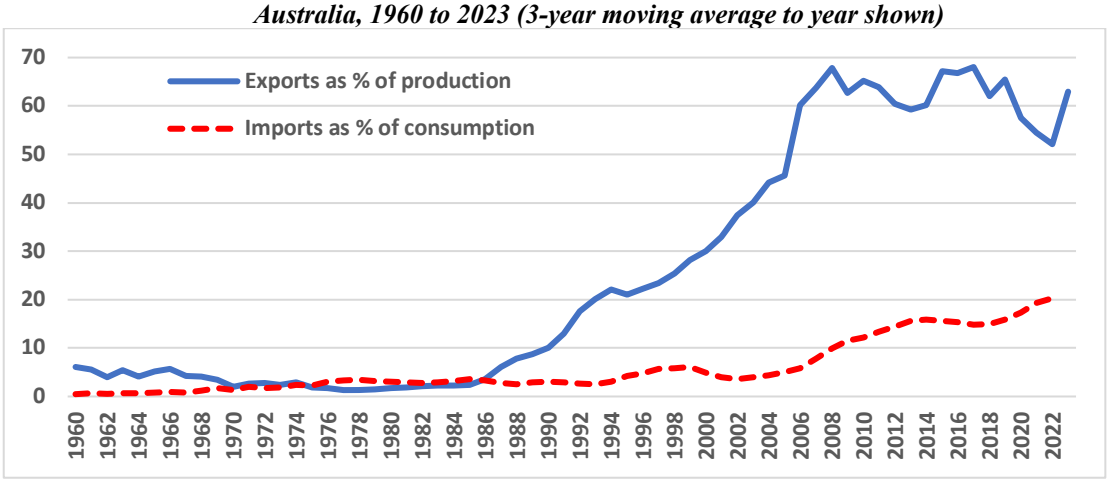
Grape and wine prices were low in the 1960s, particularly for still reds (see end of Appendix 3). That attracted the attention of domestic consumers, and a taste swing ensued. This was followed by an equally sudden surge from the mid-1970s in domestic consumer interest in white wines. As a consequence, the share of fortified wines in domestic sales shrank, from more than half to less than one-tenth.

The surge in interest in still wine consumption domestically coincided with the move from tea-drinking to coffee-drinking over the 1960s and 1970s. This move toward European preferences was driven in part by the post-World War 2 surge in immigrants from southern Europe, plus the growth in per capita incomes and the lowering (especially for those under 26) of costs of flying to Europe. Reforms of liquor licencing laws for restaurants and hotels also helped. So, too, did the Trade Practices Act of 1974, which made retail price fixing illegal and stimulated the emergence of liquor chain stores and wine discounting.

That domestic encouragement to vignerons was not enough to make the industry internationally competitive, however, particularly with the Australian dollar appreciating in the mid-1970s and again in the early 1980s thanks to rises in the international prices of some of Australia's primary export products. Then the AUD collapsed in the mid-1980s. But that was just as new techniques came on board. One involved stainless steel pressure tanks that were able to bring out more fruit flavours and aromas in white wines, making them relatively more attractive particularly for newcomers to table wine consumption. A subsequent new technique for producing sparkling whites at low cost added to that in the 1980s, as did the fashion swing by wine consumers towards Chardonnay from the mid-1980s (a grape variety that played no part in the earlier swing to white wines). Allowing the sale of wine in supermarkets added to that domestic consumer trend toward whites, since at that time women did most of the shopping for food and beverages in those stores and they preferred whites to heavier red wines.

Neither of the surges in production in the two decades to the mid-1980s, of first red and then white table wines, was export-driven. On the contrary, exports had remained of minor and declining importance, and were even below wine imports during 1976-86 for the first time since the 1880s (Figure 30).

Figure 30: Exports as a % of wine production and imports as a % of wine consumption volume, Australia, 1960 to 2023 (3-year moving average to year shown)



Source: Anderson and Pinilla (2023).

Then in the August 1984 budget, the Australian Government introduced a 10% wholesale sales tax on wine, and raised it to 20% two years later. That, plus the perceived over-supply situation especially in reds in the mid-1980s, meant the prospects for grapegrowers and winemakers looked bleak — so much so that the South Australian and Federal governments co-financed a vine-pull scheme in 1986. It paid growers $3,250 per hectare for the first 8 hectares and $2,000 for additional hectares of vines clear-felled up to a maximum of 26 hectares, or smaller amounts per hectare for partially removing a vineyard depending on the vine's age (Barrett 1989). Clear-felled land could not be replanted to vines for at least five years. It applied to a total of 2,350 hectares and so contributed only modestly to the net reduction of 6,250 hectares in the nation's winegrape bearing area between 1985 and 1987 (at a cost of $6.5 million, of which the Commonwealth contributed two-thirds).

At that time it seemed inconceivable to many observers that Australia had a future as a competitive wine exporter.

Appendix 5:

Changing concentration in the direction of Australia's wine exports

Australia's wine exports in the 1980s and 1990s were mostly directed to just 4 English-language markets: the UK, US, Canada and New Zealand. Europe's share (including the UK) fell from 64% to 44% by volume in the two decades to 2016-20, and from 60% to 23% by value. The value share of the UK alone fell two-thirds, from 44% to 15%. Initially that was because of growth in sales to North America, whose volume share doubled from less than one-sixth in 1990-95 to one-third in 2002-07 (and from 23% to 41% in value terms). From the late 2000s, the shares of both Europe and North America in Australia's wine exports were eclipsed by the growth in sales to East Asia, most notably China: that region's value share rose from less than 8% to 48%, before shrinking to 34% in 2021-23 thanks to China's imposition of punitive tariffs (Table 6). That re-direction was nudged by three bilateral free trade agreements between Australia and South Korea (December 2014), China (January 2015) and Japan (December 2015).

While the coercive tariff action by China was not and could not have been anticipated prior to 2020, in retrospect it was unwise for exporters of Australian wine (who included many recent economic immigrants from China) to have focused so heavily on that one market (see Figure 19). Australia's continuing focus on other Asian markets is appropriate (PC 2024), as the average price of their imports is up to three times that to other Australian export markets (last row of Table 6) – although part of the decline in the average price of exports to Europe this century is the faster rise in the share of wine shipped in bulk to Europe versus elsewhere.

The 21 national markets to which Australia exported more than $5 million of wine in 2023 are listed in Table 7. The average price of wines sold into different markets varies hugely, depending partly on the share of the delivered volume that is in bulk versus bottles. In the absence of China, Australia by 2023 was back to exporting almost three quarters of its volume and half its value to the original four English-speaking markets that were dominant in the 1990s. The high-valued trade to Hong Kong in 2023 was one-off in anticipation of the China market opening again by April 2024. Germany and Singapore are the next biggest markets, and all others are relatively small. That includes India, which has been of similar size and average price to that of the Philippines. Some hold high hopes for this market of 1.4 billion people to grow rapidly once the negotiations for an Australia-India free trade agreement are finalized, but regulatory complexities behind India's border may keep this growth rate modest for the foreseeable future even if a large preference is offered on the external tariff on wine.

Of the world's 25 largest wine-consuming countries, listed in Table 8, five of them do not appear in Table 7: Russia, Brazil, Switzerland, Norway and Finland. Russia is facing sanctions, but the other four might be considered candidates for closer attention by Australian exporters, together with three others where our exports are low relative to their market size (see last 3 columns of Table 6): Ireland, Sweden and especially Germany.

Longer term, regions to watch include the Gulf states and non-Muslim parts of sub-Saharan Africa. Some gulf states such as United Arab Emirates are liberalizing somewhat their restrictions on domestic alcohol consumption for non-citizens (which means most of the population, who are there as guest workers). As well, its two airlines (Emirates and Etihad) and their duty-free airports, and Qatar's, are large buyers of premium wines. As for Africa, it has some of the highest birth rates in the world such that Africa's total population is projected by the United Nations to rise from its current 1.36 billion to reach close to 2.5 billion by

2050. It also has had GDP per capita growth rates over the past three decades that in many cases are second only to Asia's. Given the colonial background of both Anglophone and Francophone African countries, they have had a long exposure to European wine culture. Hence as their middle-income citizens' incomes rise so too will their interest in wine.

Appendix 6:

The long-term payoffs from investing in innovation

Australia's investment in formal grape and wine education and training dates from the establishment in 1883 of Roseworthy Agricultural College (now part of the University of Adelaide). Viticulture was compulsory and oenology was an optional field of study in its Diploma in Agriculture, with a Diploma in Oenology being added in 1936. Formal wine research began in 1934 with funding to the University of Adelaide from (what soon became) the Australian Wine Board. The Board's annual reports indicated high rates of return from its initial research investments, and this led in 1955 to the creation of the Australian Wine Research Institute and in 1988 to the establishment of the Grape and Wine Research and Development Corporation (GWRDC, although called a Council until 1991).

The GWRDC (which in 2014 was absorbed into what is now Wine Australia) has been funded by producer levies which the Federal Government matches dollar-for-dollar up to a maximum of 0.5 per cent of the gross value of output of grapegrowers (in the case of growers) and of the winegrape crush (in the case of wineries). Producers initially opted for low levies, but they were raised in 1999 and again in 2005 such that they nearly reached 1% of value added in these two activities. That represents a modest investment in R&D compared with the averages for OECD countries at that time of around 2% of agricultural and 3% of manufacturing value added (Pardey et al. 2006).

The impact and payoff from those investments is impressive (Pretorius and Hoj 2005). Since its creation in 2014, Wine Australia has conducted benefit-cost studies of a selection of individual research programs each year (see https://www.wineaustralia.com/about-us/performance-and-reporting). There is a wide range of B/C estimates across the projects (as expected for such risky investments) but their average is very high. That was also found in an earlier study of a sample of past projects by McLeod (2002), which yielded B/C ratios ranging from 7:1 to 76:1. These series of high ratios up to the present suggest the industry is underinvesting very considerably in this innovation-generating activity.

In addition to funding research on viticulture and oenology, more attention might be given to research also on wine marketing. That field of research has blossomed over the past three decades (Martínez-Navarro and Sellers-Rubio 2024), drawing on insights from fields such as business, economics, food science and environmental studies. Given the need for winegrowers to keep a focus on ever-changing consumer demands, and the expanding role of new digital technologies in marketing, the payoff from research in this area may well be steadily growing.

Appendix 7:

Possible effects of reforming the wine consumer tax regime

As noted in Section 3 above, Australia's alcohol tax regime ensures that commercial wine consumption is taxed lightly compared with beer and spirits while the opposite is true for high-priced wines. Were there to be a switch from an *ad valorem* to a volumetric excise tax on wine, from its current 29% of the wholesale price to $x per litre as operates in most other countries, producers would have a stronger incentive to premiumize. Indeed profitability for the producers of fine wine destined for the domestic market could rise immediately. However, it would be at the expense of producers and domestic consumers of lower-priced wines.

In the past the wine industry had not been in favour of a per-litre consumption tax for two reasons. One was because, when the current Wine Equalization Tax (WET) was set along with the 10% GST in 2000, all but one-seventh of domestic sales were non-premium wines which dominated the output of the biggest wineries, and only one-quarter of Australia's wine production was exported. The situation is very different today though: the share of wine production that is exported has risen greatly to three-fifths, and the volume share of Australian wine sold in the domestic market that is commercial (<$10 retail a bottle) has shrunk. Specifically, the share of commercial wine that is sold on the taxed domestic market has fallen from almost two-thirds to barely one-quarter this century. Furthermore, the largest firms are now moving further away from commercial wine production because of the greater decline in its demand, abroad as well as domestically, compared with that for premium wines.

Another reason the wine industry preferred an *ad valorem* tax to a volumetric tax, and which continues to be a concern, is that a volumetric tax would be more-easily compared with the much higher per litre of alcohol tax rates on beer and spirits sales – and those rates are raised every six months in line with inflation.

The effects of switching to a volumetric tax on domestic sales would mean more commercial wine needed to be exported from Australia unless/until its production was shrunk accordingly. Also, more premium wine (and less non-premium wine bottles) would be imported into Australia following such a reform. The net effects on various market participants is thus complex and would require careful empirical economic analysis.

The likely effects of wine tax reform becomes even more complex when one accounts for the WET rebate. There is a rebate on the first $350,000 of tax paid by each Australian and New Zealand winery's sales in Australia each year. That measure was argued for on the assumptions that regional tourism is under-provided by the market and that the cellar doors of small wineries boost local tourism. Only a fraction (possibly none) of the benefit of that exemption would be passed on to domestic wine consumers, the remaining fraction being effectively a subsidy to local wineries – albeit a proportionately smaller benefit the more a winery's WET tax exceeded $350,000 each year.[43]

The fact that foreign wineries that import their wines into Australia do not enjoy that benefit has not gone unnoticed. New Zealand complained enough to be granted the same access to the rebate as Australian wineries from 2005 under the Australia-New Zealand Closer Economic Relations Trade Agreement. That adds to the discrimination against other foreign suppliers of imports into Australia, and may therefore one day be brought before the dispute settlement body at the World Trade Organization.

---

[43] For those small wineries whose annual domestic wholesale sales do not exceed $1.2 million, and who pass on none of the WET rebate to their customers, this is equivalent to a nominal rate of producer assistance of 22.5%.

Were that rebate to be removed as part of WET reform, it is unclear whether an additional number of today's small wineries would become financially unviable. If the reform involved a switch to a volumetric tax that raised the same tax revenue from wine sales, it may be that bottles above $20 would be retailing at a lower price than currently, hence boosting the domestic sales volume of premium winemakers. But that would be offset by the negative effect on those sales of removal of the WET rebate scheme, especially for small wineries. Hence the need for careful modelling to project the precise distributional impacts of various possible policy scenarios.

Vignerons are well aware of the intensifying pressure from health lobbies and the World Health Organization for countries to set ever-higher excise taxes based on litres of alcohol. The UK went one step further in its latest reform of 1 August 2023, by setting higher alcohol tax *rates* for higher-alcohol beverages. Should the federal government be pressured to make such a change in Australia, the wine industry would need to fine-tune the argument for a lower tax rate on wine than on beer or spirits. That argument could be based on (a) the lower rates in most other wine-exporting countries (Anderson 2020b) and (b) the lower social costs associated with most consumption of wine vs. beer and spirits (Srivastava, Yang and Zhao 2022) – costs that would be lower still with a per-litre wine tax. But the volume of domestic sales of lower-quality wines would contract with such a reform, requiring more of such wine to be exported, and more so if the domestic wine tax rate was set closer to the rate for beer.

Appendix 8:

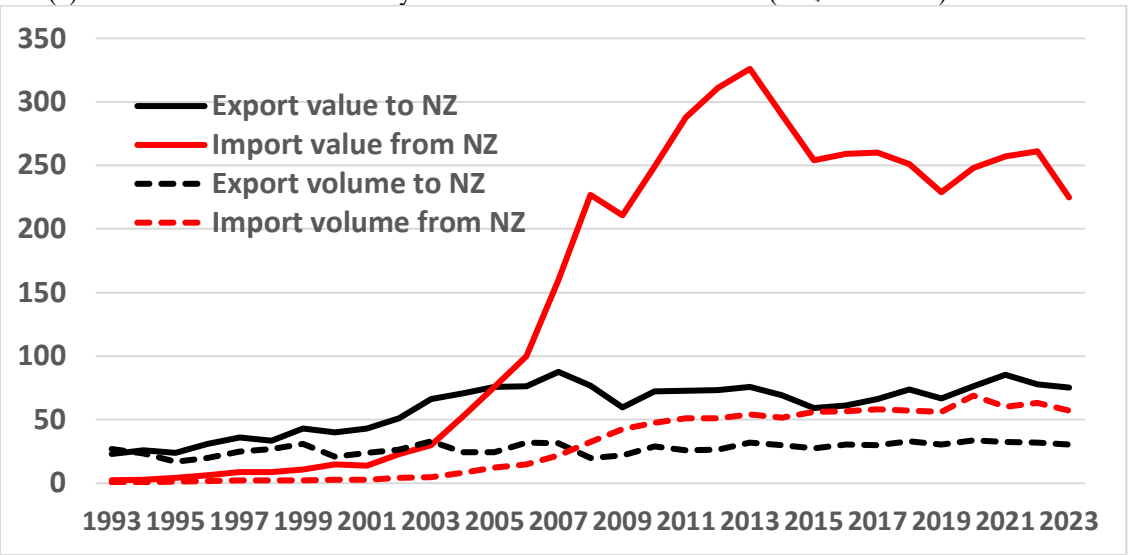
Comparing the wine competitiveness of Australia and New Zealand

There is a strong contrast between Australia's steady decline in its competitiveness in international wine markets since the peak of its most-recent boom in 2007 and New Zealand's continued boom for two more decades. New Zealand passed Australia in terms of its index of revealed comparative advantage (RCA) in wine in 2006 (10.6 vs 8.7, see Figure 12(c)), in value of wine exports per capita in 2007 (US$133 vs $115, see Figure 11(a)), and in the share of the volume of wine production exported in 2010 (83% vs 68%, see Figure 30); and it exceeded Australia's share of the value of world wine exports in 2023 (3.7% vs 3.2%, see Figure 12(b)). Indeed in 2022 New Zealand's RCA index was second only to Georgia's (20 vs 28), exceeding the 18 for France, 12 for Chile, 8 for Italy and Portugal, 5 for Spain, and just 2.2 for Australia. Presumably New Zealand benefits from exporting just one main variety that is sold within weeks of being produced and happens to have remained fashionable and attract a relatively high price for decades.

As part of its success, New Zealand has deeply penetrated the Australian market for white wine, such that since 2008 Australia's imports of wine from New Zealand have greatly exceeded its wine exports to New Zealand (Figure 31(a)). The average unit value of those imports from New Zealand was three times the average value of trade in the opposite direction until the mid-2010s (Figure 31(b)),[44] after which the difference narrowed somewhat as the share of wine coming in from New Zealand in bulk rose from less than 5% pre-2008 to more than 70% by 2023. Over the past 15 years New Zealand has accounted for around 90% of the volume of Australia's bulk wine imports, virtually all Sauvignon Blanc. That bulk trend has steadily provided more jobs and value added in Australia's bottling plants, even if it has eroded the local demand for Australian white wine.

Figure 31: Total and unit values of Australia's two-way trade in wine with New Zealand, 1993 to 2023 (US$m, ML and US$/litre)

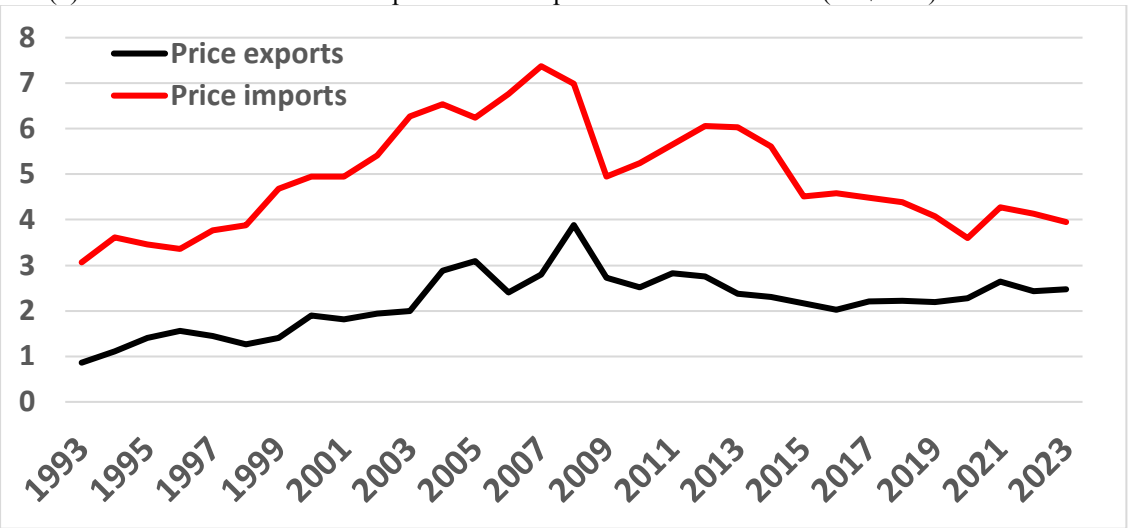
(a) Value of Australia's two-way trade in wine with New Zealand (US$m and ML)



[44] And the average price of New Zealand's wine imports from Australia are less than two-fifths those New Zealand imports from the rest of the world.

Figure 31 (continued): Total and unit values of Australia's two-way trade in wine with New Zealand, 1993 to 2023 (US$m, ML and US$/litre)

(b) Unit value of Australia's exports to and imports from New Zealand (US$/litre)



Source: Based on UN COMTRADE data.

Appendix 9:

Acknowledgements

The Reviewer is grateful for financial support from Wine Australia and for conversations and feedback with many people in the industry, together with staff at Wine Australia and PIRSA. Special thanks to the following individuals, none of whom are responsible for the views expressed in this Review:

Alston, Julian
Bailey, Peter
Balnaves, Doug
Balnaves, Kirsty
Brown, Dudley
Byrne, Chris
Caillard, Andrew
Cole, Martin
Collins, Jo
Crawford, Oliver
Croser, Brian
Davidson, Di
Dawson, Peter
Doroudi, Mehdi
Guy, Stephen
Hargreaves, Jo
Hathaway, Sandy
Hayes, Peter
Hewitson, Ned
Hodder, Sue
Hooper, Anna
Jacobs, Larry
Jefford, Andrew
Kidman, Catherine
Krstic, Mark
Lee, Inca
Love, Tony
McKinnon, Brett
Moularadellis, Bill
Peter, Ed
Puga, German
Rose, Louisa
Santiago-Brown, Irina
Smart, Richard
Sneyd, Nigel
Soccio, Marc
Triggs, Rachel
Wittwer, Glyn
Walsh, Brian

Appendix 10:

The Independent Reviewer

Kym Anderson is Managing Director of Burnside Anderson Pty Ltd, an economic consulting firm. He is also George Gollin Professor Emeritus at the University of Adelaide and founding Executive Director of its Wine Economics Research Centre, and an Honorary Professor of Economics at the Australian National University's Crawford School of Public Policy. Since its foundation in 2006 he has been Vice-President of the American Association of Wine Economists and Co-Editor of its *Journal of Wine Economics* that is published by Cambridge University Press. He has worked also at the GATT (now WTO) Secretariat in Geneva (1990-92) and at the World Bank as Lead Economist (Trade Policy) during 2004-07. During 2000-05 he served as a non-executive Director on the Board of Australia's Grape and Wine Research and Development Corporation (now part of Wine Australia). During 2010-17 he served on the Board of Trustees of the International Food Policy Research Institute (IFPRI, Washington DC, USA), chairing it from 2015; and from 2020 he has been on the Governing Council of Africa's International Centre for Insect Physiology and Ecology (*icipe,* Nairobi, Kenya), chairing it from 2021. Since doctoral studies at the University of Chicago and Stanford University he has published more than 40 books and 350 academic journal articles or chapters in others' edited books, plus dozens of articles in wine industry journals. His wine books include *Which Winegrape Varieties are Grown Where? A Global Empirical Picture* (University of Adelaide Press, 2013 and revised 2020), *Growth and Cycles in Australia's Wine Industry: A Statistical Compendium, 1843 to 2013* (University of Adelaide Press, 2015), *The International Economics of Wine* (World Scientific, 2020), *Wine Globalization: A New Comparative History* (Cambridge University Press, 2018), and *Global Wine Markets, 1860 to 2016: A Statistical Compendium* (University of Adelaide Press, 2017). The latter two were co-winners of the 2018 prize for the best wine economics books awarded by the Paris-based Organisation Internationale de la Vigne et du Vin (OIV). The first edition of the *Which Winegrape Varieties* book won the 2014 OIV Prize in the best viticulture books category. All the University of Adelaide Press books are freely downloadable as ebooks (as are their underlying data) at https://economics.adelaide.edu.au/wine-economics/. He is a recipient of an Honorary Doctor of Economics degree from the University of Adelaide and a Distinguished Alumni Award from the University of New England. In 2015 he became a Companion of the Order of Australia (AC), in part for his contribution to the grape and wine industry.

References

ABA (2024), *Almond Insights 2022-23*, Loxton: Almond Board of Australia. https://viewer.joomag.com/2230aba-almond-insights-22-23-4v/0179131001694064762

ABARES (2024a), "Outlook for Wine and Wine Grapes", in *Agricultural Commodities,* Canberra: Department of Agriculture, Fisheries and Forestry, June. https://www.agriculture.gov.au/abares/research-topics/agricultural-outlook/wine

ABARES (2024b), "Experimental Farmland Price Indicator", Canberra: Department of Agriculture, Fisheries and Forestry, June. https://www.agriculture.gov.au/abares/data/farmland-price-indicator#download-the-reports-and-datasets

Abbott, M. and D. Merrett (2019), "Counting the Cost: The Reserve Price Scheme for Wool 1970-2001", *Australian Journal of Agricultural and Resource Economics* 63(3): 790–813, October.

ACCC (2019), *Wine Grape Market Study: Final Report,* Canberra: Australian Competition and Consumer Commission, September.

ACCC (2021), *Wine Grape Market Study: Follow-up Review,* Canberra: Australian Competition and Consumer Commission, December.

ACIL Allen (2023), *Wine Australia Independent Performance Review, July 2019-December 2022*, Melbourne: ACIL Allen, November.

AGW (2024a), *Pre-budget Submission 2024-25,* Adelaide: Australian Grape and Wine, 24 January.

AGW (2024b), *Independent Review of the Food & Grocery Code 2023-24: Submission to the Consultation Paper,* Adelaide: Australian Grape and Wine, February.

AIHW (2023), *Apparent Consumption of Alcohol in Australia 2019-20: Supplementary Data Tables,* Canberra: Australian Institute for Health and Welfare, October. https://www.aihw.gov.au/reports/alcohol/apparent-consumption-of-alcohol-in-australia/data

Akerlof, G.A. (1970), "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism", *Quarterly Journal of Economics* 84(3): 488-500, August.

ALRC (1993), *Collective Investment: Other People's Money,* Report No. 65, Companies and Securities Advisory Committee, Sydney: Australian Law Reform Commission.

Alston, J.M., J.M. Crespi, H.M. Kaiser and R.J. Sexton (2006), "An Evaluation of California's Mandated Commodity Promotion Programs", *Review of Agricultural Economics* 29(1): 40–63.

Alston, J.M., J.T. Lapsley, O. Sambucci and D. Sumner (2018), "United States", Ch. 15 in *Wine Globalization: A New Comparative History*, (edited by K. Anderson and V. Pinilla, Cambridge and New York: Cambridge University Press.

Anderson, K. (with the assistance of N.R. Aryal) (2015), *Growth and Cycles in Australia's Wine Industry: A Statistical Compendium, 1843 to 2013,* Adelaide: University of Adelaide Press. Freely available as an e-book and in Excel format at https://economics.adelaide.edu.au/wine-economics/

Anderson, K. (2018), "Australia's Wine Industry Competitiveness: Why So Slow to Emerge?" *Australian Journal of Agricultural and Resource Economics* 62(4): 507-26, October.

Anderson, K. (2020a), "Asia's Emergence in Global Beverage Markets: The Rise of Wine", *Singapore Economic Review* 65(4): 755-79, June.

Anderson, K. (2020b), "Consumer Taxes on Alcohol: An International Comparison over Time", *Journal of Wine Economics* 15(1): 42-70.

Anderson, K. (2020c), "Evolving from a Rum State: A Comparative History of Australia's Alcohol Consumption", *Australian Journal of Agricultural and Resource Economics* 64(3): 724-49, July

Anderson, K. (2023a), "What's Happened to the Wine Market in China?" *Journal of Wine Economics* 18(2): 173-83. (An earlier briefer version is in *Australian and New Zealand Grapegrower and Winemaker* 712: 79-82, May.)

Anderson, K. (2023b), "Boost Wine Industry Productivity, Premiumization and Sustainability by Reforming Producer Levies", *Australian and New Zealand Grapegrower and Winemaker* 717: 86-90, October.

Anderson, K. (2023c), "The Consumer Preference for Lower Alcohol: Are There Lessons from Beer?" *Wine and Viticulture Journal* 38(4): 80-83, and "The Emergence of Lower-Alcohol Beverages: The Case of Beer", *Journal of Wine Economics* 18(1): 66-86.

Anderson, K. and S. Nelgen (2020a), *Which Winegrape Varieties are Grown Where? A Global Empirical Picture (Revised Edition),* Adelaide: University of Adelaide Press. Freely available as an e-book and in Excel format at https://economics.adelaide.edu.au/wine-economics

Anderson, K. and S. Nelgen (2020b), "Australia's Declining Winegrape Varietal Distinctiveness", *Wine and Viticulture Journal* 35(4): 66-69, Spring.

Anderson, K., S. Nelgen and V. Pinilla (2017), *Global Wine Markets, 1860 to 2016: A Statistical Compendium*, Adelaide: University of Adelaide Press. Freely available as an e-book and in Excel format at https://economics.adelaide.edu.au/wine-economics

Anderson, K. and V. Pinilla (2023), *Annual Database of Global Wine Markets, 1835 to 2022*, freely available in Excel at the University of Adelaide's Wine Economics Research Centre, December. https://economics.adelaide.edu.au/wine-economics/databases

Anderson, K. and G. Puga (2023a), *Database of Australian Winegrape Vine Area, Price, Crush Volume and Value, and Per Hectare Yield and Value, by Region and Variety, 1956 to 2023,* Wine Economics Research Centre, University of Adelaide, December. https://economics.adelaide.edu.au/wine-economics/databases

Anderson, K. and G. Puga (2023b), "Two Decades of Grape Variety Trends in Australian Wine Regions", *Wine and Viticulture Journal* 38(2): 65-73, Autumn.

Anderson, K. and G. Puga (2024), "Which are Australia's Emerging Winegrape Varieties?" *Wine and Viticulture Journal* 39(2): 77-81, Autumn.

Anderson, K. and G. Wittwer (2013), "Modeling Global Wine Markets to 2018: Exchange Rates, Taste Changes, and China's Import Growth", *Journal of Wine Economics* 8(2): 131-58.

Anderson, K. and G. Wittwer (2017), "The UK and Global Wine Markets by 2025, and Implications of Brexit", *Journal of Wine Economics* 12(3): 221-51.

Anderson, K. and G. Wittwer (2018), "Cumulative Effects of Brexit and Other UK and EU27 Bilateral FTAs on the World's Wine Markets", *The World Economy* 41(11): 2883-94.

Anderson, K. and G. Wittwer (2022), "Proposed Alcohol Tax Reform in the UK: Implications for Wine-exporting Countries", *Journal of Wine Economics* 17(2): 117-26.

Andrivet, M. (2023), "Yellow Tail: Clever Brand Positioning Within the American Wine Industry", *The Branding Journal*, 30 November. https://www.thebrandingjournal.com/2014/05/yellow-tail-clever-product-positioning-within-american-wine-industry/#:~:text=1.-,Product,of%20the%20population%20in%20America.

AWF (1996), *Strategy 2025: The Australian Wine Industry*, Adelaide: Winemakers' Federation of Australia for the Australian Wine Foundation, June.

AWRI (2023 and earlier issues), *Annual Report,* Adelaide: Australian Wine Research Institute.
AWRI (2024), *AWRI Industry Impact and Highlights: Transfer the Knowledge 2002-2021*, Adelaide: Australian Wine Research Institute, March.
Barrett, S. (1989), "An Assessment of the Vine Pull Scheme: A Case Study of the Southern Vales of South Australia", *The Australian Geographer* 20(2): 185-190.
Caillard, A. (2023), *The Australian Ark: The Story of Australian Wine,* Haberfield: Longueville Media and Glebe: The Vintage Journal (https://australianark.com/
Cardebat, J.-M. (2024), "Determinants and Forecast of World Wine Consumption", mimeo, University of Bordeaux, April.
Carter, F. (2024), "How Neo-Prohibitionists Came to Shape Alcohol Policy", *Wine Business Monthly,* pp. 86-89, April.
Cassi, L., A. Morrison and R. Rabellotti (2011), "The Changing Geography of Science in Wine: Evidence from Emerging Economies", Ch. 2 in *Innovation and Technological Catch-Up: The Changing Geography of Wine Production,* edited by E. Giuliani, A. Morrison and R. Rabellotti, Cheltenham: Edward Elgar.
CDFA (2024), *California Grape Crush Preliminary Report 2023,* Sacramento: California Department of Food and Agriculture, February.
Chandra, R., G.C. Moschini and G.E. Lade (2024), "Geographical Indications and Welfare: Evidence from US Wine Demand", *American Journal of Agricultural Economics* (forthcoming).
Ciatti (2019), *Global Market Report*, March. https://ciatti.com/market-reports/
Ciatti (2024), *Global Market Report*, March and May. https://ciatti.com/market-reports/
CSIRO (2024), *Ag2050 Scenarios Report*, Canberra: CSIRO, April. file:///C:/Users/a1000655/Downloads/AF_REPORT_Ag2050Scenarios.pdf
DAFF (2023), "Levy and Charge Rates: Wine", Canberra: Department of Agriculture, Forestry and Fisheries. Accessed on 21 August at https://www.agriculture.gov.au/agriculture-land/farm-food-drought/levies/rates#wine
DAWE (2020), *Levy Guidelines: How to Establish or Amend Agricultural Levies*, Canberra: Department of Agriculture, Water and the Environment.
Deloitte Access Economics (2021), *Independent Review of the Export and Regional Wine Support Package,* Canberra: Deloitte Access Economics for the Department of Agriculture, Water and the Environment, May.
Del Ray, R. and S. Loose (2023), "State of the International Wine Market in 2022: New Market Trends for Wines Require New Strategies", *Wine Economics and Policy* 12(1): 3-18.
Dixit, A. and R.S. Pindyck (1994), *Investment Under Uncertainty,* Princeton NJ: Princeton University Press.
Edwards, G. and W. Bates (2016), "Antipodean Agricultural and Resource Economics at 60: Agricultural Adjustment", *Australian Journal of Agricultural and Resource Economics* 60(4): 573-89, October.
Edwards, T. (2023), *The Very Good News About Wine: Authoritative Health Evidence the Health Authorities Don't Tell You*, self-published, available on Amazon.
Euromonitor International (2023), "Passport: Wine in Australia", London: Euromonitor International, July.
European Commission (2009), "Mid-term Prospects for the Wine Sector, 2015/2016", Directorate-General for Agriculture and Rural Development, Brussels, July.
European Court of Auditors (2014), "Is the EU Investment and Promotion Support to the Wine Sector Well Managed and Are its Results on the Competitiveness of EU Wines

Demonstrated?" Special Report No. 9, Luxembourg: Publications Office of the European Union.
Foley, M. (2009), "For Australian Winemakers, More Turns Out to be Less", *The New York Times*, Saturday 4 July.
Godden, P., E. Wilkes and D. Johnson (2015), "Trends in the Composition of Australian Wine 1984–2014", *Australian Journal of Grape and Wine Research* 21: 741-53, December.
Griswold, M.G. et al. (2018), "Alcohol Use and Burden for 195 Countries and Territories, 1990-2016", *Lancet* 392: 1015-35.
Hooke, H. (2015), "AWRI's 60th Anniversary: An Invaluable Resource", *The World of Fine Wine* 50: 36-38.
Horticulture Australia (2024), *Horticulture Statistics: Fruits,* at https://www.horticulture.com.au
Industry Commission (1995), *Winegrape and Wine Industry in Australia*, Industry Commission (now Productivity Commission) Research Report dated 30 June but not released until 2 November. https://www.pc.gov.au/research/supporting/wine-grape (Committee members: W.I. Scales (Chair), B.J. Croser and J.W. Freebairn).
Intangible Business (2015 and earlier), *The Power 100: The World's Most Powerful Spirits and Wine Brands,* London: Intangible Business.
Johnson, H. (1989), *Hugh Johnson's Story of Wine,* London: Mitchell Beazley.
Kahneman, D. (2011), *Thinking, Fast and Slow*, London: Penguin.
Laffer, H.E. (1949), *The Wine Industry of Australia*, Adelaide: Australian Wine Board.
Martínez-Navarro, J. and R. Sellers-Rubio (2024), "Three Decades of Research on Wine Marketing", *Heliyon* 10(10): e30938, May.
McLeod, R. (2002), *Ex Ante and Ex Post Cost Benefit Analysis of the GWRDC's Project Portfolio*, Adelaide: Grape and Wine Research and Development Corporation.
Menapace, L. and G.C. Moschini (2024), "The Economics of Geographical Indications: An Update", *Annual Review of Resource Economics* Vol. 16, May. https://doi.org/10.1146/annurev-resource-101623-092812
Mérel, P., A. Ortiz-Bobea and E. Paroissien (2021), "How Big is the "Lemons" Problem? Historical Evidence from French Appellation Wines", *European Economic Review* 138(3):103824. DOI:10.1016/j.euroecorev.2021.103824
MLA (2024), *MLA Donor Company: Background and Application Guidelines*, Sydney: Meat and Livestock Australia. https://www.mla.com.au/about-mla/what-we-do/mla-donor-company/
New Zealand Winegrowers (2023 and earlier), *Annual Report,* Auckland: New Zealand Winegrowers.
OIV (2019), *Focus 2019: Industrial Uses of Wine*, Paris: OIV (International Organisation of Vine and Wine).
OIV (2020), *OIV Focus: The Global Sparkling Wine Market*, Paris: OIV (International Organisation of Vine and Wine).
OIV (2023a), *State of the World Vine and Wine Sector in 2022*, Dijon: OIV (International Organisation of Vine and Wine).
OIV (2023b), *Evolution of World Wine Production and Consumption by Colour*, Dijon: OIV (International Organisation of Vine and Wine).
OIV (2024), *State of the World Vine and Wine Sector in 2023*, Dijon: OIV (International Organisation of Vine and Wine).
Oliver, J. (2023), "The Future of Australian Wine in China", Presentation to the Agribusiness Summit of the Australia China Business Association, Melbourne, 21 June.

Olson, M. (1965), *The Logic of Collective Action: Public Goods and the Theory of Groups,* Cambridge MA: Harvard University Press.

Osmond, R. and K. Anderson (1998), *Trends and Cycles in the Australian Wine Industry, 1850 to 2000*, Adelaide: Centre for International Economic Studies. (A prelude to Anderson 2015, cited above.)

Pardey, P.G., N.M. Beintema, S. Dehmer and S. Wood (2006), *Agricultural Research: A Growing Global Divide?* IFPRI Food Policy Report, Washington DC: International Food Policy Research Institute.

Parker, R.M. (2005), *The World's Greatest Wine Estates: A Modern Perspective,* New York: Simon and Schuster.

Parliamentary Library (2024), *Agriculture (Biosecurity Protection) Levies Bill 2024*, Bills Digest No. 55, 2023-24, Canberra: Department of Parliamentary Services.

PC (2011), *Rural Research and Development Corporations*, Report No. 52, Canberra: Productivity Commission.

PC (2023), *Towards Levyathan? Industry Levies in Australia,* Research paper*,* Canberra: Productivity Commission, December.

PC (2024), *Modelling Asian Trade Integration,* Canberra: Productivity Commission, April.

PIRSA (2023), "South Australian Assistance Guide for Grape Growers and Winemakers", Adelaide: PIRSA, October. https://www.pir.sa.gov.au/__data/assets/pdf_file/0004/439843/sa-assistance-guide-for-grape-growers-and-winemakers.pdf

PIRSA (2024), "Vineyard Resting Rebate Guidelines 2023/24", Adelaide: PIRSA, February. https://www.pir.sa.gov.au/__data/assets/pdf_file/0003/439842/vineyard-resting-rebate-guidelines.pdf

Pretorius, I.S. and P.B. Hoj (2005), "Grape and Wine Biotechnology: Challenges, Opportunities and Potential Benefits", *Australia Journal of Grape and Wine Research* 11(2): 83-108.

Puga, G. and K. Anderson (2024a), "Winegrape Yield and Revenue Variability in Australia", *Australian Journal of Grape and Wine Research* 30: 9992528, May.

Puga, G. and K. Anderson (2024b), "What Explains Changes in Grape Varietal Mixes in Australia's Wine Regions?" Presented at the 68th Conference of the Australasian Agricultural and Resource Economics Society, ANU, Canberra, 7-9 February.

Roundtable (2014), "Is it Oversupply or Just Undersold", *Australian and New Zealand Grapegrower and Winemaker* 605: 7-12, June.

Rural and Regional Affairs and Transport References Committee (2016), *Senate Enquiry into the Winegrape and Wine Industry in Australia,* Canberra: Parliament House, 12 Feb. https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Rural_and_Regional_Affairs_and_Transport/Australian_wine_industry/Report

SAFER (2024), *Le Prix Des Terres 2023: Le Marché Des Vignes*, Paris: Fédération Nationale des Safer. https://www.safer.fr/app/uploads/2024/05/2024-PDT2023-04-Vignes.pdf

SAWIA (2023), *South Australian Wine Industry Snapshot 2023,* Adelaide: South Australian Wine Industry Association.

Smart, R. (2024), "Wine Region Recovery After the Surplus", *Wine and Viticulture Journal* 39(3), Winter (forthcoming).

Srivastava, P., K.R. McLaren, M. Wohlgenant and X. Zhao (2015), "Disaggregated Econometric Estimation of Consumer Demand Response by Alcoholic Beverage Types", *Australian Journal of Agricultural and Resource Economics* 59(3): 412-32.

Srivastava, P., O. Yang and X. Zhao (2022). "Equal Tax for Equal Alcohol? Beverage Types and Antisocial and Unlawful Behaviours", *Economic Record* 98(323): 354–72.

Stanford, L. (2001), "Supplying the Challenge: Short to Long-Term Supply Expectations for the Australian Wine Industry", *Australian Grapegrower and Winemaker* 445: 44-48, February.

Stanford, L. (2015), "Positives in Supply Adjustment, but There's More to Go: Analysis of the 2014-15 Vineyard Survey," Adelaide: Wine Grape Growers' Australia, October.
SVB (2024), *State of the US Wine Industry Report 2024,* San Francisco: Silicon Valley Bank, January. https://www.svb.com/trends-insights/reports/wine-report/
Taylor, P. (1999), *Seasons of Change: Financial Modelling Software for Vineyard Development and Management,* Adelaide: PIRSA.
Tian Y., J. Liu, Y. Zhao, N. Jiang, X. Liu, G. Zhao et al. (2023), "Alcohol Consumption and All-cause and Cause-specific Mortality among U.S. Adults", *BMC Medicine*, 3 July. https://bmcmedicine.biomedcentral.com/articles/10.1186/s12916-023-02907-6
Treasury (2009), *Review of Non-Forestry Managed Investment Schemes,* Canberra: The Treasury, December.
Treasury (2016), *Regulation Impact Statement: Changes to the Wine Equalisation Tax Rebate*, Canberra: The Treasury, November.
Tsai, M.-K., W. Gao and C.-P. Wen (2023), "The Relationship Between Alcohol Consumption and Health: J-shaped or Less is More?", *BMC Medicine* 21(228), 3 July. https://bmcmedicine.biomedcentral.com/articles/10.1186/s12916-023-02911-w
Unwin, T. (1991), *Wine and the Vine: An Historical Geography of Viticulture and the Wine Trade*, London and New York: Routledge.
van der Lee, P. (2010), "Report on Project GWR 0912: Reconcile Current Grape and Wine Supply With the Current Demand Composition, for the Wine Restructuring Action Agenda (WRAA)", Adelaide: GWRDC, April. https://www.wineaustralia.com/research_and_innovation/projects/reconcile-current-grape-and-wine-supply
van Leeuwen, C. et al. (2024), "Climate Change Impacts and Adaptations of Wine Production", *Nature Review Earth and Environment,* 24 March. https://doi.org/10.1038/s43017-024-00521-5
Vinehealth Australia (2023 and earlier), *SA Winegrape Crush Survey*, Adelaide: Vinehealth Australia (prior to 2015, the Phylloxera and Grape Industry Board of South Australia).
WFA and AWBC (2000), *The Marketing Decade: Setting the Australian Wine Marketing Agenda 2000-2010*, Adelaide: Winemakers Federation of Australia and Australian Wine and Brandy Corporation.
WGCSA (2009), "Australian Wine Industry Winegrape Oversupply – Structural Adjustment Wine and Grape Sector Collaborative Response", Discussion Paper, Wine Grape Council SA, Adelaide, February.
WGGA (2009), "Submission to the Parliamentary Inquiry into Agribusiness Managed Investment Schemes," Adelaide: Wine Grape Growers Australia, June.
WHO (2023), "No Level of Alcohol Consumption is Safe for Our Health", Geneva: World Health Organization news release, 4 January. www.who.int/europe/news/item/04-01-2023-no-level-of-alcohol-consumption-is-safe-for-our-health
Williams, S., R. Pattinson, C. Wilcox and A. Ball (2018), *Independent Performance Review of Wine Australia,* Creswich, Vic.: Forest Hill Consulting, November.
Wine Australia (2022), *Australian Wine: Production, Sales and Inventory,* Adelaide: Wine Australia, November.
Wine Australia (2023a and earlier), *Annual Report,* Adelaide: Wine Australia.
Wine Australia (2023b and earlier), *SA Winegrape Crush Survey*, Adelaide: Wine Australia, July (from 2015, based on data from Vinehealth Australia).
Wine Australia (2023c and earlier), *Australian Wine: Production, Sales and Inventory,* Adelaide: Wine Australia, November.
Wine Australia (2024a), *Australian Wine Market Insights Report,* Adelaide: Wine Australia, January.

Wine Australia (2024b), *Post-pandemic Wine Consumption Trends in the US Market,* Adelaide: Wine Australia, May.
Wine Australia (2024c), Independent Performance Review (July 2019 to December 2022) – Wine Australia Response, Adelaide: Wine Australia, January.
Wine Australia (2024d and earlier), *National Vintage Report,* Adelaide: Wine Australia, July.
Wine Australia (2024e), *One Grape & Wine Sector Plan*, Adelaide: Wine Australia, 2 August (forthcoming).
Winetitles (2024 and earlier), *Australian and New Zealand Wine Industry Directory,* Adelaide: Winetitles.
Wittwer, G. and K. Anderson (2020), "A Model of Global Beverage Markets", *Journal of Wine Economics* 15(3): 330-54, August 2020.
Wittwer, G. and K. Anderson (2021), "COVID-19 and Global Beverage Markets: Implications for Wine", *Journal of Wine Economics* 16(2): 117-30, 2021.
Wittwer, G. and K. Anderson (2021), "COVID-19's Impact on Australian Wine Markets and Regions", *Australian Journal of Agricultural and Resource Economics* 65(4): 822-47.
World Bank (2024), *World Development Indicators database,* Washington DC: World Bank.
Zhao, X. K. Anderson and G. Wittwer (2003), "Who Gains from Australian Generic Wine Promotion and R&D?" *Australian Journal of Agricultural and Resource Economics* 47(2): 181-209, June.