Growth and Cycles in Australia's Wine Industry:

A Statistical Compendium, 1843 to 2013

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Executive summary of key findings

Just one generation ago, a few visionary leaders were optimistic that more investment funds could be attracted to expand the Australian wine industry. They developed a strategy that attracted even more funds than they had hoped for, and as a result Australia led and showed the way for New World wine exporters to ride the globalization wave and transform many of the world's wine markets.

Then a perfect storm of shocks hit the Australian industry: a multi-year drought with severe consequences for the cost of irrigation water, the global financial crisis that began in 2008, a dramatic mining-induced appreciation of the Australian dollar, rapid wine export expansion by competitor countries, and an austerity dictate in late 2012 by a new Chinese Government. This coincidence of shocks brought to a sudden halt what had been the fifth boom since the 1840s in Australia's wine industry development.

In contrast to its recent rapid rise, the Australian wine industry was slow to emerge in the first globalization wave in the latter decades of the 19th century despite plenty of suitable land, and was somewhat laggard at the tail end of that wave which ended when World War I broke out.

In the belief that much can be learnt from an evidence-based study of both the early and the more-recent history of the development of this industry, the present volume provides an analytical narrative of the long-run trends in its production, consumption and trade, and of the fluctuations around them. Many histories have been written in the past, but none have had access to the comprehensive set of data that has been assembled for this volume.

A great deal of economic and statistical analysis of these newly compiled data has yet to be undertaken. However, since the industry is about to launch into a new phase of strategic planning, this compendium and the associated database (at www.adelaide.edu.au/wine-econ/databases) are being made freely available now to assist that process.

In this Executive Summary, key findings are briefly summarized below. They are not in order of importance but just in the order in which they emerge in the Chapters that follow.

Slow vine planting progress to mid-19th century

During the first 50 years of British settlement in New South Wales, numerous settlers experimented with imported vines and wine making. Virtually none of them got to the stage of having a regular surplus for commercial sale, however. Domestic alcohol consumption prior to 1840 instead relied predominantly on imported wines along with imported spirits and beers.

Per adult consumption levels were similar to those in Britain and Ireland at the time (contrary to earlier claims by historians such as Russel Ward): about 14 litres of alcohol, made up of 11 litres from spirits, 2 litres from wine and 1 litre from beer.

Slow embracing of wine as an alternative beverage to 'rum'

Australia's alcohol consumption dropped substantially during the depression of the early 1840s, but rose in the 1850s with the influx of male migrants and the boost in per capita incomes. Thereafter, as the dominance of adult males in the population diminished, so too did per capita consumption, but there was a gradual change in the mix away from spirits to beer and then also to wine.

Wine consumption grew slower than average incomes up to the early 1970s, and then grew faster than incomes as post-war migrants from southern Europe gradually influenced the nation's preferences.

The very long-run trend

Australia's wine industry expanded throughout most of the past 17 decades, but around that very long-run trend have been five distinct cycles in vine area and wine production.

The latest boom in plantings is the biggest of the five by far in absolute terms, but in proportional terms it is only moderate by Australian historical standards.

Each expansion of the bearing area of vineyards, when placed on a per capita basis, was very rapid; but in each case it was followed by a much longer period of considerable decline.

Those sharp increases and slower subsequent declines are also evident when the vine area is shown relative to the total crop area. That indicator has fluctuated around a declining long-run trend since the end of the 19th century.

Even so, wine production per capita and per dollar of overall GDP have trended upwards, due to increasing yields per hectare, thanks to an expanding share of vines being irrigated and more grapes being used for wine rather than other uses.

Only two of the four previous booms involved the industry becoming more outward-focused: the period just prior to the 1890s, and the post-World War I period prior to the depression of the early 1930s.

Both of those outward-focused cycles were partly induced by government support policies that led to surplus production.

The other two booms, 1855-71 and 1967-75, were driven almost entirely by domestic demand growth, generated by rapid immigration and income growth.

Prior to the 1890s, when exports were dominated by wool and gold, Australia had been a net importer of wine; but thereafter wine exports exceeded imports every year except during 1976-86 when mining exports boomed once again.

The first cycle, 1855 to 1882

The first boom (1855-71) was a direct result of the gold rush which started in Victoria in 1851. Within a decade Australia's non-native population trebled and its real disposable income rose even more. So even though real wages were bid up and farm labour was scarce initially as men went off to the goldfields, the growth-induced boost in demand for wine stimulated a rapid expansion in its supply. By 1871 the area had expanded ten-fold and wine production had increased 17-fold.

That prolonged growth in wine supplies eventually outstripped growth in domestic demand in each colony, so export outlets were sought. Inter-colonial trade within the continent was one option, but transport costs were high and each colony also sought to protect its local producers by imposing high import tariffs.

Fortunately, British import duties and ocean shipping costs began to fall in this period, and legislative changes in 1861 created off-licence retailing there. That allowed Australia's exports to Britain to quadruple over the 1860s and double again by the mid-1870s.

Even so, throughout the 1860s and 1870s Australia's wine exports amounted to less than 3% of its production, so it did little to raise the very low returns to vignerons at that time. As a result, the area of grapevines during the 1870s fell 10% nationally and almost 30% in South Australia.

The poor export performance to the late 1870s was not without some highlights though. After the International Exhibition in Vienna in 1873, the *Morning Post* of 8 June 1874 proclaimed: "Australia promises ere long to become as celebrated for its wines as it is already for its wool and gold [and] the scope for further increase is almost unlimited." Similar accolades flowed from the International Exhibition of 1882 in Bordeaux.

The second cycle, 1882 to 1915

Those successes in International Exhibitions, together with the prospect of the forthcoming Federation removing the high inter-colonial trade restrictions by the turn of the century, encouraged growers to further expand the area under winegrapes.

True, there were phylloxera outbreaks in Victoria, but the Victorian Government responded with compensation for forced removal of diseased plants, and then in 1890 it offered subsidies to growers who replanted with resistant stocks.

In response, Victoria's vine area more than doubled between 1889 and 1894 – just as the 1890s' Depression hit and domestic alcohol sales were plummeting.

Phylloxera continued to spread in Victoria, causing its vine area to decline to the point that South Australia regained the lead in total vine area that Victoria had held for four decades.

South Australia's wine production per capita doubled between the five years preceding and the five years following Federation, to more than five times the national average, while that in other states remained flat or fell when inter-colonial trade barriers were removed.

In Western Australia, the vine area only started expanding rapidly when gold was discovered in the early 1890s. As in Victoria in the 1850s, that gold mining boom attracted financial capital from abroad and the colony's white population quadrupled in the 1890s.

National wine production by the turn of the century was three times its 1880 level. As it had grown faster than domestic demand, one-sixth of the newly federated country's wine production was being exported, despite considerable difficulties still associated with exporting from Australia at that time.

Exporting in this cycle was helped partly by the reduced competition from France and other suppliers to Britain following the arrival and devastating spread of phylloxera and mildew in Europe in the 1870s and 1880s.

An important impact on the industry following Federation was the imposition of tariff protection from imports of many manufactured products and some processed farm goods.

Dried vine fruit was one of the first farm products to be so protected. It received tariff protection that doubled the local price of drying grapes when introduced in 1904.

As well, the Australia Dried Fruits Association controlled over 90% of domestic production and was able to raise the domestic price by diverting supplies to distilleries, or to the export market with the help of a government export subsidy.

That scheme raised the price of winegrapes, and hence the cost of producing wine, but that cost was more or less than offset by a tax also on wine imports from early Federation days.

This cycle's export boom involved bulk full-bodied reds. It continued for two more decades after the initial build-up to 1895.

Macroeconomic conditions at home and abroad, not just industry-specific forces, impacted on those exports though: from the late 1880s to World War I, the share of wine production exported closely paralleled fluctuations in the share of all merchandise exports in GDP.

The third cycle, 1915 to 1967

Following World War I the vine area expanded rapidly, encouraged by the subsidized settlement on farms of ex-servicemen, particularly in the newly developed Murrumbidgee Irrigation Area of NSW and along the Murray River.

Annual output of wine more than doubled in the decade to 1925, leading to a glut especially of Doradillo grapes whose price fell by two-thirds in 1924.

The Australian Government decided to further assist producers in the newly planted areas by offering export assistance in the form of a bounty on fortified wines.

The export bounty almost doubled the price received by producer, which dampened domestic fortified wine sales at the same time as boosting production and exports of fortified wines.

Then in its June 1925 budget, the British Government introduced, by way of thanks for war contributions, a tariff preference for wines from the British Empire that effectively halved the duty paid by Australia in that market.

The industry continued to be assisted also by an import tariff on wine and brandy, a sales tax of 15% on imported but not domestically produced wine, excise taxes on beer and spirits but not on wine, and a lower excise tax on brandy than on other spirits.

The import tax on wine was non-trivial, generating a rate of industry assistance that was above the average for other manufactures and twice the average for the agricultural sector. That helps explain both the low share of imported wine in domestic consumption and the relatively low overall level of wine consumption throughout this cycle.

Together these policies gave a considerable boost to Australia's depressed producers of low-valued winegrapes and fortified wines during the interwar years.

The resulting bulk shipments of immature wines, and poor storage treatment in Britain, ensured they were low quality hence low priced by the time they were sold there. That generated a reputation for Australia as a supplier of poor-quality fortified wine, eclipsing its previous reputation as a promising red wine producer.

The Australian Government established in 1929 the Wine Overseas Marketing Board (later known as the Australian Wine Board). Like many marketing boards at the time, it tried to set a minimum price for export wine from 1930. However, the market price was barely half the set price, so the scheme was abandoned in 1936.

With returns to winemakers falling from the late 1920s, a vine-pull scheme by the South Australian Government was introduced in 1936. That contributed to two-thirds of the Coonawarra region's vines being uprooted.

Meanwhile, in Victoria's Yarra Valley, farmers began turning to dairying; and in the Hunter Valley of New South Wales, the acreage of vines was eventually halved.

Hence the total area of vines in Australia grew very little over this cycle, and it was five decades before the annual volume of wine exports achieved in the late 1930s (artificially boosted to build stocks in Britain for the foreshadowed war) was again reached.

The export assistance in the interwar period was a mixed blessing at best: being confined to fortified wines it undermined the growing British and continental European interest in Australian dry table wines that had been slowly building up over the previous few decades; by making it a specific rather than *ad valorem* duty it dampened the incentive to produce higher-quality wines; and by giving six months' notice of the intention to reduce the subsidy in late 1927 it encouraged shipments of immature wines that could not be stored well in Britain.

During World War II domestic wine consumption rose, because beer and spirits sales were rationed, while in the United Kingdom severe restrictions were placed on wine imports from 1941.

Then in 1947 Britain raised its tariff on fortified wines five-fold and kept it very high until the end of the 1950s, and the Australian government removed its wine export bounty.

After Australia removed its war-time grain rationing to breweries, beer again comprised three-quarters of all alcohol consumption in Australia.

Over the next three decades, however, the wine share was to double (as was the spirits share, much of it based on wine distilled into brandy), at the expense of beer sales.

The 50% rise in wine consumption in the 1960s was helped by a one-third increase in real income per capita, by brand advertising and generic promotion domestically, by the influx of wine-preferring immigrants from southern Europe, and by many more young Australians travelling to Europe.

The area of vines and wine production grew only slowly from the mid-1940s to the mid-1960s, and wine exports were flat. The Korean War-induced wool price boom and then subsidies to other farm products meant sheep, wheat, milk and tobacco production appealed more to farmers than winegrapes.

As well, tighter import restrictions on other manufactured goods boosted the import-competing industrial sector, while the removal in the early 1960s of a ban on iron ore exports triggered a boom in mining exploration, both of which indirectly dampened producer incentives in other sectors including wine.

The fourth cycle, 1967 to 1986

Britain hiked its tariff on fortified wines again in the late 1960s, and then joined the European Economic Community which allowed duty-free access to wines from the other EEC members from 1973.

Meanwhile, the mining boom at home and the spike in energy raw material and food prices internationally in 1973-74 and again in 1979-80 reduced the competitiveness of Australia's producers of other tradables including wine. So wine exports remained flat from the mid-1960s to mid-1980s, exports to the UK shrunk by nine-tenths, and wine imports exceeded exports during 1976-86. Grape and wine prices also remained low, particularly for reds.

A subsequent surge in demand for premium red wines stimulated an expansion in their production from the late 1960s. This was followed by an equally sudden surge in domestic consumer interest in premium white wines from the mid-1970s, which was followed in turn by a renewed interest in reds in the following cycle.

During this and the previous cycle the share of fortified wines in domestic sales shrank, from more than half to just 7%. In vineyards, premium table wine varieties, which were less than 20% of the area up to the mid-1960s, represented 40% by the mid-1970s.

Reforms of liquor licencing laws for restaurants and hotels, and the Trade Practices Act of 1974, made retail price fixing illegal and stimulated the emergence of liquor chain stores and wine discounting.

This period saw the commercial development of the 2- to 4-litre cask, or 'wine in a box', which added hugely to domestic demand at the lower end of the market.

Between 1978 and 1984 the volume of white wine sold in Australia in a plastic bag inside a box rose from 33 to 152 ML per year, while bottled red and white wine sales fell by one-quarter, from 73 to 55 ML.

Neither of the surges in production in the two decades to the mid-1980s, of first red and then white table wines, was export-driven.

The industry continued to be internationally uncompetitive and dependent on import restrictions on dried vine fruit and wine.

Then in 1984 the Government introduced a 10% wholesale sales tax on wine, and raised it to 20% two years later. That, plus the perceived over-supply situation especially in reds in the mid-1980s, meant the prospects for grapegrowers and winemakers looked bleak.

It seemed inconceivable to many observers at that time that another boom was about to begin, so the South Australian and Federal governments co-financed a vine-pull scheme in 1985-86.

The fifth and current cycle, starting in 1986

The most-recent boom began in 1986 with a steady increase in exports to take advantage of the historically low value of the Australian dollar, which was due to a sharp fall in prices of Australia's coal, grain and other primary export products.

The export expansion was so large as to raise wine's share of total merchandise value above the 0.9% record set in 1932, peaking in 2004 at 2.3%, just as mineral exports were taking off.

The wholesale value of Australian wine sales doubled between 1984-86 and 1992-94, and the domestic consumer price and the export price of Australian wine both grew by around 50% over that period.

Those price changes stimulated vine plantings, wine production and wine exports, and slowed the growth in domestic sales of Australian wine (as did another increase in the wholesale sales tax on wine from 1993).

Grapegrowers were the main beneficiaries of the initial increase in Australian wine prices. The average price received for winegrapes was three times higher in 1999 than at the start of that decade, even though the export price rose only 60%.

The proportion of Australia's grape production used for wine rose from 57% to 85% over the decade of the 1990s.

With these developments came a substantial increase in firm concentration. By 2014 the top three producers accounted for the majority of wine exports and for more than 40% of the annual crush, of the number of bottles of wine sold, and of the value of domestic sales.

Those largest of wineries were particularly suited to supply large volumes of popular premium wines to supermarkets in the UK and Australia.

The export surge increased substantially the incentive for investment in developing overseas markets for Australian wine. Generic marketing of Australian wine, together with the huge increase in the quantity and quality of Australia's exports, began to build the country's international reputation for popular commercial premium-quality wines.

While this fifth boom was largely market-driven it was also influenced by changes in government interventions. The steady reduction in manufacturing protection and in assistance to some other agricultural industries, that began in 1972 and was accelerated through the 1980s and 1990s, paralleled and thus offset the reductions in nominal rates of assistance to grape and wine producers.

The imposition from 1984 of the wholesale sales tax on wine dampened domestic sales but encouraged exporting, while the government's vine-pull scheme in the mid-1980s led to the loss of some valuable old vines but the replacement of others with more-profitable alternatives.

By way of consolation for raising the wholesale sales tax again in 1993, the government assisted new plantings of vines by providing for accelerated depreciation of vineyard construction costs, which contributed to the trebling of the vineyard area during the boom.

That huge expansion in vineyard plantings inevitably led to a surge in winegrape production three or so years later. Stocks of wine ready for sale trebled in the ten years to 2005.

Meanwhile, several New World suppliers had begun to emulate the Australian export-led experience, leading to a growth spurt in their wine exports just a few years behind Australia's. As well, several Old World suppliers plus Argentina and Chile were expanding their exports because of declining domestic consumption.

Thus Australian exporters began to face increasing competition just as the historically low value of the Australian dollar began its unprecedented decade-long rise after 2001.

The AUD appreciation contributed greatly to the subsequent decline in the AUD price of Australia's wine exports.

While the volume of those exports continued to expand each year until 2007 before stabilizing, their value plummeted as the AUD continued to rise in the wake of the massive mining investment boom.

The decline in wine export prices saw a parallel (and hence proportionately larger) decline in winegrape prices. By 2011 the average winegrape price had returned to the same nominal level as in 1989.

Domestic consumers benefitted from these developments: the retail price index for wine grew far less than the overall consumer price index every year of the past ten.

The appreciating value of the AUD also encouraged wine imports, which grew dramatically from the turn of the century.

New Zealand led the import charge with Sauvignon Blanc, followed by France with Champagne. Even though import prices were well above Australia's export prices, New Zealand's Sauvignon Blanc became the biggest selling white wine in Australia.

A direct consequence of the wine and grape price collapse was that both vineyard and winery asset prices plummeted after 2007, with some vineyards selling for no more than unimproved land value.

The collapse in asset values was partly because banks lost interest in financing the industry, and partly because listed corporations sought to shed their least-productive vineyard and winery assets to boost the rates of reported return on their remaining capital.

Was the optimism at the start of the 5th cycle warranted?

The latest boom differs from the earlier booms in several important respects that justified new optimism.

First, it was overwhelmingly export-oriented, in contrast with the first and fourth booms.

Second, it was mostly market-driven. This was not unlike the first two booms, but in contrast to the third (inter-war) boom that evaporated once government export assistance measures were withdrawn.

Third, the quality of wine output improved hugely relative to the cost of production.

Fourth, the aging of the population and the rapid growth in incomes in high and middle-income countries, at least up to the 2008 financial crisis, was boosting demand, as was the global spread of wine supermarketing.

Those contemplating new investments in Australia's wine industry at the end of the 20th century could be excused for not anticipating the rapidity with which other New World suppliers copied Australia's export-led growth model.

Nor could those investors have anticipated the combination of an unprecedented decade-long rise from 2001 in the value of the AUD, a long and widespread drought that stimulated major policy reforms affecting irrigation water pricing, and the global financial crisis from 2008 which reduced wine demand and weakened the US dollar, Euro and Pound Sterling.

What did innovation and generic marketing and R&D contribute?

One of the hallmarks of the export-oriented success of Australia's wine industry since the 1980s has been the very considerable degree of collaboration among its firms, including through levying themselves and attracting matching government funds for investments in generic promotion and research and development (R&D).

The extent of R&D investment was modest relative to value added when compared with other industries, yet the number of research papers on viticulture and oenology generated per litre of wine produced was very high compared with other wine-producing countries.

Studies have found that the portfolio of GWRDC research projects has yielded benefit/cost ratios ranging from 7:1 to more than ten times that level.

The industry has engaged in generic promotion of exports since the late 1920s (and it added generic marketing in the domestic market from the mid-1960s). Initially the focus was on broadly promoting ‘Brand Australia’, but since 2007 the campaign became more refined with an explicit objective of encouraging consumers to ‘trade up’ to progressively higher prices.

The strategy has been supplemented by regional promotion campaigns, funded by regional producer levies.

The budget for these generic promotion efforts is trivial relative to the value of national production and the extent of expenditure by European competitors. Moreover, despite the many misappropriations that have been uncovered, the EU’s wine promotion budget from Brussels is to be more than doubled for the period 2014-18.

How does Australia’s wine industry growth compare historically with rest of the world’s?

As recently as 1980-84, the five key European wine-producing and -consuming countries (France, Germany, Italy, Portugal and Spain) accounted for just over half of global wine production and consumption. One hundred years earlier, they contributed three-quarters of global wine production, and (with Algeria) they accounted for 95% of global wine exports during the five decades to World War I.

By contrast, Australia prior to the 1990s always accounted for less than 1% of the world’s vineyard area and wine exports. Even in the early 1990s Australia’s shares of world wine production and consumption were less than 1.5%.

Early in the 20th century Australia’s production was small relative also to that of Argentina, Chile and the United States, although its exports then and in the latter 1920s and in 2007 were greater than those of other New World producers. Australia had become the world’s 4th largest exporter of wine by 2002, before Chile pushed Australia back into 5th place in 2012.

When expressed on a per capita basis, the differences between the Old World and New World are less stark, and the two groups are converging.

For most decades from the 1870s to the 1970s, Europe’s four main wine-producing countries produced an annual average in excess of 100 litres per capita, but since the early 1980s those volumes have dropped to an average of just above 70 litres.

Among the New World countries, only Argentina and Chile produced more than 30 litres per capita per year prior to the latter 1990s, but Australia’s per capita production rose from around 10 litres in the 1920s and 1930s to a peak of 60 litres by 2005-09, exceeding that of all other New World countries and just one-sixth below the 2010-13 average for the four main Western European exporters.

Australia slipped back to 52 litres per capita during 2010-13, by which time it was matched by New Zealand. Meanwhile, Chile has shot up to 75 litres, Argentina has fallen dramatically to half Chile's, South Africa has fallen too to one-quarter of Chile's, and the United States has risen steadily but only to one-ninth that of Chile.

The vine intensity of cropping has an even wider range. Italy's share of crop area under vines was the highest in the world at 25% in the early 1960s. It had fallen to 15% by 1980-84 and to 8% by 2000-04, by which time Portugal had taken the lead at 12%. Spain is next at 7% in recent years. France and several other European countries are in the 3-4% range, the level that New Zealand recently reached, but the only other New World country above that is Chile, which recently shot up to 10%.

Australia, by contrast, has never had more than 0.35% of its crop area under vine, and has had less than half that for most years since the 1840s. Already China is approaching that intensity, averaging 0.33% in 2010-11.

This suggests suitable cropping land has not been the binding constraint on Australia's wine industry development. Even in the two most vine-intensive States (South Australia and now Tasmania) the share of crop area under vine is just a little above 1%.

A broader indicator that goes beyond the farm sector to economy-wide productive capability is the share of wine production volume or value relative to overall GDP. In the 19th century, the four main West European countries produced more than 60 kl of wine per real US million dollars of GDP). The range for those countries was still 15-35 kl in the late 1950s, but it had fallen below 5 kl by the early 1990s and to 3-4 kl by 2008. Australia was always below 2kl in the 19th century and less than 3 kl in the 20th century before peaking in 2004 at 3.1 kl, close to the Old World's current average.

As for exports, they did not exceed eight litres per capita per year for France and Italy in the 19th century and were less than five for most years of the first six decades of the 20th century. Spain, by contrast, exported more than ten litres per capita per year in the seven decades to the Great Depression (and Algeria more than 100 litres during 1900-60), but then less than five litres for the next three decades.

From the 1960s, as per capita domestic consumption fell in those West European countries, per capita exports grew steadily from less than five litres, reaching 22 in France, 28 in Portugal, 37 in Italy and 40 in Spain by 2010-13.

In the New World, per capita exports were always less than 2 litres prior to the 1990s, even in Australia in the 1930s. But since then it has risen dramatically in all New World exporting countries: as of 2010-13, it was 32 litres in Australia but was even higher at 40 litres in Chile and New Zealand, and eight litres in Argentina and South Africa.

While Australia was the leader among New World countries in contributing to the latest wave of wine globalization, the three biggest wine producing countries in Western Europe have been expanding their wine exports per capita steadily since the 1950s.

Another indicator of wine export intensity is the ratio of two shares: the share of a country's wine exports in the total value of its merchandise exports to wine's share of global merchandise exports. That index of comparative advantage was around 20 for Portugal prior to the mid-1980s, and by 2010-11 it was around nine for France and Portugal and around six for Spain and Italy.

In the New World the indexes of wine comparative advantage have shot up to 13 for Chile and New Zealand, six for Argentina and 4.5 for South Africa. For Australia, the index peaked at almost 11 in 2004 before falling by nearly two-thirds by 2013.

An important contributor to the sales of wine in any market is the rate at which consumers are discouraged via an excise or import tax. Apart from briefly in 1971-73, the only tax on wine consumption in Australia had been an import tariff until the imposition of a wholesale sales tax from August 1984. Beer and spirits consumption, by contrast, has always been subject to very heavy customs and excise taxation. Prior to the mid-1980s the Australian wine industry thus benefited from that tax regime, both directly via a protective import tariff on wine and indirectly via heavier taxation of alcoholic beverage substitutes in the domestic market.

Between 1984 and 1999, however, a wine sales tax applied and at an increasing rate until it was replaced in 2000 by a wholesale Wine Equalization Tax.

Australia's rate of wine consumer taxation is now high by OECD standards, and especially by the standards of significant wine producing/exporting countries. That is especially true at higher price points, because Australia's consumer wine tax is unusual in being ad valorem (a percentage of the wholesale price) rather than specific (in cents per litre of alcohol).

In 2012 Australia's wholesale tax per standard drink was the same as New Zealand's for commercial premium wines (22 cents) but higher at any price point above AUD7.50/litre. It compares with zero in Argentina, 3 cents in South Africa, 5 cents in the United States, and 6 cents in Canada – and just 1 cent in France and zero in other wine-exporting countries.

Why such a sharp decline in profits and yet sluggish disinvestment in the past decade?

In 2014, 84% of the industry's producers in Australia were not covering even their variable costs of production that year (which was even worse than the 77% survey finding for 2012),

The recent financial situation in Australia contrasts markedly with that in the United States, where for the past six years producers have had not only positive but relatively rosey financial results. In New Zealand, too, all but the smallest category of producers have been operating with healthy profits in all years since 2006, apart from a dip for some in 2010.

While some of those differences with Australia are due to real exchange rate changes, the volume of winegrape production in Australia has not diminished over the past ten years despite the halving of its average winegrape price.

When prices and profits slump, production does not decline even in the medium term: because each producer's investment involved large up-front sunk costs in assets that have no alternative use, they hang on in the hope that the downturn is only temporary or that others are exiting to speed adjustment.

Another reason for slow adjustment is that a large proportion of vignerons in regions near cities earn the majority of their income from other sources and continue to enjoy the lifestyle of being a part-time vigneron even when profits are low or negative.

Also, there are plenty of producers who continue to have access to credit or other funds even when the wine industry is depressed. Those that are in a position to purchase others' assets at low prices at such times are then in a stronger financial position as and when the industry returns to profitability.

Inevitably, though, the vineyard bearing area begins to shrink. Between 2008 and 2013 it fell by one-fifth, and there's been a further net reduction since then. A similar if more gradual fall in the vine area per capita occurred with the more-gradual mining boom of the 1970s/early 1980s, which was followed by a decade in which the vine area per capita hardly changed.

In retrospect, was the industry helped or hurt by protectionism?

While the Australian Federation began by eliminating barriers to interstate trade, it replaced them with tariff barriers to imports from abroad. The aim was mainly to encourage domestic manufacturing, but from the outset some import-competing agricultural industries also succeeded in securing such protection.

Dried vine fruit was one of the first farm products to get such protection, and from 1904 to 1939 that caused the price of grapes to average about 50% above what they otherwise would have been.

The extent of that support dropped during the two decades following World War II, but was still double that for other farm industries, and it rose again during the 4th wine cycle (1967-86) to three to four times that for agriculture as a whole.

Winemakers also have been protected by import tariffs, and at considerable rates in earlier decades but at just 5% in recent years (and zero for New Zealand wines).

Estimates of the wine nominal rate of assistance (NRA) averaged 23% during the 3rd wine cycle (1950-67), the same as for other manufacturing. During the 4th cycle (1967-86) the wine NRA averaged 32%, almost double the average for all other manufacturing of 17%.

Both those NRA averages have since diminished and both are now less than 4%, but prior to the 1980s wine import tariffs were virtually prohibitive, with imports rarely accounting for more than 1% of domestic consumption during the 3rd and 4th cycles.

The extent of support for the agricultural sector as a whole peaked in 1971, just before the Whitlam Labor Government was elected the next year and began dismantling farm support programs.

All import tariffs were cut overnight in 1973 by one-quarter, reducing manufacturing protection to that extent.

Then the Hawke Labor Government floated of the AUD in December 1983 and introduced major microeconomic reforms including programs to phase out import tariffs and quotas and production and export subsidies by the new millennium.

In short, throughout all but the last years of the 20th century, manufacturing has been protected and the agricultural sector as a whole strongly discriminated against by Australia's trade-related policies. Yet within that broad picture, grape and wine producers received relatively favourable treatment throughout the last century.

Protectionism in general leads to an inefficient allocation of the nation's resources, is taxing of consumers, and inhibits innovation and productivity growth, and the same could be argued about supports for Australia's wine industry.

By discouraging imports and raising wine prices, consumers drank less wine and were less aware than they would have been of the wide range of qualities and varieties of wines and brandies available elsewhere.

Those policies, together with the assistance to fortified wine exports in the interwar period, also lowered the incentive for producers to raise their productivity and specialize in the wines in which they were most competitive globally.

It was only when those policies were phased out from the mid-1980s that the wine industry became far more dynamic, innovative, and internationally competitive – notwithstanding the recent slump.

Regional developments from the late 20th century

The Australian wine industry's export-led growth and quality upgrading since the 1980s has added remarkable wealth and vitality to many rural regions of Australia. It has also altered the characteristics of grape and wine production in those various regions.

Since 2003 some areas have increased their share of the national vineyard a lot (Coonawarra, Adelaide Hills, Riverina) while others have seen their share fall a lot (most notably the Murray Darling region of Victoria).

The country's hot zones accounted for 48% of the country's winegrape area in 2001, 46% in 2006, and 42% in 2012. Another 42% of the area comprises warm zones.

The cool regions, such as the Adelaide Hills, Tasmania, Mornington Peninsula and Yarra Valley, accounted for 12% of the bearing area in 2006, but those regions expanded their plantings by two-fifths over the first decade of this century and by 2012 comprised 15% of the national area.

Tasmania is the coolest region, and its share of the national winegrape area was less than 0.2% in 1990, but it rose to 0.5% in 2001 and 0.8% by 2012. With less than 1% of Tasmania's crop area devoted to vineyards, it still has enormous potential to expand, should climate change encourage more growers to move to higher latitudes.

There is also the option of moving to higher altitudes such as in the Adelaide Hills: by 2008, 30% of that region's crop land was under vines, up from virtually zero in the early 1970s.

Certainly yields per hectare typically are lower and more variable in cooler regions, but higher prices compensate more or less for that: in 2008 the cool-region average price was one-quarter above that for warm regions and almost three times above that for hot regions.

Prices were lower in 2013 than a decade earlier in virtually all but the premium cool-climate regions, and the proportional fall was especially largest in the four large hot regions.

In 2008, two-thirds of all winegrapes were sold in the $400 to $650 per tonne range, but by 2014 most were sold at less than $450.

The average price in 2014 was $441, halfway between the averages for red and white winegrape varieties ($540 for reds, $340 for whites).

Despite their low prices, the massive volumes of production in the hot regions are enough to ensure that they comprise four of the top five regions in terms of gross value of winegrape production. The Barossa Valley is ranked 3rd by that criterion, while McLaren Vale and Margaret River take 6th and 7th place.

Regions also vary in the extent to which their wineries are export focused. Since 1870 South Australian wineries have always been the most export-focused. In recent decades that State has accounted for the processing of around 70% of the country's total export volume, although New South Wales and then Victoria have increased their shares a little since 2000.

By 2013 the price dispersion across regions was far greater than at the turn of the century. Average prices ranged from around $350 in the hot-climate regions to seven times that (almost $2500) in cool Tasmania and Mornington Peninsula.

The dispersion is almost as wide for just Shiraz winegrapes, suggesting that for versatile varieties it is regional rather than varietal characteristics that determine their quality/price.

Another indicator, the so-called Varietal Similarity Index (VSI), captures the extent to which each region's mix of winegrape varieties in their vineyards differs from the global average mix. According to that indicator, there has been a considerable decrease in the diversity of Australia's regions in terms of their vineyards' varietal mix, relative to the global average.

Which regions have adjusted most since the latest downturn?

Between 2001 and 2008, Australia's cool and warm regions had the highest rates of vine area expansion.

Cool-climate regions of other countries also expanded in the first decade of this century: in the US, the vine area increased 55% in Sonoma County of California, 108% in Oregon State, and 158% in Washington State, while New Zealand's area grew 220%. Presumably a similar force was at work in all three New World countries, namely, an increasing appreciation for finer wines as incomes and familiarity with wine grew.

By 2012, however, when Australia had almost 21,000 fewer hectares than in 2008, every State except Tasmania had seen its area shrink.

The shrinkage was least in South Australia (a 1% drop to 70,000 ha) and greatest in Victoria (a one-third drop to 24,700 ha, all but 4% of which was in its hot irrigated regions). Western Australia had a one-fifth drop to 10,300 ha, and New South Wales had a one-tenth drop to 38,300 ha.

Almost none of the falls in vine area were in cool climate regions, and the 9% drop in warm regions was only half as large as the 19% drop in hot regions.

Within each of the climatic regions the change was far from uniform though. Eight cool-climate regions shrank, offsetting smaller gains in ten other cool regions. In the hot regions, Riverina and Lower Murray had gains but they only slightly offset the losses, which were largest in the big irrigated regions along the rest of the Murray River.

As for the warm regions, the biggest vineyard losses in New South Wales were in the Hunter Valley, Mudgee and Cowra with only a slight offset in Orange; in South Australia the regions of Langhorne Creek and Currency Creek had the largest losses.

These adjustments suggest that while climate change may have driven part of that adjustment, some was also the result of having planted in less-suitable places or with less than optimal varieties during the immediately preceding boom period.

The lack of area reduction in regions near cities probably reflects the fact that many small producers there are enjoying the lifestyle of being a vigneron and are willing to finance that indulgence with off-farm income or assets acquired elsewhere.

The rebate on the Wine Equalization Tax of 29% on the first $1.7 million of sales each year also has helped small wineries to stay in business.

Varietal developments since the 1950s

Several indicators have been compiled that capture changes in the varietal mix in Australia and its wine regions.

The indicators reveal that the varietal distinctiveness of Australia vis-à-vis the rest of the world, and the varietal differentiation between regions within the country, are far less than for other countries. This pattern has become even more pronounced since 2000.

Annual data on Australia's winegrape varietal mix, available for the country as a whole from 1956, reveal the swings away from reds in the latter 1950s, then towards reds from the mid-1960s to the early 1980s, and again from the late 1990s.

They also reveal the move from non-premium to premium varieties: the latter were barely 20% of the total bearing area in the 1950s, but since the turn of the century they have accounted for more than 90%.

Among the reds, the initial dominance of Garnache (Grenache) for port production was gradually eclipsed first by Shiraz and then also Cabernet Sauvignon, plus Merlot from the late 1990s.

Among the whites, the varieties of importance for fortified wines dominated in the 1950s and 1960s along with Semillon.

The fortified focus (and the use of multi-purpose grapes such as Sultana) was gradually supplemented with Riesling from the 1970s to the early 1990s, while Chardonnay – today's dominant white – began to make its mark only from the 1980s.

Associated with this dramatic change in the varietal mix in Australia's vineyards is a change in the country of origin of the varieties being made into wine. In the 1950s Spanish varieties made up about half of Aistralia's area, and French varieties one-fifth. Today, French varieties account for all but one-tenth of the area and Spanish varieties comprise less than 3%.

Much publicity has been attached to the increased plantings of so-called emerging or alternative varieties that are diversifying Australia's vineyards. Of those varieties not in the world's top-20 list and which have expanded from less than 200 ha. in Australia in 2000, there are ten whose areas have grown significantly since then. But in aggregate those ten raised their share of Australia's total winegrape area between 2001 and 2010 by only 1.7%.

The eight varieties whose area in Australia expanded most over the first decade of this century are, apart from Viognier, all in the top 20 globally. The share for Shiraz alone rose 6 percentage points over that decade, while Chardonnay's rose 5 points and the shares of Sauvignon Blanc and Pinot Gris each rose 2 points.

Not surprisingly, emerging varieties are being displayed on wine labels as soon as possible by producers seeking to differentiate themselves in novel ways. Eleven of the emerging varieties are among the 35 most-frequently mentioned varieties on Australian bottles sold – even though those 11 varieties in aggregate accounted for only 1.4% of the value of winegrape production in 2012.

Despite this flurry of new varieties appearing on Australian wine labels, the increase in varietal diversity of Australia's vineyards observed between 1956 and 1984 had reversed considerably by 2012, when there were just 25 varieties that had shares of national area and production greater than 0.2%.

Australia's varietal distinctiveness globally

The earlier-mentioned Varietal Similarity Index or VSI between Australia and the world rose by more than one-third between 2000 and 2010 to 0.62, indicating a substantial drift in Australia's varietal mix toward the world aggregate mix over that decade.

Meanwhile, the average of the VSIs for all other countries is much lower and hardly changed, at 0.35. In other words, Australia was much less distinct than the average country in its varietal mix in 2000, and its distinctiveness became even less so by 2010.

Since France is the country whose varietal mix is most similar to the world mix, this means in effect that Australia has become more like France: the two countries had a VSI of 0.47 in 2000 and 0.58 in 2010.

A key reason for Australia's varietal mix becoming more like the global mix has to do with Syrah. The popularity which Australia brought to Syrah in the 1990s has led to many other countries expanding their plantings of this variety.

In 1990 there were 35,000 bearing hectares, making it 35th in area ranking of all winegrape varieties globally. But by 2000 there were 102,000 hectares, and by 2010 that had risen to 186,000, bringing Syrah to the 6th position on that global ladder and less than one-third below the areas of the two now-most-widespread varieties, namely Cabernet Sauvignon and Merlot.

Over the decade to 2010, the Syrah area grew more than either Cabernet or Merlot – in fact only Tempranillo expanded faster globally.

Certainly Australia contributed to that expanding area of Syrah, but expansion was even greater in France and Spain. Australia is no longer as globally dominant in this variety: its share of the global Syrah area has dropped from 29% in 2000 to 23% in 2010, even though Syrah increased its share of Australia's own vineyards over that decade, from 22% to 28%.

Regional differences in the varietal mix within Australia

Varietal differences between regions within Australia are more muted than is the case within other countries, despite the very large differences in growing conditions across Australia.

Of the three most-similar regions in the world to each of Australia's 94 regions in 2010, less than 7% were non-Australian regions. In New Zealand, by contrast, more than two-thirds of the three most-similar regions to each of its ten regions were in other countries.

It is true that some regions in Australia have managed to pull away from the pack and so are more differentiated from the national mix now than in 2000. However, a little over one-fifth of Australia's 74 regions, comprising 40% of the national winegrape area in 2010, changed their varietal mix hardly at all over that decade.

Varietal Quality Differences within Australia

Given that different varieties grow better in some regions than others, and that consumer tastes change and over time, it is not surprising that there is also considerable dispersion in the national average prices by variety.

In 2001 the difference between the lowest and highest average varietal prices was more than six-fold, and it shrunk very little by 2010 despite the two-fifths fall in the nominal average price for all varieties.

The ranking from lowest- to highest-priced varieties changed a lot over that decade though, reflecting the fact that the mixes of varieties in all three climate zones in Australia have altered considerably.

Varietal prices and January temperatures

In the Northern Hemisphere it is common to observe an inverted U-shape relationship between the price of winegrapes and the summer temperature. Across Australia's regions, by contrast, that relationship tends to be only negative for observed temperatures.

As the number of cool-climate regions expands that relationship in future years may become a little more like Europe's, but that tendency may be offset by the facts that Australia's climate continues to warm and the January mean temperatures are becoming higher and are bringing forward the harvest dates.

The current pattern of lower prices in warmer regions is likely to mean that climate change will lower Australia's average winegrape price, unless vignerons switch to Southern European varieties more suited to our relatively warm climate.

What are the market prospects for the rest of this decade?

The Australian wine industry is not alone in feeling challenged during the past few years. Common contributors include the following:

- a chronic oversupply of winegrapes and wine in the European Union,
- retail concentration of supermarkets, with the largest developing their own labels by buying bulk wine,
- tight regulatory environments for wine distribution in such settings as Ontario, many of the US states and Scandinavia,
- the global financial crisis from 2008,
- expanding supplies in emerging markets such as China,
- consumer health and environmental concerns,
- anti-alcohol campaigns by health and road safety lobbyists, and
- great uncertainties resulting from climate change and associated policy responses.

Australian producers have had to deal also with such things as:

- a high-valued currency that has made Australian wines less competitive,
- large stocks of unsold wine (thanks to the rapidity of vineyard expansion),
- a fashion swing against Australian wine especially in the UK and US,
- a fashion swing in Australia toward New Zealand's Sauvignon Blanc, and
- major reforms to irrigation water institutions and policies.

Symptoms of those difficulties for the Australian industry include large declines in winery profits, the cut in winegrape prices particularly in the hot irrigation areas, more than 15% of domestic sales being supplied by imports (compared with just 3% at the start of the millennium), and almost three-fifths of Australia's wine exports in 2014 being in bulk containers (compared with one-seventh during 1996-2003).

Climate change also is likely to be a bigger challenge for Australia than for many other wine-producing countries. The majority of Australia's winegrapes are produced in the hot irrigated regions around the Murray and Murrumbidgee Rivers. Those regions are becoming warmer and drier, and have seen a slowdown in river flows.

There is also an increasing demand from the community for a larger share of those reduced river volumes to be saved for environmental flows and urban uses, so there will be less scope in the future for irrigation to compensate for reduced precipitation.

The quality of the main international winegrape varieties currently grown in the hot regions deteriorates as the growing temperature rises, so producers are having to go to the expense of searching for and planting or grafting alternative varieties that will be more suitable. By contrast, global warming will improve winegrape quality in much of temperate Europe.

Daunting though the above lists of challenges looks, some of those adverse developments are only short term. Also, there are several positive signs emerging. One is the cautious optimism of economic recovery that is showing up in the United States and parts of the recessed economies of Europe.

A second encouraging sign was the substantial take-up of the European Union's offer to pay winegrape growers to grub up vines during 2009-11.

There has also been some grubbing out of unprofitable vineyards in the hot irrigated areas of California in recent years, as well as in Australia.

Third, expected demographic changes in the United States over the next two decades suggests wine consumption there will grow considerably faster than overall population.

Fourth, the Asian market is growing steadily. Not only is its population expected to rise by 700 million people by 2030, but its share of global income (ignoring Japan) is expected to double, to around 23%.

Already the middle classes in those emerging economies are importing both popular and fine wines, but at above-average prices. In China, for example, wine from grapes in recent years has accounted for just 2 percent of the volume of alcohol consumption but for 8 percent of the value of alcohol sales.

The average unit value of wine exports to all East Asian countries from Australia is very high. During 2011-14 it averaged $6.40 per litre, compared with less than $2.20 to all other destinations, and for exports to China (by far the biggest Asian wine market) the average price was more than $5.70.

Australia's export prospects depend very much on exchange rate movements. With the recent devaluation of the AUD, those prospects are looking much brighter, and imports into Australia will be less competitive.

It needs to be kept in mind, though, that Australia's per capita income growth may slow and possibly decline with the mining investment boom coming to an end, which will dampen domestic demand growth.

What about the varietal mix in Australia's various regions?

Australia's mix of winegrape varieties is not very different from the rest of the world's and, since 2000, it has become even less differentiated. Whether that is a good thing commercially is unclear, especially for Australia's hottest regions. Do Australian producers benefit enough by emulating France's varietal mix to offset any economic downsides, for example from being less differentiated from the world mix, or from growing varieties that are less than ideal for the terroir of Australia's various regions?

Even though there are very large differences in growing conditions and especially climates across Australia, cross-regional varietal differences within Australia are much less than is the case within other countries. Perhaps this is a consequence of producers finding it easier to market well known 'international' (mostly French) varieties than trying to differentiate their offering and region with less-familiar varieties.

The current homogeniety suggests there is plenty of scope to explore alternative varieties in the various regions of Australia as grapegrowers consider ways to adapt to climate changes. Australia's various regions to date have made only a little headway in diversifying their vineyards, despite much discussion of alternative or emerging varieties.

Policy and institutional implications

How might Australia strengthen its competitive edge over the next decade or so? Looking beyond the immediate difficulties, there are reasons to be cautiously optimistic about the Australian wine industry's future.

Recovery won't be easy, and may not be as quick as the resurgence from its mid-1980s slump. Certainly major adjustments will be required for many participants. However, to the extent there is a willingness to continue to invest for the long term (rather than just focusing on quarterly returns to shareholders), and if the earlier spirit of collaboration within the industry can be re-invigorated, a return to at least normal levels of profitability should be possible before long.

One adjustment already under way is in marketing. The earlier emphasis in generic marketing on 'Brand Australia', of providing sunshine in a bottle, has switched to a marketing strategy that places far more emphasis on regional characteristics and higher-quality wines.

That idea was taken further with the creation in 2009, by a dozen long-established, mid-sized, quality-driven, high-profile, family-owned Australian wineries, of the 'First Families of Wine' group: together it represents 16 Australian regions across four states, and between them those producer have more than 1200 years of winemaking experience.

Following the merger of Wine Australia and GWRDC on 1 July 2014 to form the Australia Grape and Wine Authority, the industry is now developing a 5-year strategic plan which is expected to have a stronger focus on building and promoting the country's fine wine offering. The aim is to go beyond offering good value wine to making the world aware Australia also has great wine.

Getting that message across in not only Australia's traditional markets but also in Asia will require a larger budget than AGWA's predecessor organizations have had in the past, especially given the commitment by the European Union to more than double its generic promotion expenditure over the next five years.

In terms of private-sector promotion by individual large wine companies, they already have well-recognized labels, including five of the top dozen wine brands globally plus Penfolds. The first four represent low-priced labels though, which are coming under stronger competition from Argentina, Chile and South Africa

As for the R&D portfolio, the returns from such investments have been very high in the past. Returns in the next two decades are likely to be even higher, bearing in mind marketplace changes and long-term uncertainties such as climate change, water and other environmental policy reforms, and prospective alcohol tax changes at home and abroad.

As with generic promotion, returns to the various players along the value chain and to different types of producers and different regions from R&D investments will not be equal.

Wine consumer tax policy reform could contribute to the transition to higher-quality wine production. If Australia were to switch from an ad valorem to a volumetric tax, that would encourage the transition to finer wines while weakening the case by anti-alcohol lobbies for a higher *rate* of tax on wine.

In particular, it would make it easier for smaller fine-wine producers to sell all their product on the domestic market, thereby avoiding the high fixed costs of breaking into new export markets.

There is the risk that any change to the method of taxing wine consumers will be accompanied by a hike in the extent of taxation. That would need to be countered by the argument that moderate wine consumption can have positive health and social externalities.

Advocacy by the industry on wine tax policy and myriad other issues is likely to be more successful the more the industry can speak with a united voice. The industry has managed recently to join its generic promotion and R&D bodies, but it still has two advocacy groups.

Some lessons from history

Lessons can be learnt from the past that are pertinent to the industry's current opportunities and challenges. They are laid out here as dot-point responses to a series of questions that have arisen in the course of the present study.

Why did the Australian wine industry not take off in the latter half of the 19th century when Europe's wine industry was being ravaged by phylloxera and mildew?

- It had no large firms at that time, and the overall scale of industry was too small;
- Spain was on France's doorstep and far more capable of rapidly expanding its exports to its neighbour.
- Algeria was a close-by territory so that, as soon as French producers became established there, competitors were cut off by discriminatory import restrictions, including against Spain.

Why did the industry grow so slowly during most of the 20th century?

- The creation of the Australian Federation led to the removal of inter-colonial trade barriers which assisted the South Australian wine industry greatly, but at the expense of wine producers in other mainland states.

- However, from Federation to the 1970s Australia adopted a highly interventionist set of trade and industry policies that protected producers from international competition and slowed innovation and hence productivity and income growth.
- The grape industry was one of the first agricultural industries to successfully lobby for such assistance, and wine imports also have been subject to tariffs from early last century. That meant both parts of the wine industry were sheltered from the cool winds of international competition. That assistance was also an offset to the negative effects on production costs of high protection to other industries.
- In the interwar years the industry was also distorted by policies that assisted exports but in a very discriminating way, favouring only fortified wine exports to Britain.

How important were macroeconomic conditions to the industry's cycles?

- Very: Australia suffered three severe economic depressions (in the early 1840s, early 1890s, and early 1930s) which dampened both domestic demand for wine and the availability of finance to help producers weather those downturns.
- Also, the Global Financial Crisis from 2008 and associated changes in exchange rates dampened demand for Australian wine on both sides of the North Atlantic.

How important were the fortunes of other sectors of the Australian economy to the industry's development?

- Very: the gold rushes in the 1850s and 1890s (and the copper boom in South Australia in the 1840s) had generally positive effects because they brought permanent immigrants and capital from abroad which grew the domestic demand for wine.
- The ban on iron ore exports from the 1930s to the 1960s delayed the start of a mining boom in response to Japan's industrialization, which benefitted wine and other tradable industries relatively but meant the economy grew less rapidly than it might have in the 1960s and 1970s.
- The latest two mining booms, in the 1970s/early 1980s and especially in the first dozen years of the present century, contrasted with the 19th century mining booms in that they attracted few extra permanent residents and were financed mostly by footloose overseas capital. Being export-demand driven, those mining boom involved major real exchange rate appreciations followed by major and faster depreciations. Since the wine industry was far more open to international competition in the past two decades than it had been throughout most of the 20th century, those exchange rate gyrations had a major impact on the wine industry's current cycle (contributing positively to the start of its boom, negatively to its end, and potentially positively again if the AUD remains at its current low level for some years to come).

How have successful investors in the wine industry behaved in past cycles?

- Cycles are inevitable for perennial crop industries, so canny investors with finance and market outlets have bought assets in slumps, giving them a reasonable return on those low-priced assets and readying them for take-off in the next boom when they can sell those assets at higher prices and lower their capital base to concentrate on brand investment.

What can be done to shorten the current slump and reduce the amplitude of future cycles?

- The industry as a whole needs to invest more in at least four areas: generic promotion; technical, policy and market research; data on industry developments; and collaborating better on these and other issues including advocacy.

- Governments need to keep out of grape and wine markets and confine their activities to generating public goods and overcoming market failures such as the free-rider problem of collecting levies for generic promotion and R&D.

A final word

It is almost two centuries since John Macarthur and Gregory Blaxland invested in vineyard developments in New South Wales. It is therefore worth recalling the words of the late Baroness Philippine de Rothschild, who liked to tell visitors to her château that “wine making is really quite a simple business, only the first 200 years are difficult.”