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Where on earth are Pinot Noir grapes grown?

Kym Anderson and Germán Puga

March 2025

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

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Where on earth are Pinot Noir grapes grown?

Kym Anderson
University of Adelaide
kym.anderson@adelaide.edu.au

Germán Puga
University of Western Australia
german.puga@uwa.edu.au

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Corresponding author:
Professor Kym Anderson
Executive Director, Wine Economics Research Centre
School of Economics and Public Policy
University of Adelaide
Adelaide SA 5005, Australia
Phone +61 414 254 121
kym.anderson@adelaide.edu.au

Abstract:

Pinot Noir is famous for being very difficult to produce well, but that has not stopped it from rapidly increasing its presence in terms of its share of the global vineyard bearing area. Along with that increasing presence, Pinot Noir grapes are being grown in an increasing number and wider range of regional climates, coinciding with growth in consumer demand for wines based on Pinot Noir. The growth in their demand has stimulated some new plantings of the variety in regions less well suited to its production. This paper focuses on the identity of Pinot Noir producers in key regions. In both Australia and California, Pinot Noir enjoys above-average prices in hot inland regions as well as cooler regions, suggesting the variety's identity as high-priced applies in a wide range of regions. However, standard economic factors are likely the main drivers of Pinot Noir production in the hot regions, rather than physical aspects of terroir. In two cooler regions with more-appropriate terroir for Pinot Noir production (Australia's Mornington Peninsula and the coolest parts of California's Napa Valley), by contrast, producers there evidently identify with Pinot Noir even though it would appear the desirable physical aspects of the terroir of those regions are not sufficient to compensate for the less-attractive economic factors also playing a role there.

WHERE ON EARTH ARE PINOT NOIR GRAPES GROWN?

Kym Anderson and Germán Puga[1]

Pinot Noir[2] is the most ethereal of noble winegrape varieties, according to both consumers and producers of fine wine. It is also famous for being very difficult to produce well, but that has not stopped it from rapidly increasing its presence in terms of its share of the global vineyard bearing area: its rank rose from the 30th most-planted winegrape variety in the world in 1990 to 10th in 2010 and 2016. In value terms this cultivar would be ranked even higher, as its average price is typically well above the average for other winegrape varieties.

Along with that increasing presence, Pinot Noir grapes are being grown in an increasing number and wider climatic range of regions. That is only partly due to changes in regional climates. Possibly much more important is the growth in consumer demand for both sparkling wines (for which Pinot Noir is commonly blended with Chardonnay) as well as for fine still wines (for which Pinot Noir is typically bottled as a single variety).[3] The growth in demand has stimulated some new plantings of the variety in regions less well suited to its production, winegrapes from which attract lower prices than those in the most suitable regions.

Those changes in where the variety is grown raise the question of how that is altering Pinot Noir's identity (see Coulmas (2019) for definitions of identity). We leave it to others to discuss the impact on the identity of Pinot Noir from a consumer perspective, and focus here on the identity of Pinot Noir producers, and in particular of the fine wine regions where Pinot Noir has been dominant and highest priced historically compared with much-warmer regions.

The identity of individual producers can be linked to, for example, their distinctive terroir, or clones, or vine age, or growing methods employed, or to the wine style they produce (Wilson, 2005; Poulsen and Mønsted, 2020). How they wish to be categorized also plays a role.[4] The collective identity of a region also may be so linked, albeit less precisely the more varied are the producers within each geographically denominated region (possibly

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[1] Anderson is the Executive Director of the Wine Economics Research Centre and George Gollin Professor Emeritus of Economics at the School of Economics and Public Policy, University of Adelaide, Adelaide, Australia and Honorary Professor, Crawford School of Public Policy, Australian National University, Canberra. Phone: +61 414 254 121; E-mail: kym.anderson@adelaide.edu.au. Puga is a Research Fellow at the Centre for Agricultural Economics and Development, University of Western Australia, Perth, and formerly at the Wine Economics Research Centre, University of Adelaide, Adelaide, Australia. E-mail: german.puga@uwa.edu.au.
[2] Synonyms for Pinot Noir include Blauer Burgunder (Austria), Pinot Crni (Croatia), Spätburgunder (Germany), Pinot Nero (Italy and Serbia), Modri Pinot (Slovenia), and Blauburgunder (Switzerland).
[3] While this article focusses on the growing of rather than demand for Pinot Noir, it is worth noting that consumer interest in the variety also has risen dramatically, and faster than apparent supplies globally. According to Wine-Searcher's wine director David Allen, the number of searches on their website by consumers for Pinot Noir rose between 2016 and 2024 from 10.5% to 15.5% of all searches (second only to 'Bordeaux blends', whose share fell from 22% in 2016 to 17% in 2024). By comparison, Pinot Noir offers on the Wine-Searcher website by sellers rose only from 9.5% to 11.5% of all offers over those eight years (Wine-Searcher, 2025).
[4] A leading Pinot Noir producer in New Zealand's Central Otago region wants to distance itself from the 'fine wine' category, believing it inhibits new and younger consumers from trying their wines. See https://www.thedrinksbusiness.com/2025/02/leading-nz-producer-to-move-away-from-fine-wine/.

legally defined as an AOC/PDO/AVA/GI), and the smaller is Pinot Noir's share of that region's output.

In what follows, the focus on producer identity, at the level of Pinot Noir producing regions, is from an economist's perspective.[5]

The economic value of collective identities of wine regions has been estimated to be considerable.[6] Moreover, it can be enhanced through marketing of the collective reputation of each region's wines, and more easily the fewer other varieties a region produces in addition to Pinot Noir. Burgundy and Champagne are clearly the world's quintessential Pinot Noir-dominated regions.

Before turning to empirical data, beginning with where Pinot Noir grapes are grown globally, it is helpful to keep in mind several distinctive features of this noble variety. They include:

- The optimal climate for growing high-quality Pinot Noir grapes is cooler than that for most other mainstream red varieties but, being cooler, such regions typically produce lower yields and thus need a relatively high price if grape growing there is to be profitable.
- As demand for this variety grows and the world warms, one might expect Pinot Noir plantings in new cool-climate regions to emerge and other regions to expand their plantings. This will be further encouraged as the warmest Pinot Noir regions become even warmer and so less able to produce their traditional wine styles and qualities.
- Insofar as warmer regions are tempted to grow this variety, their grapes will be lower quality and so they will attract lower prices, hence higher yields will be required to ensure their profitability.

How the latter two possibilities might affect the identity of long-established Pinot Noir regions is a moot point discussed below.

With the above in mind, this article seeks firstly to track the changes in Pinot Noir plantings over the past 35 years. It does so initially by country (Appendix Table A1 ranks them in terms of estimated bearing hectares in 2023 as compared with previous decades), and then (in Appendix Table A2) by key Pinot Noir regions within the main countries producing this variety.

Secondly, the article examines also winegrape production, prices and yields, to get a sense of the economics of Pinot Noir production in the different environments of some of those regions. Specifically, annual time series data have been compiled recently on crush volumes and values in addition to bearing areas for the various Pinot Noir regions of a range

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[5] Numerous economists have focused on identity, including Nobel Laureates: see, e.g., Akerlof and Kranton (2010) and Bénalou and Tirole (2011). A recent economics book on the topic from a consumer perspective is by Kreps (2024), who recommends fusing identity theory with self-perception theory.

[6] Chandra, Moschini and Lade (2024) find that consumers place a high value on wines' geographic origins, distinct from the value of brand and varietal information, at least as estimated in the US 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).

of New World countries. That makes it possible to present estimates of variations over time in regional yields (tonnes/ha), grape prices (US$/tonne) and thus also gross revenue per hectare (yield times price so US$/ha), and to show the inverse correlation across regions between price and yield (and growing season temperature). To the extent that higher yields offset lower prices in less-suitable (typically warmer) Pinot Noir growing environments, so Pinot Noir plantings cover a more-diverse range of climates than Jones, Reid and Vilks (2012) speculate is optimal for this variety from a quality perspective.

To finish, the article discusses the relative importance of physical aspects of terroir versus profitability – two very different forms of identity – in determining the location of Pinot Noir grape growing.

1. Trends in national and regional bearing areas of Pinot Noir

Over the past three decades, Pinot Noir has been the fourth most rapidly expanding of the world's major winegrape varieties (after Syrah, Tempranillo and Sauvignon Blanc). Its share of the global total bearing area of winegrapes has trebled since 1990, from 0.8% to 1.4% in 2000 and 2.4% in 2016 (Figure 1).[7] By that criterion, Pinot Noir rose from being ranked the 30th most-planted winegrape variety in the world in 1990 to being 14th in 2000 and 10th in both 2010 and 2016 (Anderson and Nelgen, 2020). This variety attracts an even larger share of attention in the wine world than its still small 2% share of area and production.

Figure 1: Bearing areas of the world's top dozen winegrape varieties in 2016, compared with 1990 and 2000 ('000 ha)
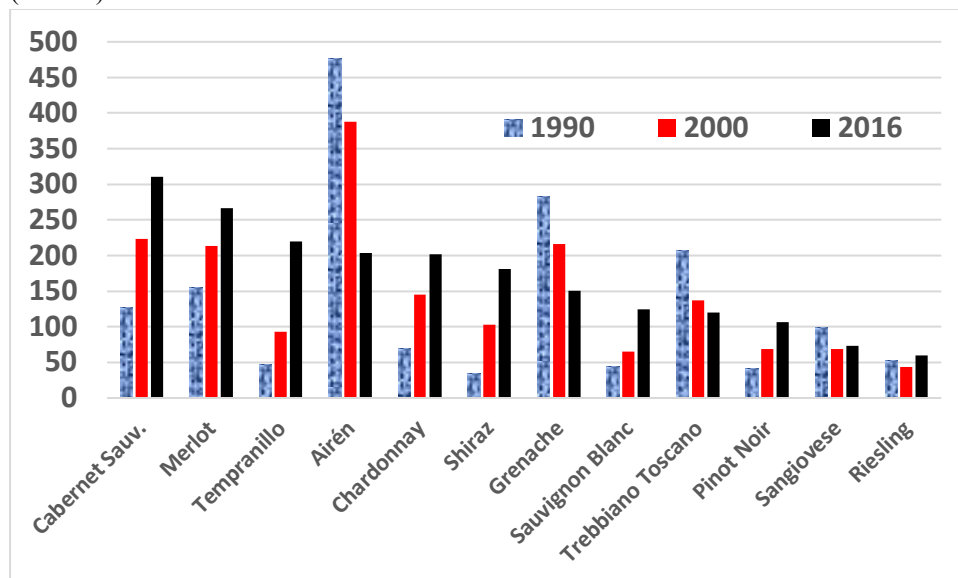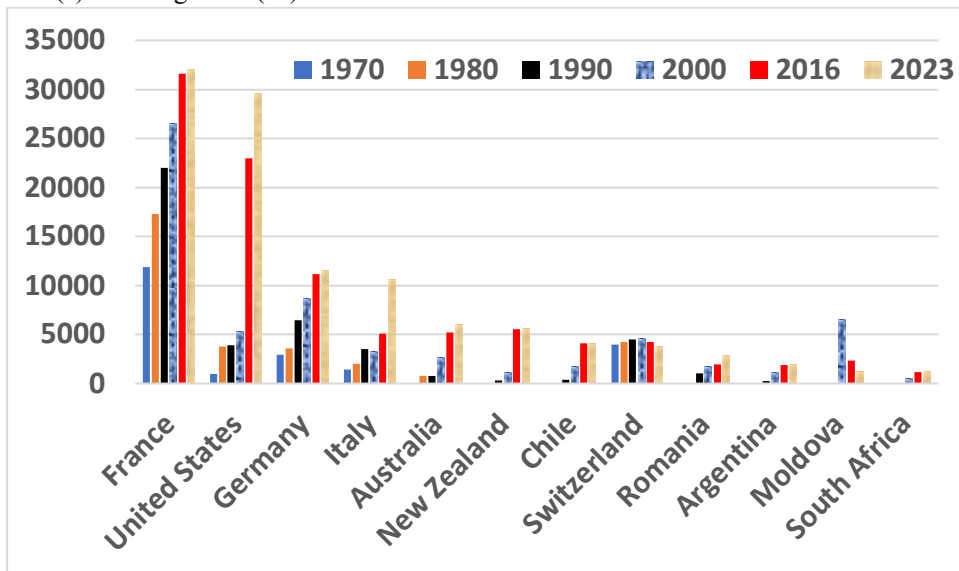

Source: Anderson and Nelgen (2020).

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[7] The Anderson and Nelgen (2020) global winegrape dataset is yet to be updated beyond 2016 for varieties other than Pinot Noir, and even for that variety all the regional details are not yet available. Hence Figure 1 and Table A2 refer just to 2016.

Many countries have increased their bearing area of Pinot Noir, but at quite different rates and more so outside than inside Europe (Figure 2(a)). France has always had the largest area planted to Pinot Noir, accounting for more than 40% of the world's hectares in the 20th century. But despite the area of Pinot Noir still rising in France, its global share has fallen by one-third this century. This is not unlike France's trend for other French winegrape varieties, thanks to globalization and the expansion of wine production in so-called New World countries based on noble French varieties (Anderson and Nelgen, 2021).

The variety's bearing area in the United States now almost matches that of France. As well, Italy's now almost matches Germany's, New Zealand's now almost matches Australia's, and Chile's now is slightly ahead of Switzerland's area (Figure 2(b)).

Figure 2: World's top dozen Pinot Noir countries' bearing areas and global shares of Pinot Noir vineyards, 2023 compared with 1970 to 2023 (hectares and %)

(a) Bearing areas (ha)

(b) Global shares (%)
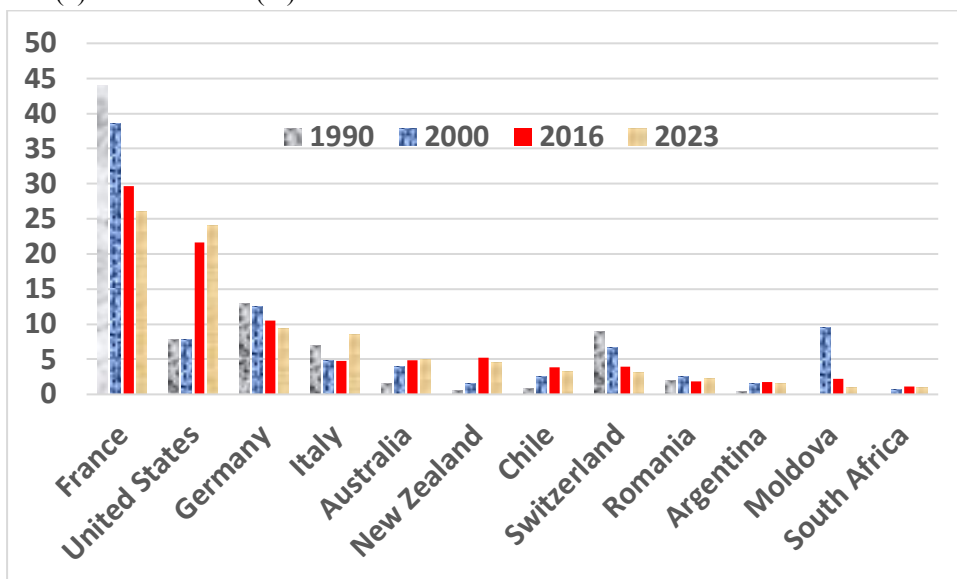
Source: Anderson and Nelgen (2020) to 2016, updated by authors to 2023.

By far the largest national change is in the United States in terms of hectares, but the percentage change from 2000 to 2023 is almost as large in New Zealand. Both countries saw a more than four-fold increase in their Pinot Noir areas over that quarter-century, or ten times the proportional rise in the rest of the world (Figure 3).

There are 14 countries whose share of Pinot Noir hectares in their national winegrape bearing area exceeds that variety's global average share. The two most outstanding in 2016 are the United Kingdom and Switzerland, which are twelve times as concentrate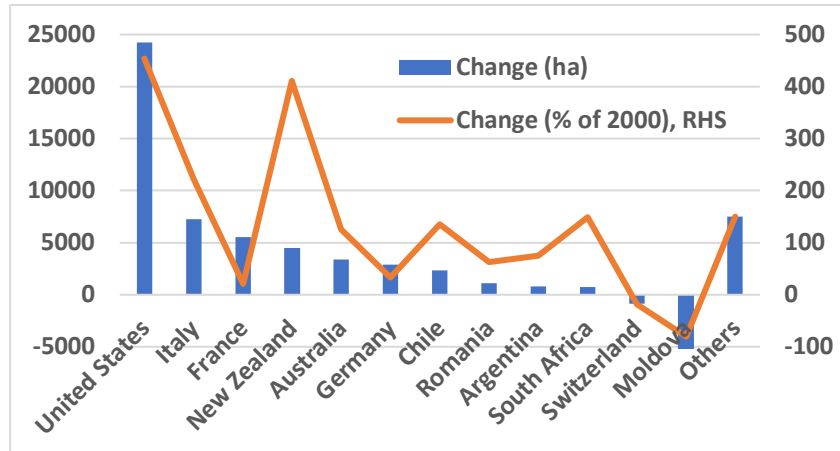d on this variety compared with the world as a whole. New Zealand, Germany and the United States are the next most intense, at six, five and four times the global average, respectively. The intensity index for France, by contrast, is only 1.6 (Figure 4).

Figure 3: Change in national Pinot Noir bearing areas from 2000 to 2023 (ha and %)

Source: See Figure 2.

Figure 4: National indexes of intensity[a] of Pinot Noir plantings, 2016
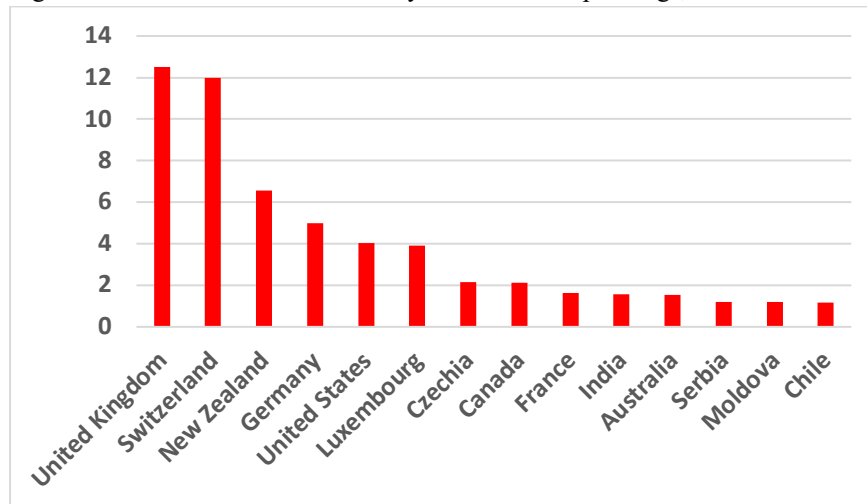
[a] The intensity index is defined as the share of national winegrape bearing area devoted to Pinot Noir divided by that variety's share of the global bearing area of all winegrape varieties in 2016 (which is 2.373%).
Source: Anderson and Nelgen (2020).

The most important Pinot Noir regions in the top eight of those 14 Pinot-intensive countries are listed in Table A2. That table reports several indicators of the importance of those regions in the growing of Pinot Noir as of 2016. They include their contribution to the

national and global Pinot Noir bearing areas, the proportion of each region's bearing area that is planted to Pinot Noir, and its comparison with the global average which in 2016 was 2.37% (via each region's varietal intensity index or VII, shown in the final column of Table A2).

In 2016, Bourgogne and Champagne had 30% and 40% of their bearing area planted to Pinot Noir (and 46% and 31% to Chardonnay), respectively, but the most Pinot Noir-intensive regions are Otago in New Zealand and the North Willamette Valley in the US state of Oregon (each with more than 70% of their area planted to Pinot Noir). Others with very high shares are Neuchâtel in Switzerland (54%), Wairarapa in New Zealand (50%), Australia's Mornington Peninsula and Adelaide Hills (49% and 42%, respectively), Baden in Germany (36%), Santa Barbara in California and Piemonte in Italy (each 31%).

2. Trends in Pinot Noir grape bearing area, production volumes and values, hence in yields, prices and gross revenue/ha: case studies of Australia and California[8]

The conventional wisdom is that the highest-quality Pinot Noir grapes are grown in cool wine regions, the ultimate benchmark being Cote d'Or in Burgundy. There, Dijon has had an average growing season temperature (GST) of 15.6°C and an average of 1190 growing degree days (GDD) during the growing season over the period 1958-2019. Australia has only one significant wine region that is cooler than that, namely Tasmania (GST 14.4, GDD 918). Australia's other big Pinot Noir regions have higher and very similar GSTs (16.8 to 17.0) and GDDs (1430 to 1482), while hot inland regions such as the Riverland (GST 21.0, GDD 2333) are far warmer but have ample irrigation and choose to grow some Pinot Noir. That shows up as a clear divergence in the price and yield lines when Australia's five main Pinot Noir regions are ranked from coolest to warmest (Figure 5). More generally, across all Australia's regions, there is a negative correlation between Pinot Noir's price and yield (correlation coefficient -0.43) and between Pinot Noir's price and growing season temperature (correlation coefficient -0.59), and a positive correlation between GST and yield (correlation coefficient 0.43) over the 2001-2023 period (Figure A1).

Figure 5: Average yield and price of Pinot Noir grapes in select Australian wine regions, 2001-2023 (t/ha, $/t)
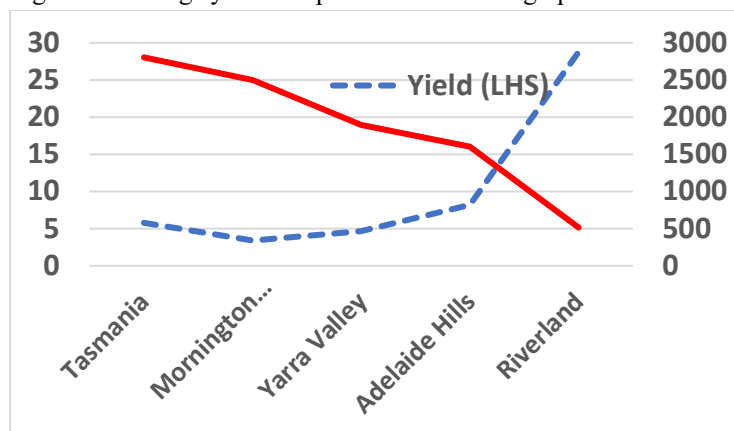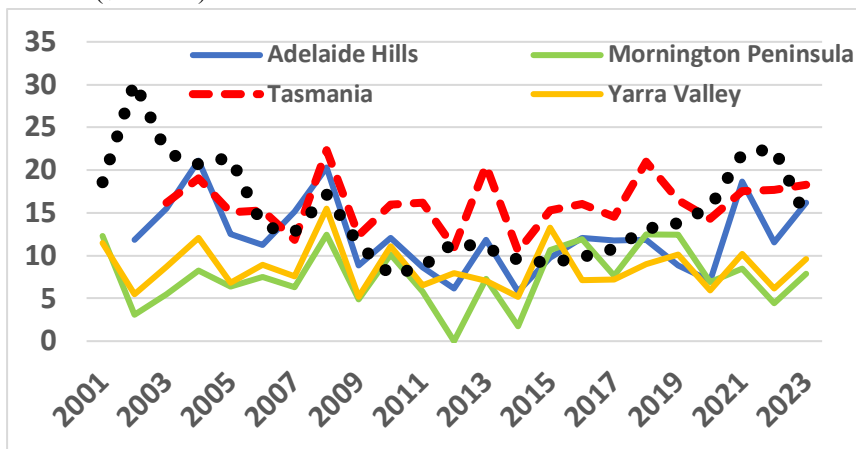

Source: Compiled from data in Anderson and Puga (2023).

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[8] This section draws on recently compiled annual time series of data over the past 20+ years for winegrape growing regions of Australia (Anderson and Puga, 2023) and of California (Anderson and Puga, 2024).

In Australia's key Pinot Noir regions, yields are only slightly lower for that variety than for other varieties in the coolest three regions, and are higher in the Adelaide Hills and the Riverland. However, prices were up to 16% higher for that variety than for all other varieties in each of the cool regions and 22% higher in the Riverland. Hence, as one might expect, gross revenues per hectare were slightly higher than for other varieties – except in Mornington Peninsula, where they averaged 15% lower, and in the Riverland, where they averaged 56% higher during 2001-2023 (Table A3). Over those years the Riverland has been first or second to Tasmania by the gross revenues/ha indicator, while Mornington Peninsula has been the lowest in most years (Figure 6).

Figure 6: Gross revenue per hectare from Pinot Noir grape production in selected Australian wine regions, 2001 to 2023 ($'000/ha)

Source: Compiled from data in Anderson and Puga (2023).

Mornington Peninsula is characterized by small vineyards, some of which are hobby farms owned by wealthy nearby Melburnians in love with Pinot Noir. In the more-remote inland Riverland region, by contrast, varietal choice is strongly influenced by straight-forward economic considerations (profitability).

Similar data are provided in Table A4 for the United States' key Pinot Noir-intensive regions plus two hot regions. In Oregon, the growing of Pinot Noir this century has earned 10% higher gross revenue per hectare than that for other varieties (RVCA = 1.10). More than 70% of the State's Pinot Noir area is in North Willamette Valley, but data for that region (and hence for 'Other Oregon') only begin in 2014. Over the 2014-23 period, the price for Pinot Noir in North Willamette Valley averaged one-seventh above that in the rest of the State, and its average yield also was slightly above that for Other Oregon (6.5 versus 6.4 t/ha). Pinot Noir offered no higher gross return per hectare than other varieties in Other Oregon (RVCA = 0.99), but it provided a 15% higher return in North Willamette Valley (RVCA =1.15).

In California, as in Australia, two of the hot inland districts within the San Joaquin Valley region (Districts 11 and 12, near Sacramento and Merced respectively) grow Pinot Noir because it is apparently profitable: gross revenue per hectare is more than 60% higher for Pinot Noir than for the average variety grown in those two regions (RVCA = 1.62 and 1.99) if those data are correct. However, the Pinot Noir area data may be understated there, as otherwise they imply yields of >30t/ha. Were their yields to be 'only' 20t/ha, their estimated

RVCA would be just 1.02 instead of >1.60 (see italicised rows in Table A4), implying a very similar gross return to the average variety in those parts of that hot region. Even then it would suggest very high yields are more than compensating for a low price for Pinot Noir there relative to the cooler Californian regions shown – even though the Pinot Noir price in those two counties averaged one-sixth above that for other varieties. At the other extreme, the growing of Pinot Noir earns a gross revenue per hectare well below the average variety in Napa (RVCA = 0.60) but, as in Australia's Mornington Peninsula, it is nonetheless undertaken (perhaps in some cases by wealthy Pinot-loving vignerons including urbanites in the San Francisco Bay/Silicon Valley area).

3. Conclusion: the relative importance of physical aspects of terroir versus profitability

Clearly Pinot Noir plantings cover a more diverse range of climates than Jones, Reid and Vilks (2012) suggest is optimal for this variety from a quality perspective. In both Australia and California, Pinot Noir is grown profitably also in hot inland regions where its price is low compared with in cooler regions but high compared with other varieties grown in those irrigated, high-yielding hot regions. This suggests the variety's identity as high-priced applies in both hot and cooler regions, and that standard economic factors (profitability) may be enough to explain Pinot Noir production in the hot regions.

If the regional ranking of net revenue parallels that of gross revenue per hectare, profitability may be enough to also explain varietal choice in some cooler regions, although perhaps less so Australia's Mornington Peninsula and California's Napa. Evidently there are producers in those latter two regions, including ones who identify closely with Pinot Noir, who are willing to tolerate the relatively low gross revenue per hectare earned with this variety compared with others grown there.

If the retail prices of Pinot Noir-based wine reflect the winegrape prices in the various regions reviewed above, might the very wide range of the latter – from \$465 to \$3360 per tonne when averaged over the past two decades in the US and almost that wide in Australia – also suggest a wide range of consumer identities may be associated with this variety? And might a relatively low-priced offering enable an earlier exposure to the variety for younger/less-affluent wine consumers than would otherwise be the case, some of whom will become the buyers of high-priced Pinot Noir in the future?

References

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

Akerlof, G.A. and R.E. Kranton (2010), *Identity Economics: How Our Identities Shape Our Work, Wages, and Well-Being*, Princeton NJ: Princeton University Press.

Anderson, K. and S. Nelgen (2020), *Which Winegrape Varieties are Grown Where? A Global Empirical Picture (Revised Edition)*, Adelaide: University of Adelaide Press. Freely

available as an e-book at www.adelaide.edu.au/press/titles/winegrapes, and in Excel format at https://economics.adelaide.edu.au/wine-economics/databases

Anderson, K. and S. Nelgen (2021), "Internationalization, Premiumization, and Diversity of the World's Winegrape Varieties", *Journal of Wine Research* 32(4): 247-61, December.

Anderson, K. and G, Puga (2023), *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, September. Freely available in Excel format at https://economics.adelaide.edu.au/wine-economics/databases

Anderson, K. and G, Puga (2024), *Database of Californian Winegrape Vine Area, Crush, Price and Per Hectare Volume and Value of Production, by Region and Variety, 1991 to 2023*, Wine Economics Research Centre, University of Adelaide, November. Freely available in Excel format at https://economics.adelaide.edu.au/wine-economics/databases

Bénabou, R. and J. Tirole (2011), "Identity, Morals, and Taboos: Beliefs as Assets", *Quarterly Journal of Economics* 126(2): 805–55.

Chandra, R., G.C. Moschini and G.E. Lade (2025), "Geographical Indications and Welfare: Evidence from US Wine Demand", *American Journal of Agricultural Economics* 107(2): 670-95. March.

Coulmas, F. (2019), *Identity: A Very Short Introduction*, Oxford: Oxford University Press.

Jones, G.V., R. Reid and A. Vilks (2012), "Climate, Grapes, and Wine: Structure and Suitability in a Variable and Changing Climate", pp. 109-33 in P. Dougherty (ed.), *The Geography of Wine: Regions, Terroir, and Techniques*, New York: Springer.

Kreps, D.M. (with A. Casella and J.E. Stiglitz) (2024), *Arguing about Tastes: Modeling How Context and Experience Change Economic Preferences,* Arrow Lecture Series, New York: Columbia University Press.

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.

Poulsen, C. and M. Mønsted (2020), "Identity Markers for Wine Producers: Terroir and Beyond", *Journal of Wine Research* 31(3): 194-217.

Wilson, T.M. (2005), "Drinking Cultures: Sites and Practices in the Production and Expression of Identity", Ch. 1 in *Drinking Cultures: Alcohol and Identity*, edited by T.M. Wilson, Oxford: Berg Publishers.

Wine-Searcher (2025), "Kiwi Pinot Noir Searches for a Market", 14 February, see https://www.wine-searcher.com/m/2025/02/kiwi-pinot-noir-searches-for-a-market

Figure A1: Relationships between real price (AUD/tonne), average growing season temperature (GST, °C) and yield (tonnes/ha) for Pinot Noir grapes in Australia, 2001 to 2023
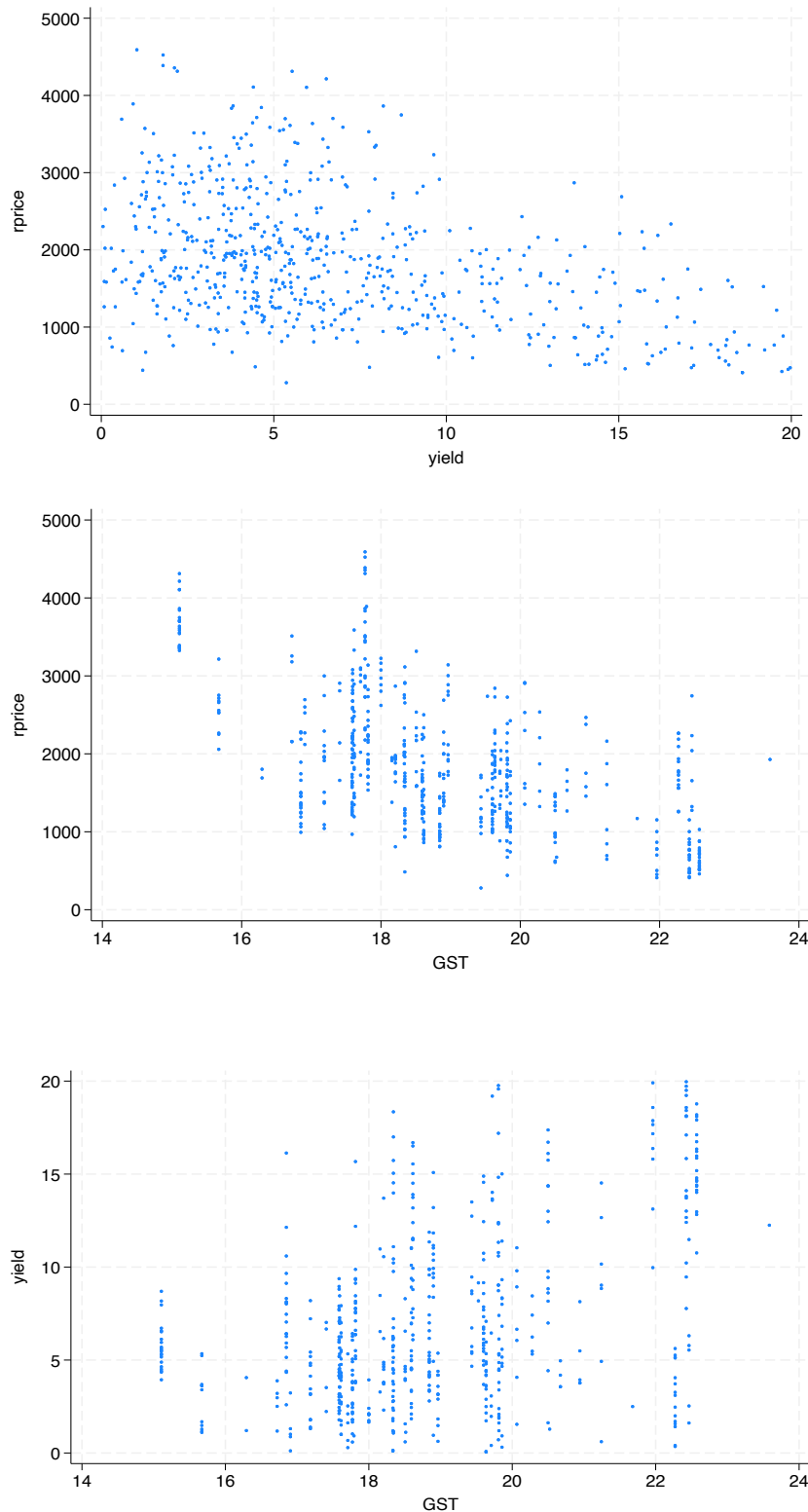
ᵃ Each dot represents the average of a region in a given year (2001 to 2023). Real prices (in 2023 AUD inflated by the CPI) higher than 5,000 AUD/t and yields higher than 20 t/ha are excluded. Its coefficient of correlation with GST (yield) is -0.59 (-0.43), and between GST and yield is 0.43).

Source: Authors' depiction based on data from Anderson and Puga (2023).

Table A1: Pinot Noir national bearing areas, 1960 to circa 2023 (ha)

	1960	*1970*	*1980*	*1990*	*2000*	*2010*	*2016*	*2023*
France	8500	11900	17300	22000	26526	30086	31602	34517
United States		990	3800	3877	5343	16776	22998	29592
Germany	1839	2944	3573	6449	8643	11724	11184	11512
Italy		1400	2000	3500	3287	5046	5057	10566
Australia	36	16	210	801	2685	4627	5211	6042
New Zealand				300	1098	4776	5519	5615
Chile					1614	2884	4091	4100
Switzerland					4601	4402	4209	3758
Romania					1740	1089	1930	2833
Argentina				232	1114	1689	1977	1944
Moldova					6521	6521	2366	1272
South Africa					487	962	1153	1212
Hungary					243	1091	1092	1167
United Kingdom						233	546	1150
Spain					417	1044	969	1059
Canada					457	640	639	940
Russia						533	918	900
Czechia						688	697	721
Austria		400	350	300	409	646	614	599
Bulgaria					769		342	568
North Macedonia							500	508
Slovenia							202	241
Slovakia							241	240
Ukraine						767	385	230
Serbia							633	218
Croatia						180		181
China						40	400	180
Kazakhstan						180		180
Brazil						145	141	140
Portugal						148	130	130
Luxembourg					66	3	121	120
India							100	100
Uruguay						55	56	60
Georgia		224	838	878			900	50
Japan						64	20	15
Others				3201	2790	1584	337	400
WORLD				**41539**	**68810**	**98623**	**107280**	**123060**

Source: Anderson and Nelgen (2020) to 2016, preliminarily updated (subject to revision) by authors for circa 2023.

Table A2: Main Pinot Noir regions' bearing areas, national and global shares of Pinot areas, Pinot's share of regional area, and Varietal intensity index,[a] world's top eight Pinot Noir countries, 2016 (hectares and %)

	2016 ha of Pinot Noir	% national Pinot area	% global Pinot area	% region's total area	VII[a]
France					
Champagne-Ardenne	13144	41.6	12.36	38.3	16.1
Bourgogne	10282	32.5	9.67	31.5	13.3
Languedoc Roussillon	2963	9.4	2.79	1.2	0.5
Alsace	1670	5.3	1.57	9.9	4.2
Centre-Val de Loire	1380	4.4	1.30	6.1	2.6
Others	2163	6.8	2.03		
TOTAL	31602	100.0	29.71	3.9	1.6
United States					
Sonoma	4906	21.3	4.61	20.9	8.8
Nth Willamette Valley	4462	19.4	4.19	73.5	31.0
Monterey	3377	14.7	3.17	18.9	8.0
Santa Barbara	1917	8.3	1.80	31.4	13.2
Napa	1136	4.9	1.07	6.3	2.7
Mendocino	1052	4.6	0.99	15.8	6.7
Others	6148	26.7	5.78		
TOTAL	22998	100.0	21.62	9.6	4.0
Germany					
Baden	5257	47.0	4.94	35.8	15.1
Pfalz	1563	14.0	1.47	7.3	3.1
Rheinhessen	1364	12.2	1.28	5.7	2.4
Württemberg	1282	11.5	1.21	11.8	5.0
Others	1718	15.4	1.61		
TOTAL	11184	100.0	10.51	11.8	5.0
Italy					
Lombardia	2872	56.8	2.70	12.4	5.2
Veneto	387	7.7	0.36	0.5	0.2
Bolzano-Bozen	362	7.2	0.34	8.9	3.8
Piemonte	251	5.0	0.24	0.5	0.2
Others	1185	23.4	1.11		
TOTAL	5057	100.0	4.75	0.8	0.3

Table A2 (continued): Main Pinot Noir regions' bearing areas, national and global shares of Pinot areas, Pinot's share of regional area, and Varietal intensity index,[a] world's top eight Pinot Noir countries, 2016 (hectares and %)

	2016 ha of Pinot Noir	% national Pinot area	% global Pinot area	% region's total area	VII[a]
New Zealand					
Marlborough	2538	46.0	2.39	10.8	4.6
Otago	1496	27.1	1.41	77.0	32.4
Wairarapa	501	9.1	0.47	49.9	21.0
Waipara	339	6.1	0.32	27.5	11.6
Others	646	11.6	0.61		
TOTAL	5519	100.0	5.19	15.6	6.6
Australia					
Yarra Valley	657	13.7	0.62	31.1	13.1
Tasmania	611	12.7	0.57	42.4	17.9
Adelaide Hills	506	10.5	0.48	17.7	7.5
Mornington Peninsula	376	7.8	0.35	48.5	20.4
Hot inland regions	896	17.2	0.84	1.7	0.7
Others	2165	38.1	2.04		
TOTAL	5211	100.0	4.90	3.6	1.5
Switzerland					
Valais	1563	37.1	1.47	31.9	13.4
Vaud	492	11.7	0.46	13.1	5.5
Neuchâtel	328	7.8	0.31	54.3	22.9
Schaffhausen	320	7.6	0.30	66.2	27.9
Others	1506	35.8	1.42		
TOTAL	4208	100.0	3.96	28.5	12.0
Chile					
Valparaiso	1799	44.0	1.69	18.3	7.7
Del Maule	792	19.3	0.74	1.5	0.6
Del Bio Bio	634	15.5	0.60	5.2	2.2
O'Higgins	517	12.6	0.49	1.1	0.5
Others	349	8.5	0.33		
TOTAL	4091	100.0	3.85	2.8	1.2

[a] The varietal intensity index (VII) is defined as the share of the region's winegrape bearing area that is devoted to Pinot Noir (column 4 above) divided by that variety's share of the global bearing area of all winegrape varieties in 2016 (2.373%).

Source: Anderson and Nelgen (2020).

Table A3: Characteristics of Pinot Noir (and all varieties') grape production in select Australian wine regions, averages over 2001-2023 (current US$)

	GST[a]	GDD[a]	Area of PN ha)	PN crush volume (tonnes)	PN crush value ($'000)	PN yield (t/ha)	PN price ($/t)	PN gross revenue/ha ($)	VII[b]	RVCA[c]
Tasmania	14.4	918	631	3570	8532	5.8	2805	15347	17.7	1.06
-- *(all varieties)*						(5.9)	(2448)	(14442)		
Yarra Valley	16.8	1430	759	3458	5009	4.7	2065	8489	15.1	1.03
-- *(all varieties)*						(4.7)	(1778)	(8249)		
Mornington Pen.	16.9	1465	346	1090	2213	3.4	2501	7365	18.9	0.85
-- *(all varieties)*						(3.8)	(2465)	(8667)		
Adelaide Hills	17.0	1482	563	4386	5392	8.2	1600	12223	7.4	1.13
-- *(all varieties)*						(7.2)	(1493)	(10800)		
Riverland	21.0	2333	238	6535	2443	28.8	516	14952	0.6	1.56
-- *(all varieties)*						(22.2)	(422)	(9548)		

[a] GST is the average growing season temperature, and GDD is the growing degree days during the growing season, both averaged over the period 1958 to 2019 (Anderson and Nelgen 2020).

[b] The varietal intensity index (VII) is defined as the share of the region's winegrape bearing area that is devoted to Pinot Noir divided by that variety's share of the national bearing area of all winegrape varieties.

[c] Each region's varietal comparative advantage index (RVCA) is gross revenue per ha of Pinot Noir divided by gross revenue per ha of all winegrape varieties produced in that region.

Source: Compiled from Anderson and Puga (2023).

Table A4: Characteristics of Pinot Noir grape production in selected US wine regions, averages over 2001-2023[b] (current US$)

	GST[a]	GDD[a]	Area of PN (ha)	PN crush volume (tonnes)	PN crush value ($'000)	PN yield (tonne/ha)	PN price ($/tonne)	PN gross revenue/ha ($)	RVCA[c]
N. Willamette Valley[b]	15.0	1132	5776	37704	89158	6.5	2349	15436	1.15
-- *(all varieties)*								(13380)	
Other Oregon[b]	16.4	1385	2334	14860	30695	6.4	2066	13151	0.99
-- *(all varieties)*								(13238)	
All Oregon[b]	15.4	1208	5455	31922	71557	5.9	2241	13114	1.10
-- *(all varieties)*								(11925)	
Santa Barbara	15.8	1252	2251	17436	49936	7.4	2860	20210	1.37
-- *(all varieties)*						(10.4)	(1432)	(14865)	
Monterey	16.6	1420	3022	36644	69286	11.6	1830	20404	1.36
-- *(all varieties)*						(12.7)	(1209)	(15327)	
Mendocino	17.3	1568	922	6720	19935	7.1	2816	18954	1.41
-- *(all varieties)*						(8.9)	(1516)	(13463)	
Napa	18.1	1744	1079	7870	21681	7.3	2764	19066	0.60
-- *(all varieties)*						(7.5)	(4220)	(31902)	
Sonoma	18.4	1808	4410	33658	118846	7.4	3360	23841	1.19
-- *(all varieties)*						(8.4)	(2391)	(19974)	
District 11 of San Joaquin Valley (near Sacramento)[d]	21.1	2376	632	20166	12671	31.8 *[if 20,* (23.1)	630 (536)	20049 *12600* (12361)	1.62 *1.02]*
-- *(all varieties)*									
District 12 of San Joaquin Valley (near Merced)[d]	21.6	2496	319	12420	5771	38.9 *[if 20,* (23.0)	465 (392)	18091 *9300* (9023)	1.99 *1.02]*
-- *(all varieties)*									

[a] GST is the average growing season temperature, and GDD is the growing degree days during the growing season, both averaged over the period 1958 to 2019 (Anderson and Nelgen 2020).

[b] The North Willamette Valley and Other Oregon data are just for 2014-23; all Oregon data are for 2001-23. The GST and GDD are the total crush-weighted averages (all varieties) of the State's Other Oregon winegrape regions, which accounted in the past decade for a little under 30% of Oregon's total winegrape vineyard area and its crush.

[c] Each region's varietal comparative advantage index (RVCA) is gross revenue per ha of Pinot Noir divided by gross revenue per ha of all winegrape varieties produced in that region.

[d] Only two of the hot inland irrigated parts of the San Joaquin Valley region (Districts 11 and 12, near Sacramento and Merced respectively) have a significant area of Pinot Noir. Each Pinot Noir area may be understated though, as otherwise they imply yields of >30t/ha. Were their yields to be 'only' 20t/ha, their estimated RVCA would be just 1.02 instead of >1.60 (see italicised rows), implying a very similar return to the average variety in those parts of that hot region.

Source: Compiled from Anderson and Puga (2024) and the authors' similarly compiled data for Oregon (from https://industry.oregonwine.org).