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Globalization and National Commodity Cycles: The Case of Australia

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Globalization and national commodity cycles: The case of wine in Australia

[Short running title: Australia's latest wine industry cycle]

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Globalization and national commodity cycles: The case of wine in Australia

Abstract

Globalization may have reduced but certainly has not eliminated differences in national commodity cycles. This article examines the case of Australia's wine industry. Over the past four decades, all annual indicators of that industry's international competitiveness have traced a steep inverted V. This paper draws on recently compiled data to first summarize such indicators and contrast them with those of other key wine-exporting countries. It then offers a series of partial explanations for the industry's sharp rise and then equally steep fall in its international competitiveness (and its several bumps along the way). The New Zealand and Californian wine industry's prolonged expansions in particular are contrasted with Australia's. Despite the current downturn in the industry's fortunes, and notwithstanding the likelihood of further boom-slump cycles in the decades ahead, the paper concludes that a return to profitability is possible if vignerons and wine exporters were to raise their current rates of investments in R&D, quality improvements and promotion, and if the AUD remains relatively weak.

JEL Classifications: D12; F15; L66; N10

Keywords: boom-plateau wine cycles; intersectoral and international competitiveness; comparative advantage; wine trade specialization and bilateral concentration

1. INTRODUCTION

Long-run cycles in international commodity markets are normal, with demand shocks strongly and increasingly dominating supply shocks in affecting their prices (Jacks and Stuermer 2020). That affects the external terms of trade for commodity-exporting countries, but each such country may have additional domestic forces also altering the profitability of one or more of their primary industries. Globalization – characterized by declines in costs of trading across national borders, whether due to falls in international transport costs or in governmental restrictions on trade – has the potential to be able to reduce the amplitude and duration of such cycles. Through raising the global volume of production that is exported and of consumption that is imported, globalization ‘thickens’ a product's international market and thus increases its capacity to absorb often-offsetting shocks from the various national markets. Globalization also raises the prices received by exporters and lowers those paid by importers of a commodity, leading to across-country convergence of domestic prices of each commodity toward the price in its international market. Even so, country-specific forces can still lead to differing national commodity cycles.

Wine provides an interesting case study because it is a highly differentiable product and it is subject to both weather shocks and consumer preference changes. Weather shocks (and hence climate change) can alter the quality as well as quantity produced; and consumer fashions can drift from red to white wines and back again or even toward or away from particular winegrape varieties. For example, red's share of global wine consumption fell from 51% to 48% in the first two decades of this century as demand moved toward still whites plus

rosé and sparkling wines, notwithstanding rapid growth in red wine consumption in China (OIV 2023). Also, global demand for low-quality wine has shrunk in recent years, adding to the five-decade decline in wine's share of the global volume of alcohol consumption.

Demand shocks are especially problematic because wine is based on a capital-intensive perennial crop, so any desired change to the varieties produced is both costly and slow to implement. But the impact on producers of changes in domestic demand diminishes as the national industry becomes more export-oriented. That might suggest national wine industries are now less likely to have national cycles over and above those caused by international price changes, because the recent globalization wave has caused wine to transition from being one of the crop-based products least traded internationally to one that is now heavily traded across national borders: the share of global wine production being exported rose from 10% in the 1960s to 15% in the 1980s, to 30% by 2006 and to almost 45% by the early 2020s (Anderson, Norman and Wittwer 2003; Anderson and Pinilla 2018, 2024).

Australia provides a particularly interesting wine case study, for two reasons. One is because it transitioned from exporting less than 2% of its wine production in the early 1980s to exporting 68% by 2010 – notwithstanding an almost quadrupling of its volume of wine production over that time. Secondly, the average prices of both its bottled wines and its bulk wines have closely followed their global averages this century, making them representative of global trends – yet Australia's share of the global value of wine exports, which rose from 0.1% in the early 1980s to 10% by 2005, plummeted to below 6% in 2012 and to 3% by 2023. That sharp inverted V-shaped development in its international competitiveness over four decades makes clear that globalization and national openness has not been enough to prevent another severe cycle for that country's wine industry.

The present paper seeks to understand this extraordinary latest cycle in Australia's wine competitiveness. It first presents newly compiled facts to describe what happened to the industry during this cycle's boom and then slump. Those facts reveal that Australia's wine export competitiveness grew faster than that of other key countries until the mid-2000s, then steeply reversed, then accelerated again in the latter 2010s (and so looked to have ended its fifth cycle when a paper by Anderson (2018) was published), then reversed once more in the first half of the 2020s. This suggests additional forces have been affecting Australia's wine industry over and above those affecting global wine markets generally, in both its upswing and downswing phases.

Second, the paper explores several key contributors that help explain Australia's exceptionalism in terms of its up and then down in net export performance over the past four decades. They include both country-specific short-term (positive and negative) shocks along the way as well as longer-term structural changes. These are additional to the global forces that have at the same time made life difficult recently for vignerons in virtually all wine-exporting countries. In particular, the paper focuses on a number of historical forces that have been accused of making Australia's current crisis so severe. They include the 30-year strategic plan launched in 1996 called *Strategy 2025*, the rapid 1990s expansion of the largest wineries into the warm inland regions, Managed Investment Schemes and other tax concession in the 1990s, the creation and spectacular growth in exports of [yellow tail] and other 'critter' wine labels from the early 2000s, and economic/business immigration policies that encouraged investments targeted specifically at the Chinese market in the 2010s.

Third, after contrasting the developments in Australia with New Zealand's and California's, the paper briefly points to possible actions that might be taken by producers and governments to improve the industry's prospects. The country's international competitiveness at the turn of this century was not unlike that in the latter half of the world's first globalization wave prior to World War I, commensurate with the country's ideal wine-

growing environments. So despite the current downturn in the industry's fortunes, and notwithstanding the likelihood of further boom-slump cycles in the decades ahead, the paper concludes that a return to profitability is possible and more so (potentially even at its current size) if vignerons were to raise substantially their current rates of investments in R&D, quality improvements and promotion and if the Australian dollar remains relatively weak.

2. FACTS WORTHY OF EXPLANATION

One way to focus on the industry's competitiveness is inter-sectorally within Australia. That can be done by comparing viticulture with other cropping (the share of national crop area that is planted to vines), and wine production against all sectors' production (the latter measured as real GDP). Between 1986 and 2023, those indicators suggest a major increase and then decrease in this industry's intersectoral competitiveness, both within the crop sector and vis-à-vis all sectors of Australia's economy (Figure 1). The vine bearing area indicator (which has been used to define the boundaries of each cycle) peaked in 2007; the wine production indicator peaked in 2004.

[Insert Figure 1 around here]

The way to gauge the industry's changing *international* competitiveness is to focus on international trade data. Four easy-to-measure comparative indicators are (i) the volume and value shares of national wine production exported and national wine consumption imported, and thus self-sufficiency ratios, (ii) the national share of the value of global wine exports, (iii) the nation's 'revealed' comparative advantage index, defined by Balassa (1986) as the value share of wine in national merchandise exports relative to that share globally, and (iv) the value per capita of wine exports net of imports.

In volume terms the share of national wine production exported rose up to 2010 far more rapidly than the share of national wine consumption imported, and then those shares began to converge. When expressed in value terms, the share of national wine production exported peaked in 2007 and then converged even more rapidly on the value share of national wine consumption imported (Figure 2(a)). The difference between the two lines in each pair is due to average wine prices/qualities differing across markets. (Since production is weather-dependent and the time between production and sale can range from just a few weeks to two or more years, these percentages are shown not annually but as three-year averages to the year shown.) A way to combine the effects of competition from abroad in Australia's domestic market and in its overseas markets is to generate a wine self-sufficiency indicator, which is production divided by domestic consumption expressed as a percentage (Figure 2(b)).

[Insert Figure 2 around here]

Three other trade-focused measures are reported in Figure 3, each of which also indicates a dramatic rise from the mid-1980s to the mid-2000s and then an almost equally dramatic fall in the international competitiveness of Australian wine producers. The last of those three (the per capita value of wine exports net of imports) captures in one statistic not only export performance but also the industry's capacity to compete domestically with import competition. That value rose from slightly below zero in the mid-1980s (imports exceeding exports) to US\$100 in 2007, before falling to US\$45 by the mid-2010s and US\$23 by 2023.

[Insert Figure 3 around here]

As Australia's wine exports grew relative to production, export prices became the key determinant of winegrape prices paid to growers. Averages of those prices are shown in Figure 4 (in AUD here and throughout as \$, unless otherwise indicated as with NZ\$ or US\$). Those two prices rose steadily in the 1990s, and both peaked in 2001. Yet the vine bearing area continued to increase until 2008. It was production from those new and expanding

vineyards that allowed exports to keep growing (and trade competitiveness indicators to keep rising) for several years after the AUD price peaks. This delayed reaction by growers in the 2000s also needs explaining.

[Insert Figure 4 around here]

Lastly on facts, the recent 5th boom in Australia's wine industry, 1986 to 2007, was nearly twice as long as the average of its four previous booms (21 versus 12 years). So far the current slump has persisted for 17 years. That is still shorter than the average for the four previous slumps, of 21 years (Anderson 2015), but there is no sign yet of the current slump ending.

3. CONTRIBUTORS TO THE INDUSTRY'S INVERTED V-SHAPED DEVELOPMENT SINCE 1986

With only two decades of annual data for each of the two sub-periods of interest, time series econometrics is unable to be employed to estimate the relative importance of changes in various exogenous variables in changing the industry's international competitiveness. Instead, this section is confined to noting trends in potential key explanatory variables affecting net exports. They include the US\$ prices of wines exported (and imported) by Australia and the AUD/US\$ exchange rate, which are expected to be the main determinants of the AUD prices wineries are willing to pay for various winegrapes. The area harvested and winegrape yield (tonnes per hectare) in turn depend on what growers expect the price of their winegrapes to be. With that in mind, this section seeks to answer the following questions:

- Why did AUD prices of wine exports and winegrapes rise between 1986 and 2001?
- Why did those prices begin to fall after 2001?
- Why did the vine bearing area and winegrape crush continue to increase to 2008?
- Why did the value of net exports shrink after 2007, especially to the US?
- With further price declines during 2007-12, why was there little supply adjustment?
- What impacts did exchange rate changes and Chinese demand have in the 2010s?
- Why in the mid-2020s is there again a crisis requiring adjustments?

In addressing these questions, a qualitative assessment also is made of the relative strength of forces that have been accused of causing the current crisis. They include the 30-year strategic plan launched by industry leaders in 1996 (*Strategy 2025*), the rapid expansion of the largest wineries into the warm inland regions in the 1990s, Managed Investment Schemes and other tax concessions for investors, the creation and spectacular growth in exports of [yellow tail] and other 'critter' wine labels from the early 2000s, and economic immigration policies that encouraged investments targeted at the Chinese wine market in the 2010s.

3.1 Why did AUD prices of wine exports and winegrapes rise between 1986 and 2001?

The current cycle's boom began when AUD prices for Australian wine exports began to rise from 1986, a rise that continued until 2001 (Figure 4). Much of that was due to an appreciating AUD. But even in US\$ terms the export prices of both bottled and bulk still wines from Australia were well above the world averages until 2001 (Figure 5(a)).

[Insert Figure 5 around here]

The initial wine export growth that was stimulated by rising price was made possible by depleting excess stocks. Those stocks had accumulated while domestic consumers were reducing their wine consumption following the introduction of a wine excise tax announced in the 1984 Federal 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.

Although the AUD/US\$ exchange rate temporarily appreciated in the late 1980s, it then declined through to 2001 (shown inversely in Figure 6). That decline, together with initially low domestic prices for premium red winegrapes (following a domestic preference swing from the mid-1970s toward white wines), incentivized wineries to begin investing in developing overseas markets for Australian wine.

[Insert Figure 6 around here]

Other factors expanding demand abroad for Australian wine from the late 1980s 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 too: 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 and its replanting of vines following a phylloxera outbreak.

Another contributor to this early interest in export growth was increasing concentration in the corporate ownership of Australia's wineries: that 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. It also helped them establish sales offices abroad rather than relying on foreign distributors. The large volumes of grapes grown and purchased by these firms from numerous regions enabled them in the 1990s, through blending, to produce large volumes of consistent, popular commercial wines for specific markets abroad. That suited perfectly those who shopped in the large UK supermarkets, for example.

Initially the UK dominated the purchasing of Australia's new wine exports, as its per capita consumption of wine was rising rapidly (from 3 litres in 1970 to 6 in 1980, 11 in 1990 and 15 litres by 2000). By the mid-1990s, more than half the gross value of Australian wine export earnings were coming from the UK. This was three times the UK's share of the value of global wine imports (Figure 7). The intensity of that bilateral trade was further helped by the signing in 1994 of the Australia-EU Wine Agreement, which liberalized barriers to trade in wine between Australia and the UK.

[Insert Figure 7 around here]

Also 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 US 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 7). Australia's annual exports to the US 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. Furthermore, in the early 2000s, more than half of Australia's rapidly expanding exports to the US were priced above \$5/litre. So it is not surprising that the largest wineries sought to benefit from that opportunity by offering lucrative contracts to growers.

3.2 Why did AUD prices of wine exports and winegrapes begin to fall after 2001?

With demand for Australian wine still strong in the new millennium, its average export price remained fairly constant in US dollar terms through most of the 2000s; but it began to slip relative to the rising world average price through to 2008 (Figure 5(b)).

The key reason for the fall after 2001 in AUD prices, shown in Figure 4, was the real appreciation of the AUD (due to the massive expansion in China's demand for Australia's mineral and energy raw materials). Between 2001 and 2012, Australia's real effective exchange rate 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%). For the 25 years from 1997 to 2021, the US\$ exchange rate in particular has been very closely correlated with the AUD price of Australia's wine exports (Figure 6), consistent with the fact revealed in Figure 5(b) that that average price in US\$ terms remained fairly constant through the 2000s.

Australia's mining boom drew resources away from most other sectors producing tradables, and it lowered the AUD price of importables including wines (Freebairn 2015). The consequent surge in wine imports was particularly sharp from New Zealand 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 wines sold in Australia. This added considerably to the decline in Australia's wine self-sufficiency (Figure 2(b)), especially of white wines since almost all imports from New Zealand were Sauvignon Blanc.

With several other New World countries beginning to emulate the Australian export-led experience (Figure 3) and experiencing less real appreciation of their currencies, Australian exporters began to face increasing competition in its export markets through the 2000s (Anderson and Wittwer 2013).

3.3 Why did the vine bearing area and winegrape crush continue to increase to 2008?

Australia's average AUD prices of both wine exports and winegrapes, having peaked in 2001, fell considerably over the next decade or more (Figure 4), so why did the vineyard bearing area and the value of exports net of imports continue to rise until 2008?

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).

Booms that attract new investors who are less than fully aware of the cyclical nature of perennial crop production typically lead to excessive supplies and low prices a decade or so later, after which the required negative supply response is slow in coming because of the fixed nature of the capital invested, especially for perennial crops such as grapes.¹ And as often happens with booms, many people along the value chain (including newcomers to the industry) see short-term income-earning opportunities and thereby contribute to the excessiveness and prolonging of investor exuberance. The largest wine companies

¹ 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).

encouraged investment by being among the first to plant large new vineyards in the warm inland irrigated regions from the mid-1990s, some of which they then sold at high 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.

In addition, two important reports were published in 1995/96 that affected production decisions. The first is 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 Commission 1995). That first 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 their *Strategy 2025* document a year later (AWF 1996). That second report included targets the authors believed to be achievable over the 30 years to 2025. Yet the half-way points of many were achieved within just five years.

Some have argued that the *Strategy 2025* document was the main generator of excessive exuberance among investors. But enthusiasm was already being fueled by hikes in the prices of Australian winegrapes in the 1990s: 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 4). The price rises in the 1990s stimulated a tsunami of vine plantings: the total area of vines (including non-bearing) rose from 63,000 hectares in 1993 to 120,000 by 2001 and to a peak of 168,000 by 2008 (Anderson and Puga 2023).

Investment was also encouraged by two provisions in income tax law that attracted new investments, including from outsiders to the industry. The first was accelerated depreciation of vineyard establishment expenses from 1993. It 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 was of most benefit to individual investors whose other income put them on a high income-tax bracket.

The second income tax provision that stimulated vineyard investments is one that drew in funds from outside the wine industry via so-called Managed Investment Schemes (MIS). A key feature of an agricultural MIS is that up-front costs of establishing the activity were 100% deductible for investors' income tax purposes, which made them very attractive for those in the highest income tax bracket. According to WGGGA (2009), such schemes were responsible for perhaps 16,000 hectares of new vineyards planted in the 1993-2008 growth period, but that is just 15% of the 105,000 hectare expansion of the bearing area over that period. The MIS projects typically focused on developing large-scale vineyards.

The two 1995/96 reports, plus the investment incentives provided by the two income tax concessions, contributed to expanding vine area plantings and thus (with a delay) the national winegrape crush in both warm inland regions and elsewhere. The warm inland regions' vine area rose slower than that of cooler regions, such that their share of the national winegrape bearing area gradually fell from just over 50% in the mid-1990s to just under 40% by 2010. As their winegrape prices fell from 2001 though, yields in these regions were gradually raised – in contrast to cooler regions, where yields were gradually being lowered to raise quality. As a result, the warm inland regions' share of Australia's crush volume rose from just under 60% at the turn of the century to above 70% in the 2010s.

3.4 Why did the value of net exports shrink after 2007, especially to the US?

Optimism among Australian wine industry investors in all regions, still sky high in the early 2000s, was further boosted by US wine critic Robert Parker giving very high points to high-alcohol Shiraz wines from several South Australian wineries (Parker 2005). But in 2007-08 the global financial crisis lowered US incomes and consumer confidence, such that the

US share in the value of Australia's wine exports shrank considerably from 2007. By the end of the 2010s the intensity of that bilateral trade had fallen back to below what it started at in the late 1980s (Figure 7).

A fall in exports to the US would have been expected given that California's winegrape area grew by 60% between 1992 and 2001, including of premium red varieties (Alston et al. 2018), and that its rapid growth continued into the 2000s. But the extent of the export fall was far greater than expected, for several reasons. One was the sharp recession in the US economy that sapped consumer confidence from late 2007. Another was a decline in interest by Robert Parker and other US influencers in premium Australian red wines. That was associated with the increasing popularity of Cabernet Sauvignon from Napa Valley at the expense of Shiraz – the variety that had been dominating Australian exports to the US. Moreover, since 2001 Australia's exports to the US have become increasingly dominated by [yellow tail] and similar 'critter' labels plus low-priced (<US\$1/litre) bulk wine.

As a consequence of these shocks, 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. Ironically, this was happening as the average price of premium Californian red wines was growing rapidly, notwithstanding an almost doubling of the winegrape bearing area in and hence wine supply from the cooler regions of California (Alston et al. 2018).

That shrinkage of premium wine in Australia's exports, while greatest to the US, was not confined to the US: the share of its exported wines above \$5/litre FOB fell from almost 40% in 2002 to barely 10% during 2010-14. So even though the average AUD price of wine exports sold above \$5/litre nearly doubled between 2007 and 2023, the weighted average price for all exports fell from more than \$5/litre in the early 2000s to less than \$3/litre during 2010-16 (Figure 4), thanks to the success of [yellow tail] and other low-priced 'critter' brands.

This change in exports to the US and elsewhere altered the position of Australia in terms of the average export prices: up to 2008, Australia's bottled wine prices were above the world average, but since then they have been about the same, and the proportion of Australian wine exported in bulk has been rising rapidly, from less than 20% in 1996-2004 to almost 70% by 2023. Since bulk's share of global exports has remained in the 25-40% range, this rapid transition to bulk in Australia has contributed to the considerable lowering of its average export price relative to the rest of the world's (Figure 5(b)).

3.5 With further price declines during 2007-12, why so little supply adjustment?

Winegrape prices halved over the ten years to 2011,² and the knock to Australians' consumer confidence following the global financial crisis reversed the growth in domestic wine consumption per adult, just as it did in the latter 1980s. By the late 2000s the industry considered itself in a crisis. In South Australia's Riverland (the country's largest wine-producing region), for example, the average net incomes of both small and medium-sized growers had become negative and that of large producers was one-tenth of what they enjoyed a decade earlier (Figure 4 in Tingey-Holyoak et al. 2024). Gross revenue per hectare more than halved over the 2000s decade, and the national stocks-to-sales ratio for red wine rose rapidly during 2010-14 such that it was difficult for growers to find a buyer for uncontracted red grapes (Figure 8).

[Insert Figure 8 around here]

The industry's lead organizations had foreshadowed as early as the turn of the century that oversupply problems were likely as new plantings came into production, and by the end

² The temporary spike in winegrape prices in 2008 was in response to the drought-induced small crop in 2007.

of the 2000s drastic structural adjustments were being called for (e.g., WGCSA 2009). Yet Figure 4 shows that even by 2015 the national bearing area had declined only 16% from its 2008 peak, and in the Riverland there has been almost no area reduction since 2010 (Anderson and Puga 2023). One reason the Riverland growers did not downsize was because of a long-term (and still on-going) contract between CCW (the country's largest grower cooperative) and the major winery Accolade, whereby the latter agrees to buy whatever the CCW growers deliver.

Meanwhile, yields continued to rise in warm inland regions to compensate for their falling grape prices, exacerbating the surplus problem. They did so to the extent that the warm inland regions' gross revenues per hectare kept pace with those in cooler regions from 2007 and rose steadily in the 2010s.

Another reason for some growers in warm inland regions to not contract was the emergence of a successful new low-priced brand. 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, which slowed the fall in warm inland regions' winegrape prices. Wine Intelligence rated it the world's most-powerful wine brand in 2018, 2019, 2020 and 2021.

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, particularly in the US. 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, not only in the US but also in the UK and Germany (Figure 9).³

[Insert Figure 9 around here]

3.6 What impacts did exchange rate changes and Chinese demand have in the 2010s?

After 2012 the AUD began to weaken and the AUD prices of exports and winegrapes began to rise (Figure 4). That was also when wine demand in China began to take off and, luckily for Australia, almost exclusively for red wines. China's imports grew rapidly even though its domestic wine production was also expanding (Figure 10(a)). That contributed to the average price of Australia's winegrapes rising by 50% in that decade. Australia benefitted disproportionately following the signing of the Australia-China free trade agreement (FTA) in January 2015. That was the main reason for nominal prices of Australia's red winegrapes rising between 2015 and 2020, and for the wine stock-to-sales ratio falling in the second half of the 2010s (Figure 8).

[Insert Figure 10 around here]

A new group of investors was attracted to the industry by the growth in China's wine import demand. A large proportion of them were Chinese immigrants, enticed by Australia's generous business migration schemes. A person with at least \$1.5 million to invest can relatively easily obtain a visa leading to permanent residence, so numerous people from China set up wine businesses in Australia in the latter half of the 2010s. According to Oliver (2023), this avenue accounted for around half of Australia's revenue from exporting wine to end-2020. Those investors contributed to the considerable expansion in the area of winegrapes in Australia's cooler regions. Other new Chinese-owned businesses were grape-buying wineries, and still others were buying bulk wine to export to partners in China (in some cases bottling it in Australia before shipping it). The number of Australian wine-exporting firms more than doubled between 2015 and 2020. Virtually all of those new firms

³ \$5/litre FOB export translates to about US\$10 and £11 per 750ml bottle retail in the US and UK markets. Figure 9 is in nominal terms, meaning that \$5 is a considerably lower bar now than it was early this century.

would have been focused on China, many of which may have been businesses encouraged by those immigration policies. Much of the exports to China were valued at more than \$5/litre, which led to a partial re-bounce in the volume of premium wine in the country's total exports.

The rapid growth in imports by China in the 2010s smothered all thoughts of shrinking the supply base – until COVID struck in 2020 and then China imposed punitive tariffs on wine imports from Australia at end-2020, by which time it was starting to become evident that overall wine consumption in China had begun shrinking dramatically.

3.7 Why in the mid-2020s is there again a crisis requiring adjustments?

COVID raised ocean shipping costs and delivery times hugely, in extreme cases doubling what would have been the landed price of bulk wine sent from Australia to Europe or North America. Potential exporters of bulk wine delayed buying and shipping, pending a drop in such high freight costs. That was one of the contributors to the sharp upward spike in the wine stock-to-sales ratio in 2020-22 (Figure 8).

Another contributor to that spike in stocks was the decline in domestic sales. COVID lockdowns including at cellar doors contributed to a 12% decline in Australia's per capita wine consumption between 2020 and 2022. This was despite an 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. The decline in Australia's consumption was somewhat larger than in the UK and Canada (each 10%), US (8%), France (7%) and Germany (6%), according to Wine Australia (2024a).

But by far the biggest disruptions of late to Australia's wine export sales have to do with China. 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. Even though China's domestic production of wine has been shrinking, the annual volume of its wine imports declined by two-thirds between 2017 and 2023 (Figure 10), and China's global shares (a) of the value of wine imports halved from 8% to 4% and (b) of the volume of wine consumption fell from 7% to 2%.

COVID lockdowns and the associated slowdown in Chinese income growth explain only a part of China's declines in global market shares, 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 Xi also discouraged consumption of exotic/imported goods (Anderson 2023a).

Worse than that for Australia, China's imports of Australian wine virtually ceased from late 2020, thanks to the almost-prohibitive tariffs (up to 212%) China imposed on them. Following that tariff hike, the value of Australia's total red wine exports fell 37% in 2021 and another 7% in 2022; and by 30 June 2023 the stock-to-sales ratio for reds peaked at 2.6, way above its 2010s average of 1.6 (Figure 8). The number of firms exporting Australian wine, which had more than doubled between 2015 and 2020, more than halved by 2022.

As soon as those tariffs were imposed on Australia, France and Chile began raising their share of that shrinking market for imports (Figure 10(b)).

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). 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 in third-country markets. Yet in 2023 even 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. That ended the relentless decline in the prices of bulk red wine in Australia, which had fallen from an average of 87% of the price in California during 2018-20 to just 22% in March 2024 before rising to 34% in July 2024 (Ciatti 2024 and earlier).

Unfortunately, removal of China's punitive tariffs is not immediately shrinking Australia's over-supply of red wine. An unknown fraction of the wine exported in the early 2020s was still in warehouses in China in mid-2024, waiting to find buyers. Hence the prices of red winegrapes in Australia's continued to fall in 2024 and are projected to fall further in 2025 in warm inland regions (Figure 11). Even that is an understatement of the fall in demand because an increasing share of the crop in those warm inland regions was dropped to the ground or left on the vine in 2023 and 2024, because the uncontracted spot prices for red grapes were as low as \$150/tonne.

[Insert Figure 11 around here]

3.8 Summary

While Australia's fifth wine industry cycle boomed for 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. Despite several 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 downturn in consumption following the global financial crisis (GFC) of 2007-08, 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 red wine output from California's premium regions, the recent dramatic 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 on sales. As if that were not enough, geo-political tensions since 2023 have further sapped consumer and investor confidence and disrupted logistics. That, the GFC, the decline in demand in China, and COVID all affected other wine-exporting countries too, but the other influences, plus its more-extreme exchange rate changes, additionally affected Australia.

As for the relative strengths of the various forces that have been accused of causing the current crisis, it is clear that the 30-year strategic plan launched in 1996 (*Strategy 2025*), the rapid expansion of the largest wineries into the warm inland regions and the Managed Investment Schemes and other tax concession in the 1990s had a combined positive impact on the huge expansion in Australia's wine production in the dozen or so years to 2008. However, considerable expansion in any case would have happened given the large increase in the AUD prices of wine exports and hence winegrapes between 1986 and 2001 (Figure 4). The creation and spectacular growth in exports of [yellow tail] and other 'critter' wine labels from the early 2000s lowered the share of Australian exports priced above \$5/litre, especially to the US, but it prolonged the period of positive net incomes for commercial winegrape growers in the warm inland regions. More recently, Australia's economic immigration policies encouraged investments targeted at the Chinese wine market in the latter 2010s. The number of wine-exporting firms more than doubled between 2015 and 2020, but that number then more than halved over the next two years, according to Wine Australia.

4. COMPETITIVENESS OF NEW ZEALAND (AND US) VERSUS AUSTRALIA

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 on the one hand and, on the other, 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 3(b)), in value of net wine exports per capita in 2007 (US\$102 vs \$100, see Figure 3(c)), and in the share of the volume of wine production exported in 2010 (83% vs 68%); and it exceeded Australia's share of the value of world wine exports in 2023 (3.7% vs 3.2%, see Figure 3(a)). 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 (Anderson and Pinilla 2024). Presumably New Zealand has benefitted from producing just one main variety that is sold within weeks of being produced and, for decades, has remained fashionable abroad and attracted a relatively high price.

In 2002 New Zealand's gross revenue per hectare of winegrapes in US\$ was almost the same as Australia's, but in 2022 it was more than three times greater (Figure 12(a)). This is despite the fact that both countries' average export prices in US\$ terms have declined at similar rates since 2008 (Figure 12(b)), implying yields on average have increased faster in New Zealand. 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 and relatively few storage costs before sale). New Zealand's export price and hence winegrape price fell following the global financial crisis the same as did Australia's during 2008-11, but since then New Zealand's winegrape and export prices in NZ\$, and hence its bearing area, have continued to climb (Figure 13(a)) even though its export price in US\$ has been trending slightly downward like Australia's (thanks partly to a rise in the share of its exports transported in bulk).

[Insert Figures 12 and 13 around here]

Incidentally, while the United States is a net importer of wine, it nonetheless exports wine and its average export price has been rising since the early 1990s, and so has California's winegrape price and bearing area (Figure 13(b)) and California's gross revenue per hectare of winegrapes (Figure 12(a)). These trends too contrast with Australia's inverted V. A possible explanation for its comparative success is the faster pace of its centre of gravity moving to cooler regions, and hence likely premiumization (Figure 8).

As part of its success, New Zealand has deeply penetrated the Australian market for white wine. Indeed since 2008 Australia's imports of wine from New Zealand have greatly exceeded its wine exports to New Zealand (Figure 14(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 14(b)), 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.

[Insert Figure 14 around here]

5. WHERE TO FROM HERE?

There will always be excess capital invested in the wine industry during downturns because both vineyards and wineries have a long life, so a delay in selling them when returns are low is understandable if the owner expects good times to return soon.⁴ For small holdings in

⁴ 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 2024). They are averages over the period 2001 to 2023, thus incorporating both rising and falling winegrape prices. Had the time series been

particular, a more likely proposition is to sell to a more-efficient neighbour who can thereby reap greater economies of size. That would raise average productivity in the industry, but would not reduce its surplus, the disposal of which will have to await a decline in the recent high costs of ocean shipping of bulk wine from Australia.

Another way Australia's wine surplus could be reduced is through promotion to broaden geographically 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, Hong Kong and Singapore (Tables 1 and 2). Of the world's 25 largest wine-consuming countries, five of them do not appear in Table 2: Russia, Brazil, Switzerland, Norway and Finland. Russia is facing sanctions, but the other four might be considered candidates for closer attention by Australian wine exporters and promoters, together with three others where Australian exports are low relative to their market size: Ireland, Sweden and especially Germany. Longer term, the Gulf States, India and the fastest-growing of Africa's non-Muslim countries are worth keeping an eye on as their income growth generates potential new wine markets.

More generic promotion could complement and supplement firm marketing initiatives to boost aggregate demand in such additional markets alongside current key markets. And industry-wide investments in R&D – which have had very high rates of return (Wine Australia 2022-23 and earlier) – could add to firm efforts to boost productivity and quality. Levies are needed to fund such generic contributions though, as market forces alone would lead to under-provision of these services because of the free-rider problem of unregulated collective action (Olson 1965). A complex set of levies is already in place for funding these activities, primarily through Wine Australia, but there is much room for improving on that set through a levy review and reform process and a raising of levy rates (Anderson 2023b).

Currently there is a split in producer views over the extent to which such generic promotion and R&D 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 finer 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 a much bigger share of generic promotion and R&D efforts should focus on Australia's under-appreciated fine wine offerings.

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 current wholesale tax rebate (which subsidizes small wineries most) was to be removed. 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), and the same debate has recently resurfaced.

Those with that alternative view note that dropping Australian production even by as much as one-quarter – as some fine wine producers have suggested – would reduce global wine production by just 1%. 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 10% in 2005). True, if vine pulls were concentrated in the warm inland regions, that may open shelf space for higher-quality Australian wines in retail stores; but the latter wines would still have to compete with the rest of the world's for that shelf

long enough to estimate elasticities for those sub-periods separately, they would almost certainly have been even lower for the years of falling prices.

space. Hence the need to boost the country's marketing/promotion investments. However, increasing export sales in the current over-supplied global wine marketplace will likely be a challenge unless and until markets expand in the developing countries of Asia and Africa, especially if the current relatively low value of the AUD begins to appreciate again.

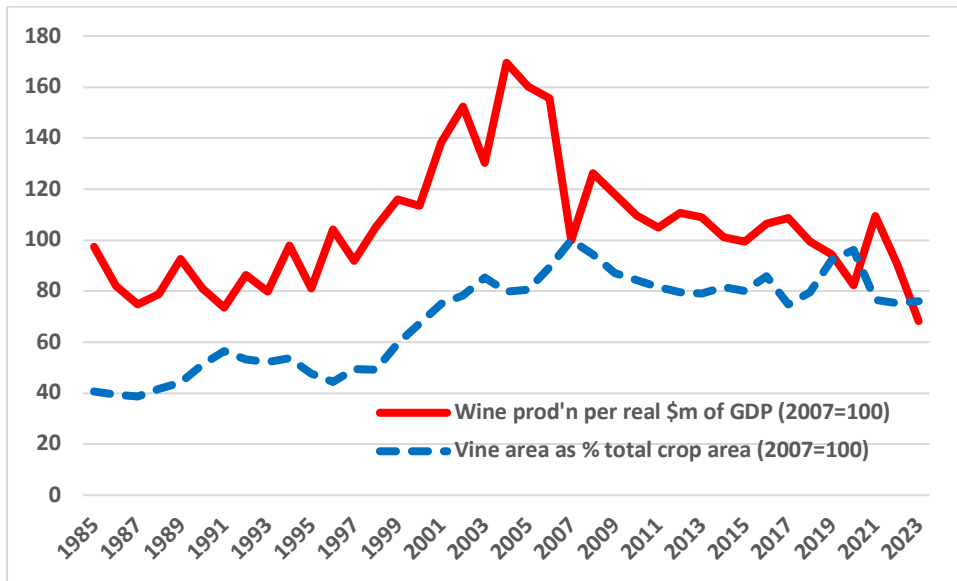
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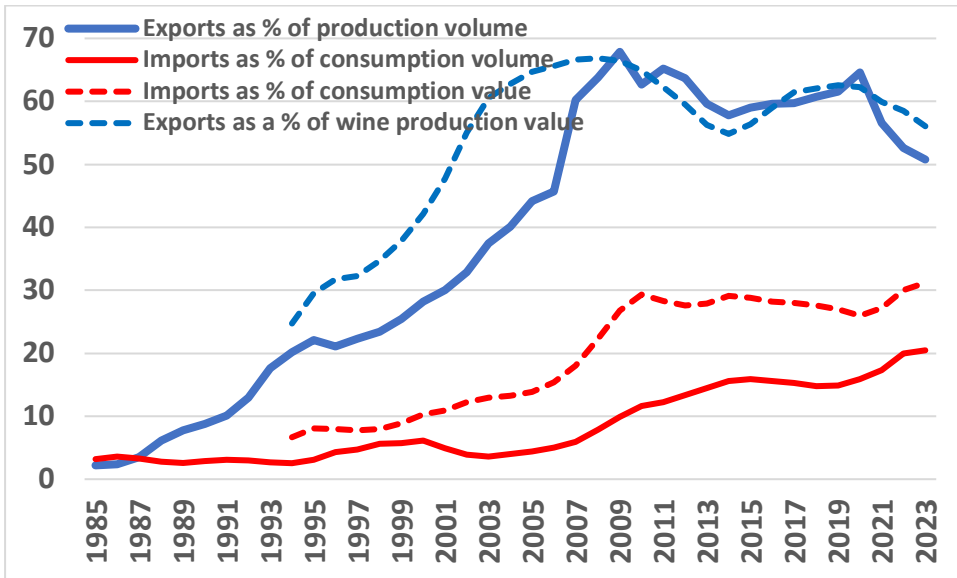
Figure 1: Vine area as a % of total crop area and wine production per \$ of real GDP, Australia (2007 = 100)



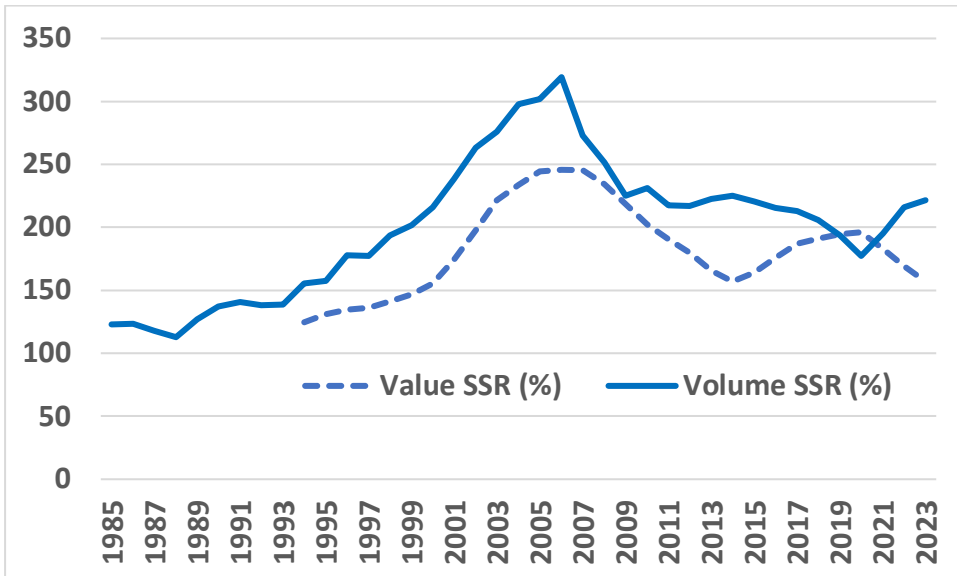
Source: Updated from Anderson (2015).

Figure 2: Exports as a % of wine production, imports as a % of wine consumption, and self-sufficiency, by volume and value, Australia (% , 3-year moving averages to year shown)

(a) Exports as a % of wine production and imports as a % of wine consumption



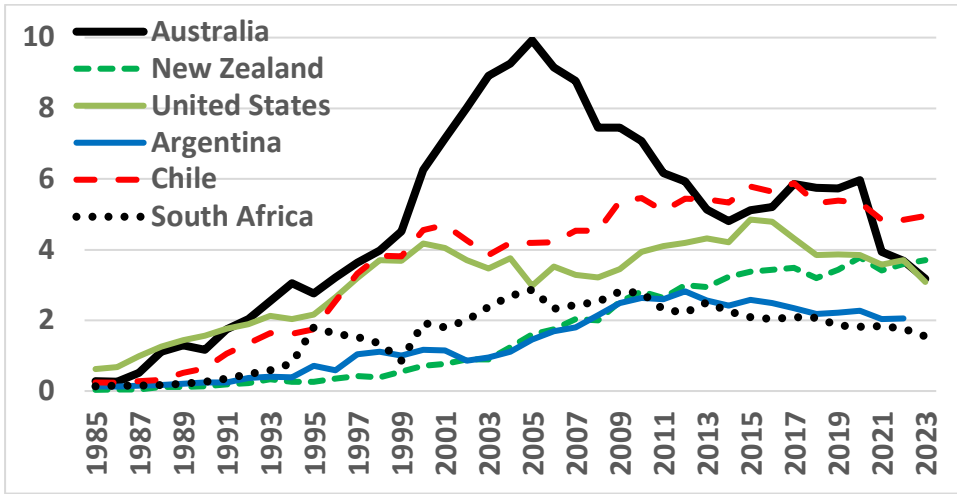
(b) Wine self-sufficiency, by volume and value (%)



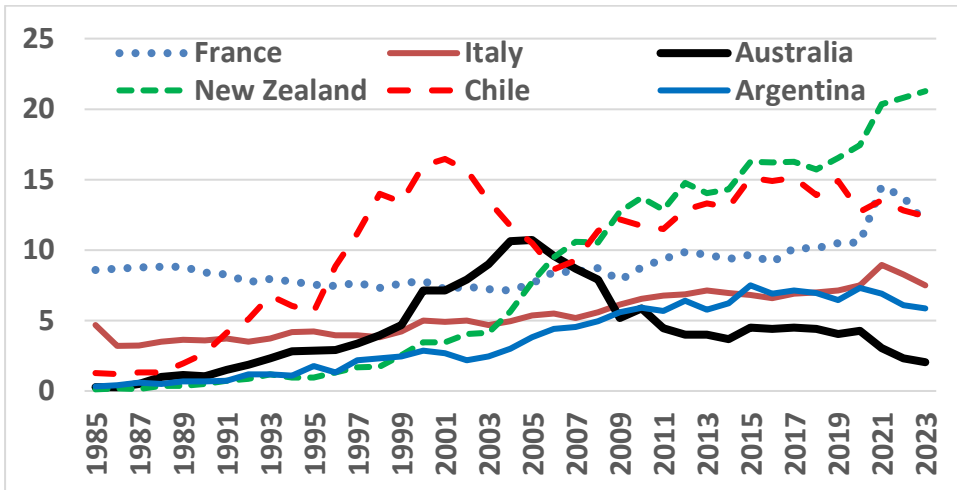
Source: Compiled from Anderson and Pinilla (2024) and Wine Australia data.

Figure 3: Indicators of export competitiveness, selected countries

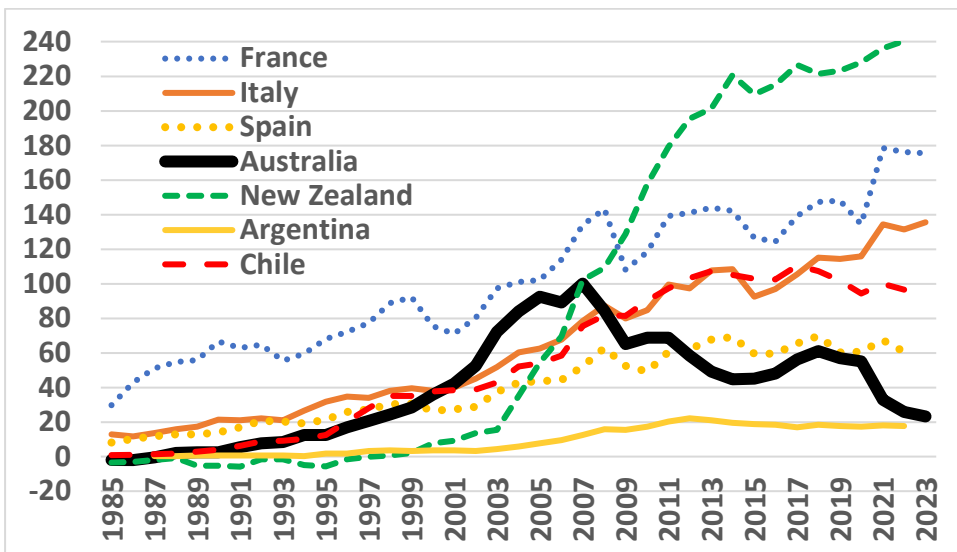
(a) Share of global wine export value (%)



(b) Index of 'revealed' comparative advantage in wine (world = 1)

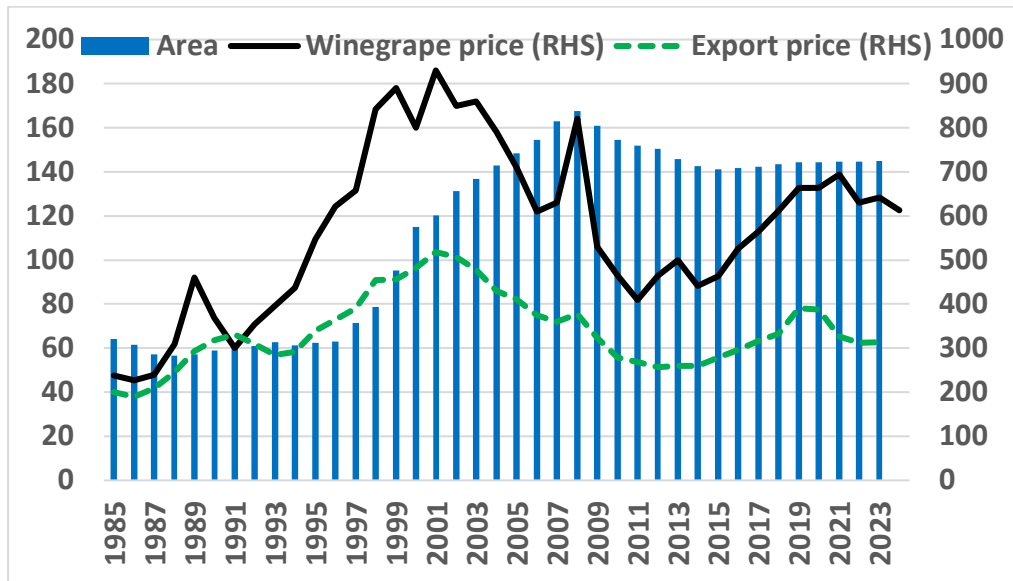


(c) Value per capita of wine exports net of imports, 1835 to 2022 (current US\$)



Source: Compiled from Anderson and Pinilla (2024).

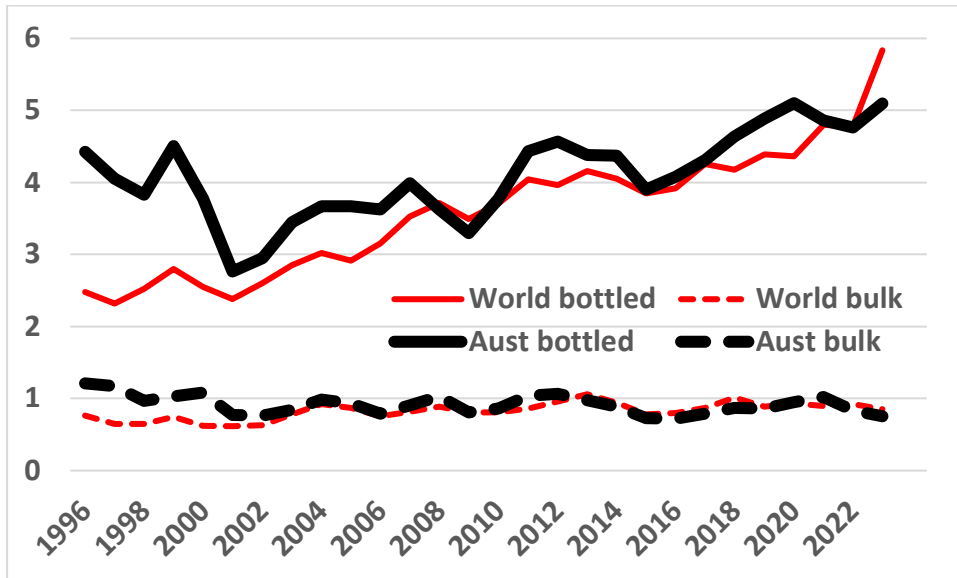
Figure 4: Vine bearing area, average winegrape price, and wine export price, Australia ('000 ha, \$ per tonne, and \$ per hectolitre)



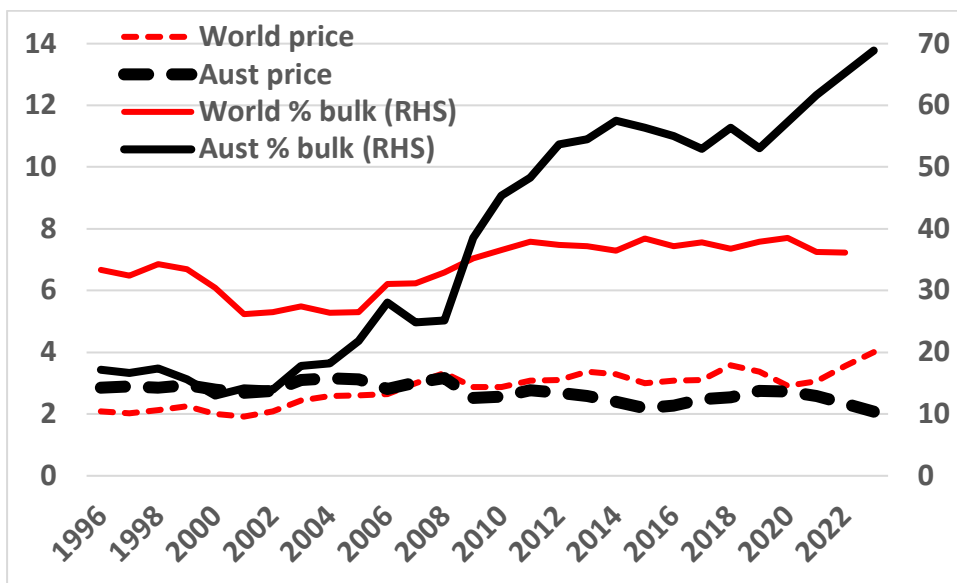
Source: Compiled from Anderson and Puga (2023).

Figure 5: Prices of exports of bottled, bulk and all wine, and share of volume exported in bulk, Australia and the world (US\$/litre and %)

(a) Prices of bottled and bulk wines (US\$ per litre)

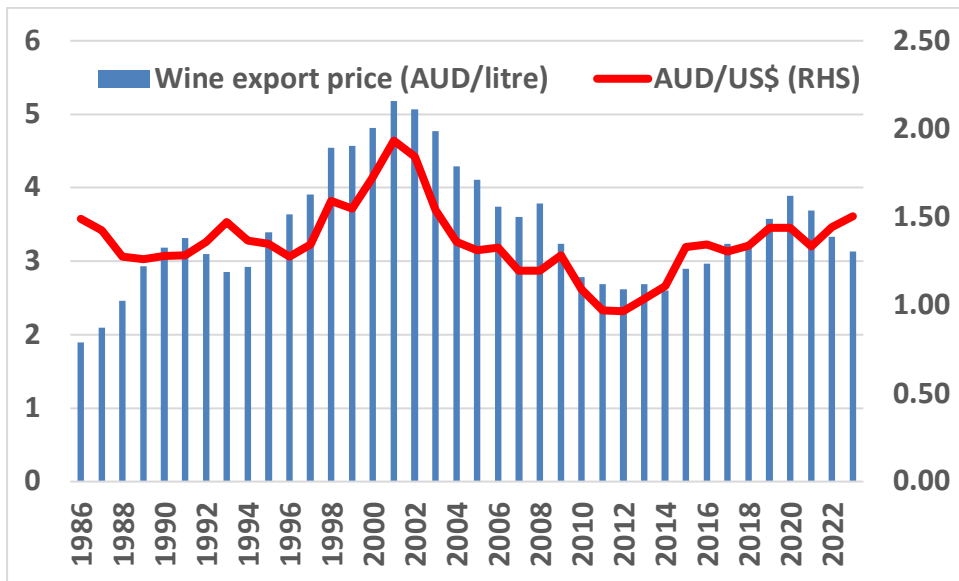


(b) Average price of all exported wine and % exported in bulk (US\$/litre and %)



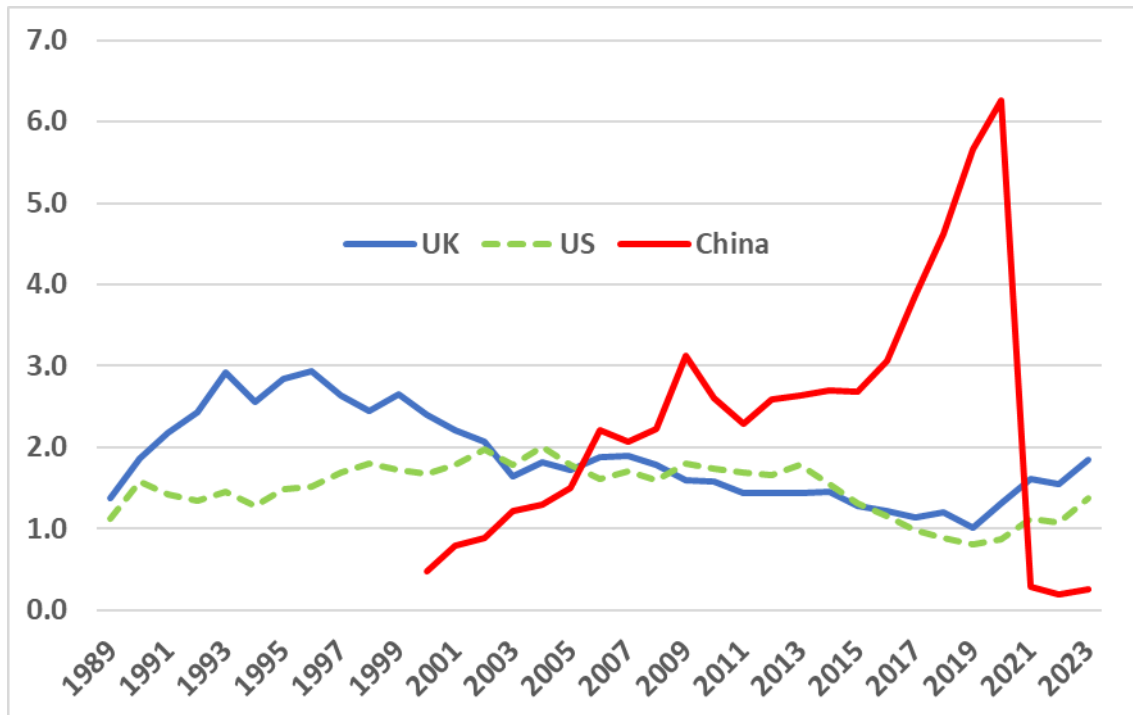
Source: Author's compilation from UN COMTRADE database.

Figure 6: Australia's wine export price (AUD/litre) and the AUD/US\$ exchange rate



Source: Anderson and Pinilla (2024).

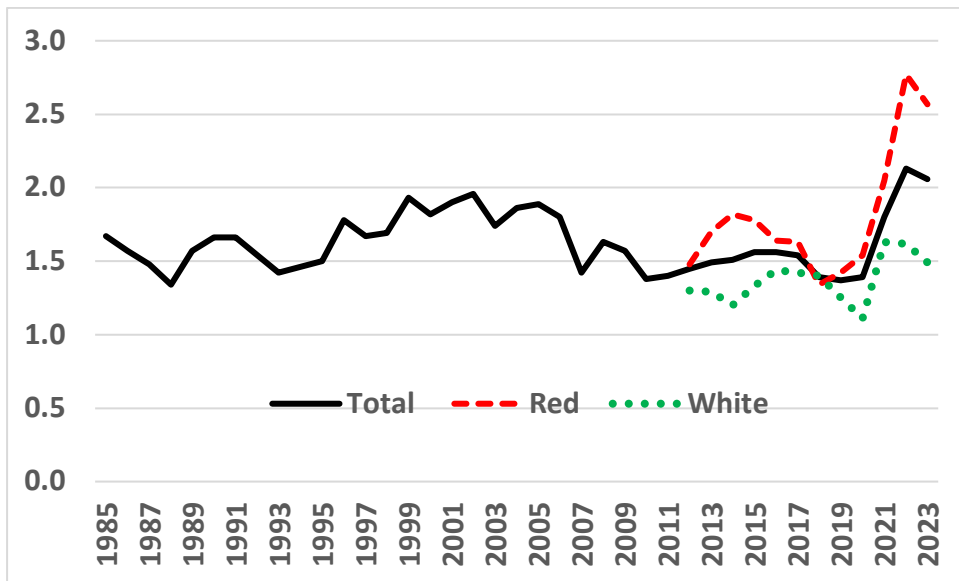
Figure 7: Wine trade intensity indexes by value,^a Australia's exports to the UK, the US and China



^a Share of the value of Australia's wine exports going to country j divided by country j's share of global wine imports.

Source: Author's compilation from UN COMTRADE database.

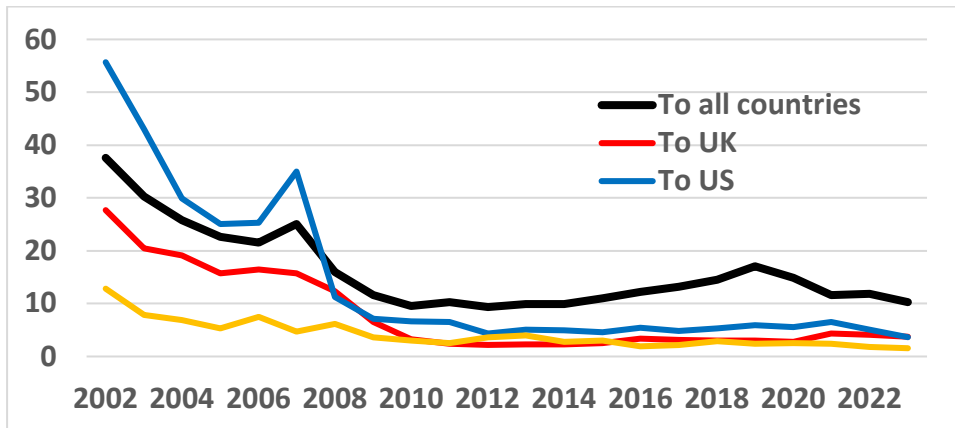
Figure 8: Australia's stock-to-sales ratio for red, white and all wines



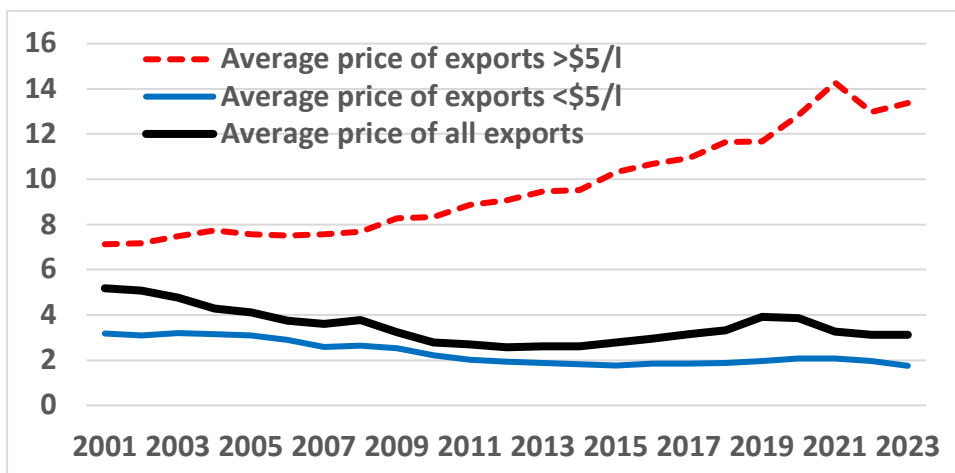
Source: Wine Australia (2023).

Figure 9: Premium shares of volumes of wine exports to the UK, US, Germany and all countries (sold at more than AUD5/litre) and the volume-weighted average prices of premium, non-premium and all Australian wine exports

(a) % of export volume that is greater than AUD5/litre



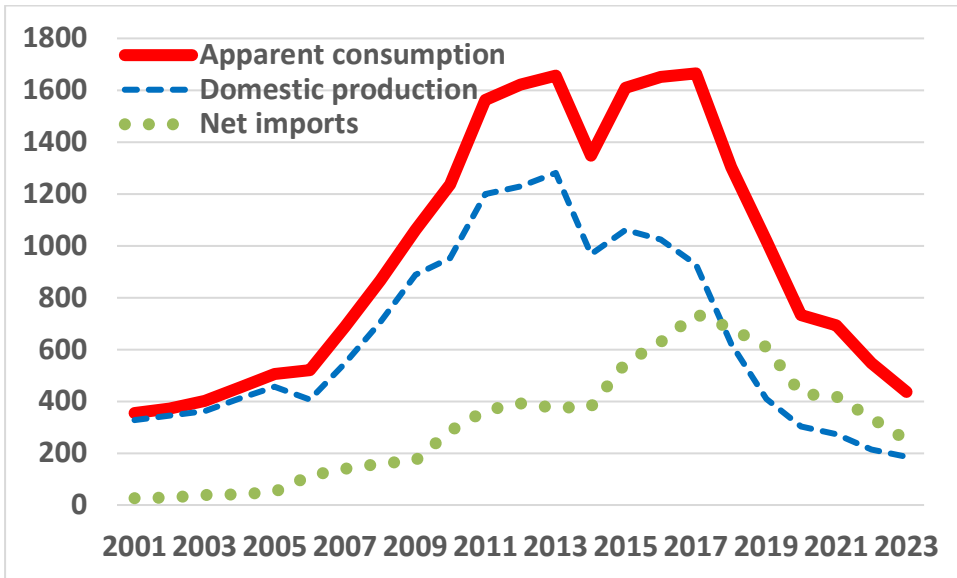
(b) Average unit values of wine exports sold below and above \$5/litre (\$ per litre)



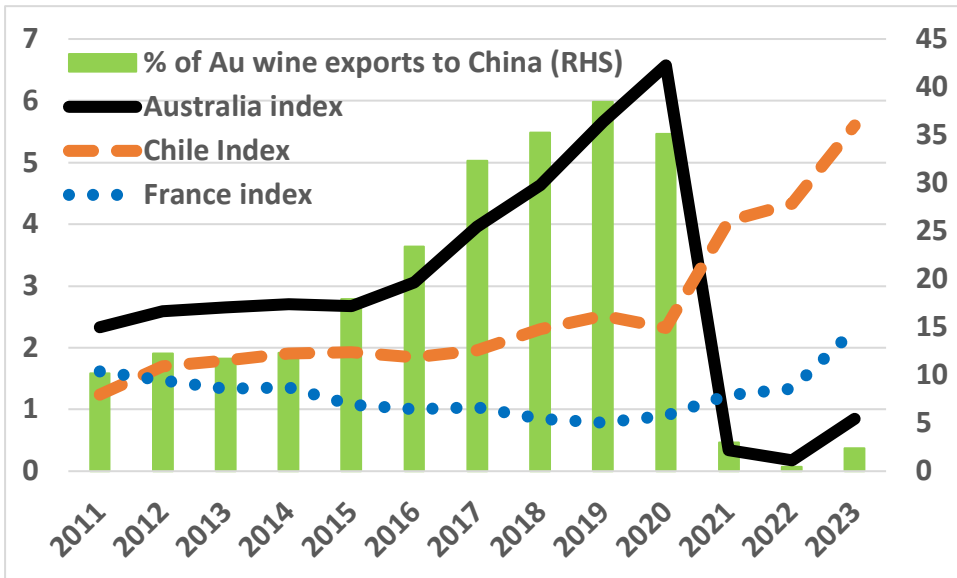
Source: Compiled from Wine Australia data.

Figure 10: Volume of China’s production, net imports and apparent consumption of wine and index of intensity of the value of wine exports to China

(a) Volume of China’s production, net imports and apparent consumption of wine (ML)

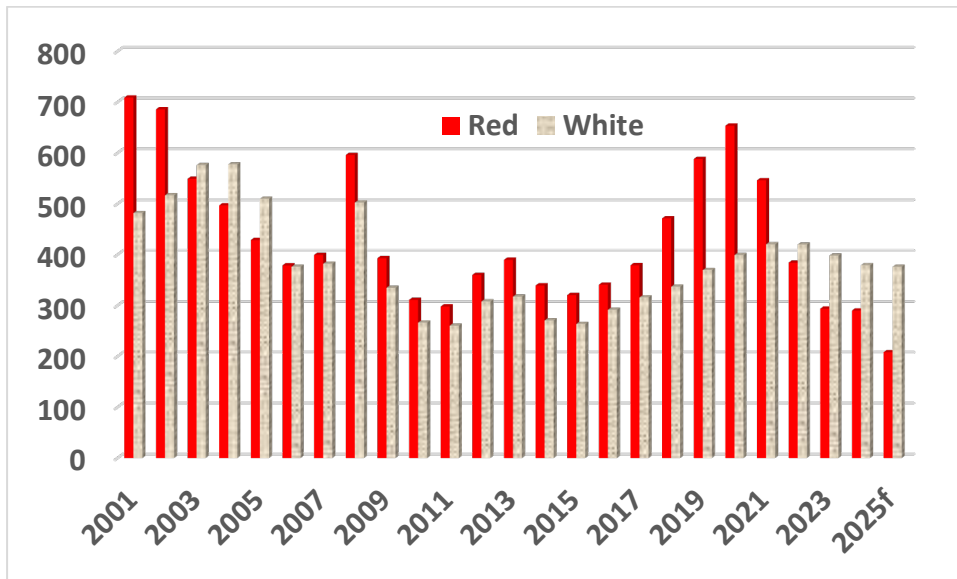


(b) Index of intensity of wine exports to China from Australia, Chile and France, and share of Australia’s wine exports going to China, by value



Source: Updated from Anderson (2023a).

Figure 11: Average prices of red and white winegrapes in Australia's warm inland wine regions^a (\$/tonne)

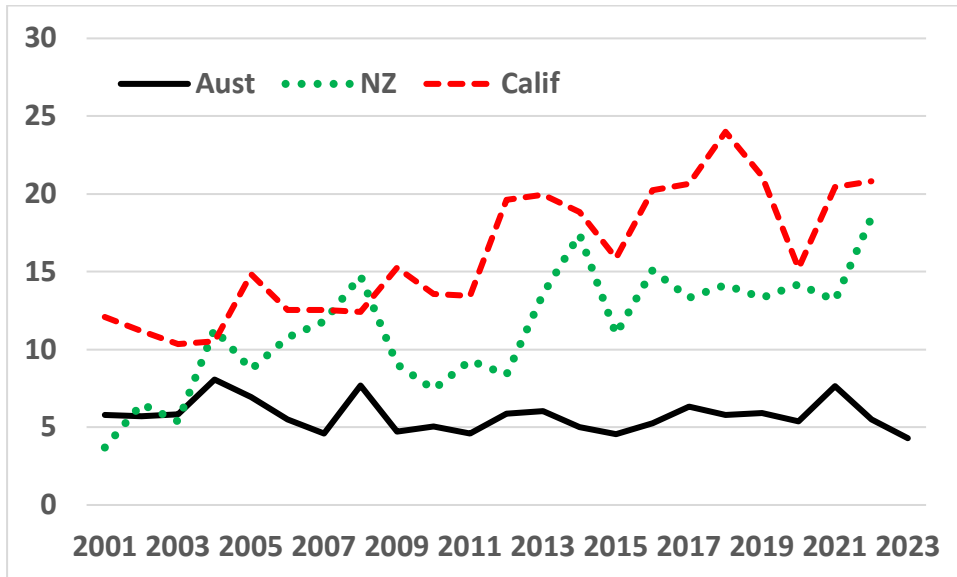


^a The 2025 prices are forecasts by ABARES (2024).

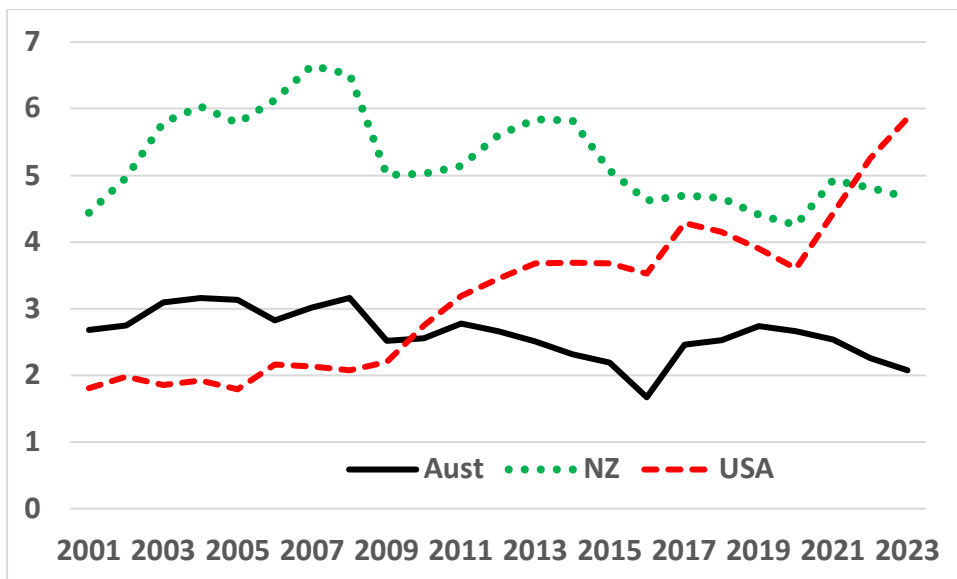
Source: Compiled from Anderson and Puga (2023).

Figure 12: More competitiveness indicators, Australia, New Zealand and the US

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



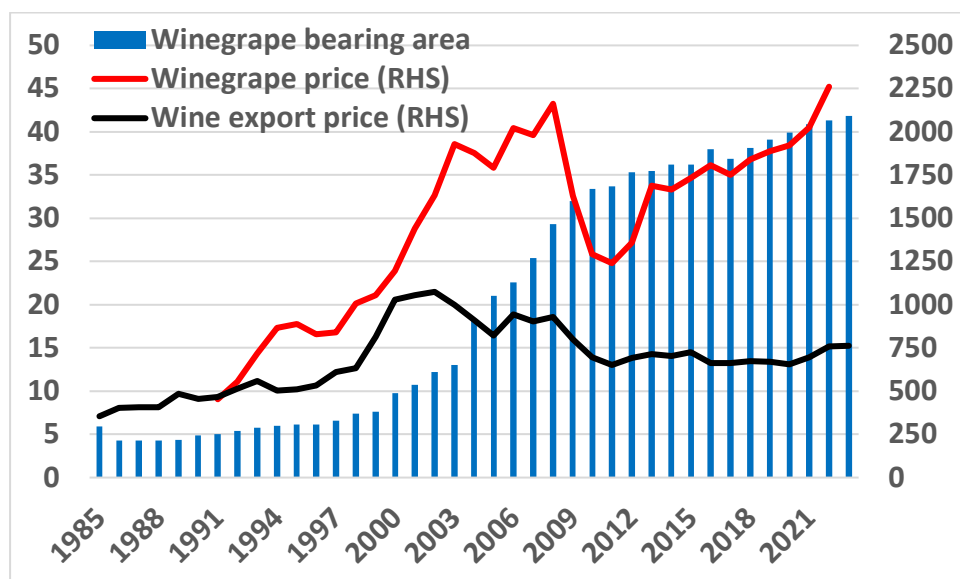
(b) Average wine export price (US\$/litre)



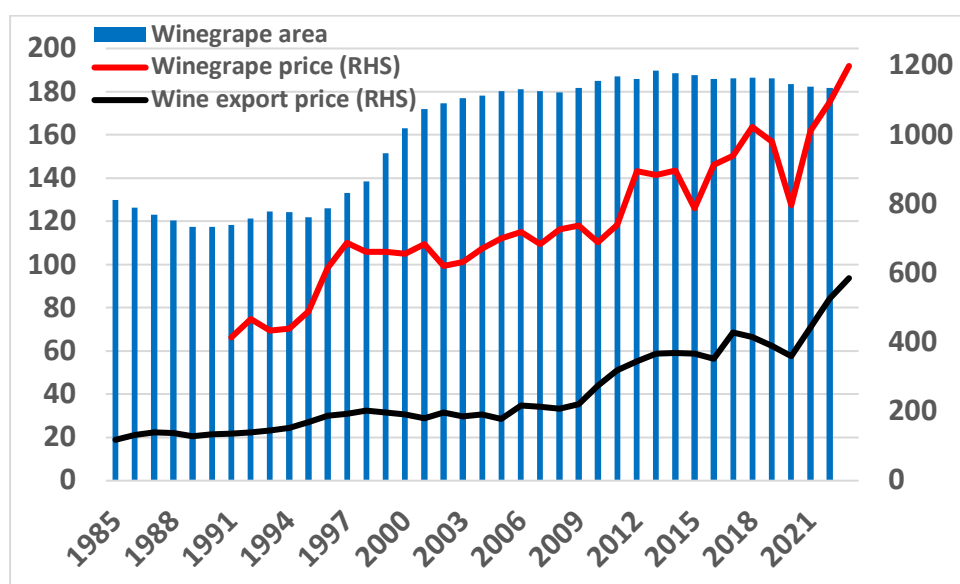
Sources: Anderson and Puga (2023), Anderson and Pinilla (2024), and (for California), Julian Alston (personal communication, based on USDA data).

Figure 13: Vine bearing area, average winegrape price, and wine export price, New Zealand and California

(a) New Zealand ('000 ha, NZ\$ per tonne, and NZ\$ per hectolitre)



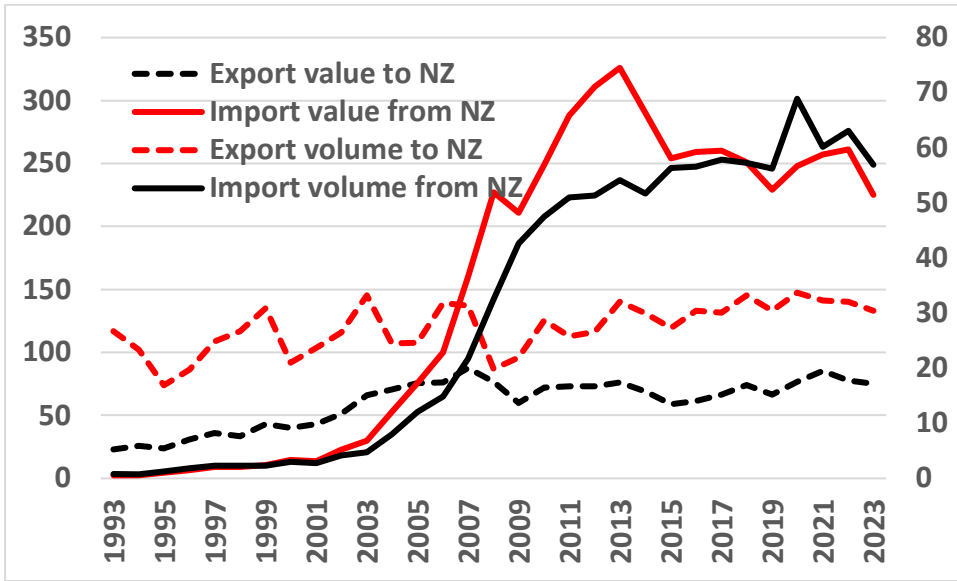
(b) California ('000 ha, US\$/tonne and US\$/hectolitre)



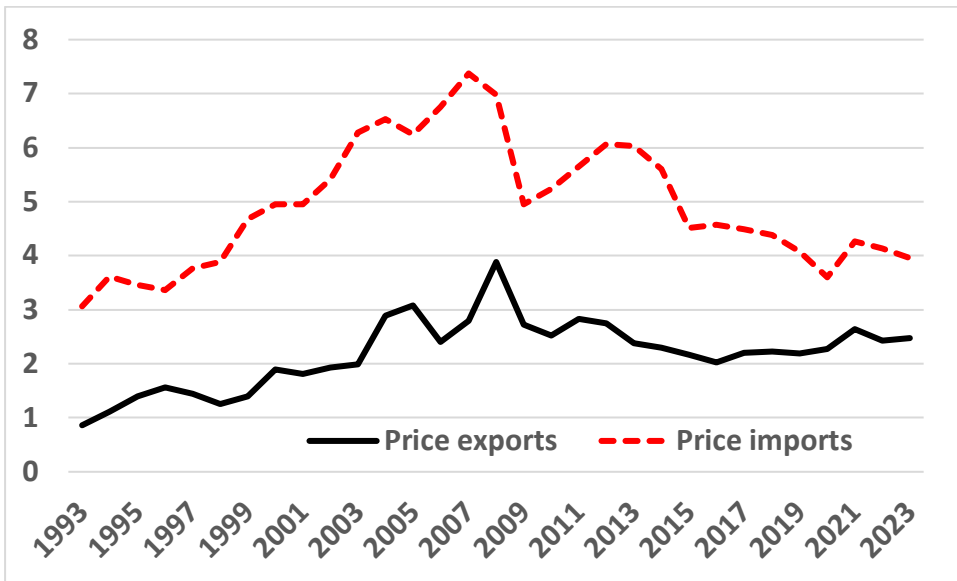
Source: Author's compilation from New Zealand Winegrowers (2023 and earlier) and, for California, from Julian Alston (personal communication, based on USDA data).

Figure 14: Total and unit values of Australia’s two-way trade in wine with New Zealand

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



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



Source: UN COMTRADE database.

Table 1: Shares of Australian wine exports to key markets, by volume and value, and average unit values, 1990 to 2023 (% and nominal US\$/litre)

<i>VOLUME</i>	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
<i>VALUE</i>	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
<i>UNIT VALUE (US\$/litre)</i>	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>.

Table 2: Indicators of Australian wine exports to its 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>).