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Australia's evolving winegrape varietal distinctiveness in response to climate and demand changes

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Australia's evolving winegrape varietal distinctiveness in response to climate and demand changes

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Australia's evolving winegrape varietal distinctiveness in response to climate and demand changes

On-going changes in regional climates, macroeconomic conditions and consumer preferences are causing vignerons around the world to change their total winegrape bearing area, the regional location of their vineyards, and their varietal mixes. This is altering the global varietal distinctiveness of each wine-growing region and nation. Adelaide University's Wine Economic Research Centre recently updated its database by Anderson and Nelgen (2020) on which winegrape varieties are grown where in the world's 700+ wine regions, as captured by vineyard bearing areas in hectares.

This article draws on that latest update to expose the evolution this century in the uniqueness of Australia's vineyards. After a brief word on the sources of data, it begins by comparing the top dozen varieties in Australia versus the world from 1990 to 2023. It shows that Australia's varietal mix has become much more similar to the global mix, and more concentrated on a few major 'international' (i.e., French) varieties – notwithstanding the media attention on emerging/alternative varieties. The same is happening in other New World wine-exporting countries, adding to the erosion of Australia's varietal distinctiveness. Particularly notable is Australia's increased concentration on producing red winegrape varieties, when consumer preferences this century have moved away from reds and toward white, rosé and sparkling wines (see OIV 2023). Also notable is the increasing concentration within the nation's key wine regions on what were perceived to be their most profitable varieties, something that is now questionable in those regions that are heavily focused on (especially high-alcohol) red winegrapes.

DATA SOURCES

Australia's official winegrape bearing area data (at least for the largest 40 or so varieties) had been compiled this century by the Australian Bureau of Statistics (ABS) until 2015, but ceased thereafter. However, annual estimates of the winegrape crush by every variety and source region have been collected and compiled annually by Wine Australia (2025 and earlier). Anderson and Puga (2023b) drew on the latter to estimate the bearing area by region and variety for each missing year up to 2023. Regional differences in varietal trends this century within Australia, and explanations for them, were the subject of two prior articles (Anderson and Puga 2023a, and Puga and Anderson 2025), so this article mainly focuses on changes in the national varietal mix for Australia compared with the rest of the world.

For other countries' bearing area data, the most important source has been EUROSTAT for EU member countries if superior national data for those countries were not accessible. Elsewhere, national data were sought from either official government statistics or those of winegrower associations (by State/Province in the case of the United States and Canada). Data have been assembled for vintages as close as possible to the following: 2000, 2010, 2016 and 2023 in the southern hemisphere and the preceding year (i.e., up to six months earlier) in the northern hemisphere.

The number of countries included in the database has grown over time, from 40 in 2000 to 61 in 2023, as and when more countries' data appeared in the public domain. The added countries typically are very small wine producers: the top 25 countries continue to account

for at least 96% of global wine production. Even so, the inclusion of minor producers is worthy because they indicate the gradual spread of vineyards outside the traditional 30^0-50^0 north and south of the equator, thanks to global warming in the case of cooler latitudes. In addition to aggregate national data, bearing area data by variety are compiled for 700+ regions within up to 29 of those 61 countries (but for space reasons that is not the focus of this article).

Our key source for identifying DNA-distinct 'prime' varieties and their synonyms is the seminal book by Robinson, Harding and Vouillamoz (2012), supplemented by the *Vitis International Variety Catalogue* (www.vivc.de) that also provides DNA-based varietal information. We also adopt RHV and VIVC berry colours, although we simplify their five categories to just three: the darkest two we call red, the lightest two we call white, and the middle colour we call 'grey' (which accounted for just 2.7% of the global area in 2023, two-fifths of which is Pinot Gris/Grigio). 'Prime' varietal names are the ones used in the perceived country of origin, so Syrah and Côt (from France) rather than Shiraz and Malbec, and Garnacha Tinta (from Spain) rather than Grenache, for example.

CHANGING COLOUR PREFERENCES

Two years ago, the International Vine and Wine Organization reported that, between the mid-2000s and early 2020s, the global consumption and production of red wine had fallen by one-eighth (OIV 2023). In Australia, by contrast, the share of red varieties in the volume of wine production fluctuated around a flat trend rate of 53% and, as red yields were lowered, red's share of the bearing area of winegrapes grew from just below 60% to 65% — having averaged just 38% in the decade to 1995 (Table 1). Evidently Australia has been out of step with the global trend in demand away from reds.

[insert Table 1 around here]

NATIONAL VARIETAL MIXES

In the 1990s, the top dozen varieties in Australia moved a long way toward the global average varietal mix of the rest of the world as it rapidly raised its share of (French) red varieties. But during the current century its mix has changed little relative to the rest of the world's (Figure 1). The net effect is that the difference this century between the rest of the world and Australia in terms of varietal mix has narrowed.

[insert Figure 1 around here]

One way to quantify that is to calculate the varietal similarity index (VSI), which is like a correlation coefficient that ranges from zero (no similarity) to one (identical mix): Australia's index has risen from 0.46 in 2000 to 0.64 in 2023 (a 41% increase). Only two other countries had a higher VSI in 2023, namely France (0.75) and the United States (0.69), but for most countries their VSI has risen this century. The only significant producing countries whose varietal mixes have moved away from the global mix are Spain and Portugal (each with a VSI drop of 0.12) and, even more dramatically, Romania and Hungary (each with a VSI drop of 0.23).

REGIONAL VARIETAL MIXES

That extent of the increase in Australia's VSI between 2000 and 2023 (41%) was not uniform across Australia's wine regions, or even across states. The rise was only about 35% for South Australia and Western Australia but was 50% for New South Wales and 80% for Victoria. In

no region did it fall, but among the regions where it rose least were Barossa Valley (15%) and McLaren Vale (22%) and the cooler regions of Yarra Valley (27%), Tasmania (31%), Adelaide Hills (34%) and Mornington Peninsula (38%). Increases were much higher for the hot irrigated inland regions (average VSI of 0.67 in 2023) as their varietal mixes became more like the global average.

VARIETAL CONCENTRATION

Associated with that increasing similarity for Australia and across the world of national winegrape varietal mixes is a greater concentration on fewer varieties in some countries (Puga and Anderson 2023). In Australia's case, the top dozen varieties by area accounted for 89% of the national area in 2023, up from 86% in 2000 and 80% in 1990. True, many vignerons are exploring 'alternative' or 'emerging' varieties, but as yet those varieties make up less than 5% of the nation's vineyard area (and just 2% of its volume of exports).

In this sense Australia is again moving differently from the rest of the world, according to a varietal concentration index (VCI) developed by Puga and Anderson (2023). That index increased by 23% for Australia between 2000 and 2023 (and 20% for Argentina). The only other significant wine countries for which it rose more this century were the United States (26%) and New Zealand (152%). The unweighted average change in that national concentration index across the 38 countries for which we have data for that full period is -14%.

Within Australia, the VCI for around half of the nearly 70 regions reported in Anderson and Puga (2023b) revealed increased varietal concentration this century, and the unweighted average change in that index is 14%. Particularly notable concentration increases were in the Barossa Valley (124%) and McLaren Vale (75%), but also in Mornington Peninsula (49%) and Tasmania (39%). Shiraz has become dominant in the first two, its area share rising from just over one-third to more than one-half, as the red share rose to all but one-twelfth of each of those regions' total bearing area. In the latter two (cooler) regions, Chardonnay has retained its shares of around 25% but Pinot Noir's shares have risen from 39% to 55% in Mornington Peninsula and from 31% to 47% in Tasmania. By contrast, in the hot irrigated inland regions, where varietal concentration was already very low at the turn of the century, its concentration indexes have fallen by about one-seventh – a further indication of decline in those regions' varietal distinctiveness.

IMPLICATIONS AND CONCLUSION

The above data reveal that Australian vignerons have continued to become less diversified/more concentrated in terms of the share of the top dozen varieties in the national bearing area, and less differentiated from the rest of the world in terms of rising shares of red (particularly French) varieties.

Does this matter? The increasing concentration on reds was a response to the dramatic rise in the 2010s in China's demand for imported red wines. But that market is now much smaller and, post-COVID, is growing much more slowly (Anderson 2025). Meanwhile, consumption of reds elsewhere has been growing more slowly than that for white, rosé and sparkling wines (OIV 2023), such that excess red stocks are accumulating globally. And because Shiraz plantings have expanded considerably outside Australia this century, the distinctiveness of that specialisation in Australia has diminished and with it the international competitiveness of our regions that are specialising in that variety. However, since the turn of the century the

gross return per hectare from growing Shiraz in the Barossa Valley has averaged 28% above that from all other varieties grown there, and in the case of McLaren Vale the Shiraz premium has been 15% (Anderson and Puga 2023b). That makes those regions' recent increasing concentration on Shiraz understandable, but does not help guide expectations for the regions' near future.

Demand for cool-climate Pinot Noir and sparkling wines is relatively strong both in Australia and abroad, and Australia is a net importer of both. Increased specialisation in growing them in Tasmania and Mornington Peninsula to satisfy more domestic demand thus makes sense, especially as the gross return per hectare has been relatively high for both Pinot and Chardonnay in those two regions (Anderson and Puga 2023b).

Demand for the less-distinguished wines from hot irrigated regions, on the other hand, has been shrinking for some time as consumers premiumize their preferences both locally and abroad. One consequence is that the prices of bulk wines in major markets such as California have fallen to below US$1/litre. Once freight costs are subtracted, that has resulted in both red and white bulk wine exports from Australia averaging barely one AUD per litre since 2023 (Wine Australia 2025) – notwithstanding the increasing quality of especially red bulk wines as sellers struggle to find buyers for their expanding stocks. True, the situation may ease somewhat once excess inventories accumulated during the COVID-19 pandemic diminish; but the structural changes in consumer preferences away from wine in general, and especially low-quality and high-alcohol still wines, are expected to continue to hang over markets.

The question of whether Australia's mix of varieties is less than ideal for the terroir of its various regions is not a new one. Hickinbotham (1947) believed eight decades ago that Australia's hot regions were not focused enough on varieties from warmer parts of Europe. More recently, McKay *et al*. (1999) felt that varieties from the warmer parts of Italy were under-represented in Australia. Climate changes are going to continue to encourage producers to consider alternative varieties. Since Australia's varietal mix is even more concentrated on a few varieties now than in earlier decades, there is plenty of scope to further explore alternatives to currently planted (and especially red) varieties.

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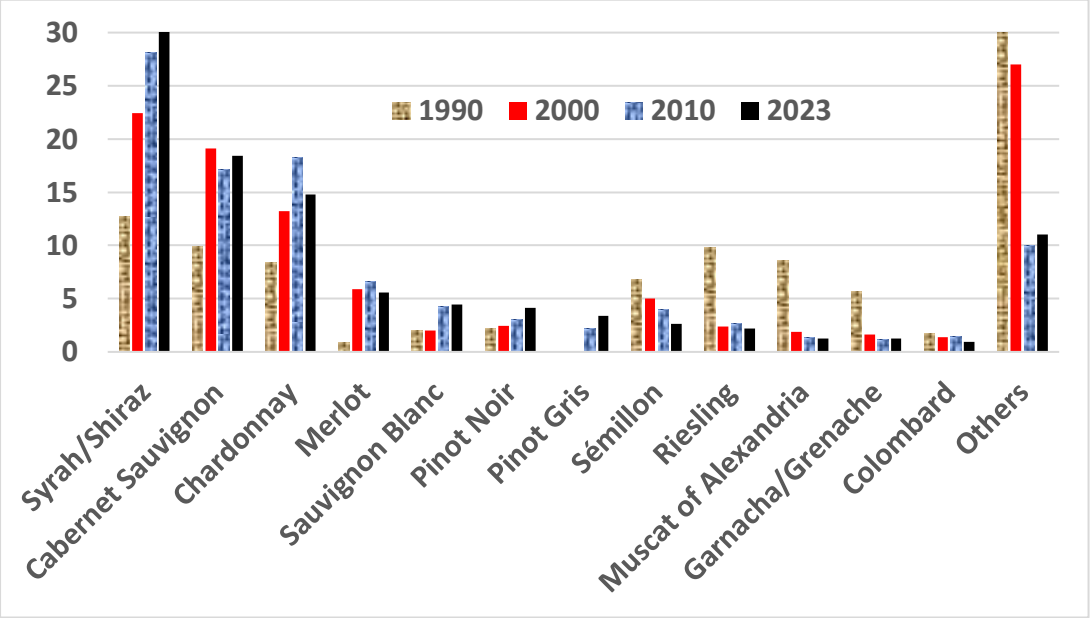
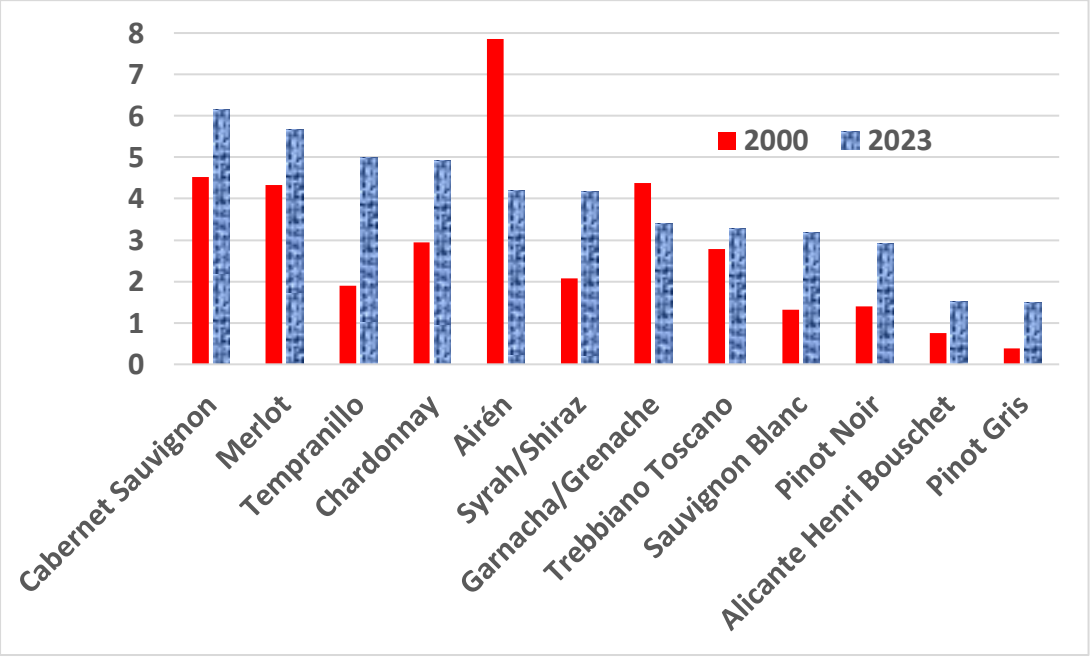
Figure 1: Shares of top dozen varieties as of 2023 in the winegrape bearing area of Australia and the world, 2023 and earlier (%)

(a) Australia



(b) World



Source: Anderson, Nelgen and Puga (2025).

Table 1: Winegrape bearing area by colour, Australia and the world, 1986 to 2023 (%)

Australia	**1986-95**	**2000**	**2010**	**2016**	**2023**
% red	38.0	59.6	60.8	63.6	65.5
% white	62.0	40.4	36.9	33.4	30.9
% grey	0.0	0.0	2.3	3.0	3.6
	100.0	100.0	100.0	100.0	100.0
TOTAL (ha)	*39,630*	*95,624*	*154,393*	*141,668*	*144,973*
Crush % red	*29*	*50*	*54*	*52*	*54*

World	**1990**	**2000**	**2010**	**2016**	**2023**
% red	45.9	50.6	56.6	56.5	55.3
% white	53.3	47.8	41.2	41.1	42.0
% grey	0.8	1.5	2.2	2.5	2.7
	100.0	100.0	100.0	100.0	100.0
Crush % red		46	48	44	42

Source: Anderson and Puga (2023b) for Australia, and Anderson, Nelgen and Puga (2025) for world (with its crush % from OIV).