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Will Drought Erode the Competitiveness of Australia's Wine Industry?

by

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Will drought erode the competitiveness of Australia's wine industry?

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Summary

Australia's 2007 vintage was smaller than the previous few vintages as a consequence of drought and frost in 2006. Then the worst happened in the following year with an unprecedented second year of drought that resulted in severe cuts to water allocations for irrigators in the southern Murray-Darling Basin. This paper examines the medium-term prospects for the Australian wine industry using global projections to 2016 with the World Wine Model. The international growth prospects of commercial-premium wine matter to growers in irrigated regions of Australia. Overall, demand for commercial-premium wine is set to grow. This is despite a slowing of growth in Australia's number one market, the United Kingdom.

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Background

The aim of this paper is to address specifically the impact that the two year drought of 2006 to 2007 has had on Australia's wine industry. In particular, the paper will examine the impact on production in irrigated, warm climate regions of the southern Murray-Darling Basin. This comes at a time when various difficulties have led to some loss of confidence in the future of the industry. In the short term, questions concern the impact of the droughts on production, on wine inventories and on the number of hectares of vineyards removed from production. What is the medium-term future of wine grape production in the southern Murray-Darling Basin in the context of domestic supply and global wine trends?

Australia's grape and wine sectors have had to deal with unprecedented market conditions over the past decade. In the mid- to late-1990s, rising export demand resulted in price premiums for red winegrapes from all regions of Australia, signalling the need for matching supply growth. In response, there was an unprecedented level of vineyard plantings. Grape prices started to fall in vintages around the turn of the millennium as new vineyards came into production, particularly for grapes from irrigated regions in the southern Murray-Darling Basin. Now, there is anxiety concerning the future of the industry in the irrigated regions brought on by cuts in water allocations in the 2007-08 season. Water quality has become a growing issue in the lower reaches of the Murray-Darling Basin, with escalating salinity levels due to drought. Also, there may be concern over the long-term future of the industry, given the signs of climate change. The focus of this paper is confined to the medium- rather than long-term. It therefore considers the aftermath of the drought but not the impacts of climate change.

Although this paper concentrates on irrigators in the southern Murray-Darling Basin, in the context of global market trends, other regions have also suffered. Dryland grape growers in south eastern Australia have had to endure yield losses due to rainfall deficiencies and frost, evident in the drop in 2007 vintage from the previous year. Vineyards adjacent to forested areas have also been vulnerable to smoke damage due to bushfires associated with drought. Most producers scrapped the 2007 vintage in the King Valley in north eastern Victoria due to smoke damage. Smoke potentially has been a problem in vineyards near forested areas over much of southern Australia due to several droughts since the turn of the millennium.

An examination of global wine trends and Australia's place in the wine world is a necessary part of industry analysis. Looking at domestic supply conditions and grape prices from recent vintages, there may be a tendency to view the future with excessive pessimism. Analysis based on Australia's wine export performance over the past decade or more may lead to quite a different conclusion. Australia's export data contain few signs that demand for Australian wine is slowing.

Australian supply in recent vintages

Prices for wine grapes in warm climate regions of Australia bottomed out in the vintages from 2004 to 2006, through a massive increase in supply resulting from plantings of the late 1990s. Then in the 2007 vintage, drought and frosts in south-eastern Australia reduced yields sharply in cooler climate regions and had some effect on water allocations in irrigation regions. Wine production, which had hovered between 1,400 and 1,500 megalitres per annum in the previous

three years, fell to 960 megalitres in 2007– the lowest production level in the new millennium. Wine inventories had been climbing with output increases over the past decade or more. Inventories peaked at over 2,100 megalitres in 2006 (ABS, 2008). The production drop in 2007 resulted in a fall in inventories of more than 300 megalitres.

Since many wines are not released until they are two years old or more, wineries tend to carry significant stocks. Recorded inventory volumes in 2006, equal to about one and a half year's production, appeared to be excessive, a consequence of a phase of rapid supply growth. The impact on grape producers was felt most acutely in warm climate inland regions. Wineries paid low prices for grapes, with a proportion of grapes being unpicked. Grapes from these regions account for a large proportion of cask wine produced in Australia. Less obvious to consumers is that grapes from these regions make up a significant proportion of commercial premium production, used in budget-priced wines. Wine labelled as originating in south eastern Australia in all probability is from irrigated vineyards in the southern Murray-Darling basin.

The Australian Wine and Brandy Corporation (2008a) released an update on the 2008 vintage. Their outlook was that the cooler climate would be up 40% on the 2007 vintage – prior to the extraordinary March heatwave in South Australia.[1] They presented the following outlooks for the southern Murray-Darling Basin:

- Riverina grape output would be up 20% on 2007 due to heavy rains in November/December and 80% water allocations;
- Riverland water allocations were 32% in December 2007, bolstered by water purchases, resulting in a small increase in grape output; and
- Murray Darling/Swan Hill tonnages would be down 10 to 15% on 2007, due to reduced water availability, even after water trading.

In the medium-term, we require an estimate of the proportion of vineyards in irrigated regions that have been grubbed in order to revisit medium-term projections. Based on such a revision, it appears that medium-term grape supply will fall slightly relative to that projected in last year's paper (Wittwer, 2007).

Revisiting the future of wine exports to China

In last year's paper on the global wine market as it affects the Australian grape and wine sectors, there was some emphasis on the role of China (Wittwer, 2007). Given that China banned half-juice wines in 2004 and also reduced the import tariff on wine sharply, the expectation was that China's demand for imported wine would grow rapidly. The speculation of last year's paper was that sales of bulk wine to China from Australia would grow until some time after 2010. The rationale was that such sales would help reduce Australia's wine stocks to manageable levels during a period in which there was growing demand from China for such wine.

It is now obvious that this speculation was a little astray. First, severe drought and frost reduced stocks more rapidly in 2007 than any sales increase would have in a vintage with

[1] The AWBC is likely to revise vintage estimates down slightly due to the March 2008 heatwave.

average yields. Second, there does not appear to be growing demand in China for bulk wine that is bottled on arrival. This contrasts with the UK, Australia's most established export destination, in which an increasing share of commercial premium wine is shipped in bulk. This wine is bottled on arrival for supermarket distribution under labels in which country of origin and grape varieties appear to matter more than brands.

It might take a little courage to infer a revised forecast for China. Between 2006 and 2007, there was a remarkable change in the composition of exports, with the volume dropping 16% while the value increased 53%, for an increase in unit values in excess of 80%. This indicates a sudden change in the composition of exports rather than any gradual or ongoing trend. This is as sudden as the increase in imports that occurred after China's two policy changes in 2004. The main reason for this change appears to be due to the establishment of specialty wine retail shops in Shanghai that propelled sales growth in higher quality wines (USDA, 2008). Around half the imports of wine into China arrive in Shanghai.

It is tempting for Westerners to think that with growing incomes, China's consumer tastes will merge with those of the Western world. It might be more pertinent to think of traditions: the partaking of "peasant" wine in Europe might have a role not dissimilar to the consumption of fruit of China. In China, wine consumption is confined to relatively high income-earners in cities mainly on the eastern seaboard. As such, wine is something of a prestige good. It is not an everyday item as in Europe that has penetrated China's food culture. This does not appear to leave much room for growing imports of bulk wine.

This may change over the next decade, but it appears more likely that wine in China in the future will have a similar role to wine in Japan at present. In Japan, wine's role appears to be confined to those with an interest in Western or international cuisine. As such, consumption in Japan remains at less than 3 litres per capita, smaller than one tenth of that in a number of Western nations.

A development in 2007 in the Far East was that Hong Kong halved its import tariffs on wine from 80% to 40%. Now, tariffs on wine imports have been abolished. This could lead to a jump in Australian exports to Hong Kong. If Hong Kong's imports were confined to local consumption, in value terms the magnitude of any jump would be in tens of millions of dollars per annum, given the relatively small market. But since Hong Kong is a substantial re-exporter, the abolition of the import tax might encourage Hong Kong companies to market wine from around the world in China. This may magnify the impact of the abolition of the tariff. In the projection presented in this paper, the tariff abolition in Hong Kong is not modelled, as the database of the model does not represent Hong Kong separately.

Will booming US demand for wine help Australia?

Although prospects for growth in the value of consumption over the next decade appear to be better in the United States than anywhere else in the world, exporters now must face the prospect of an ever-weakening US dollar. Across the quality spectrum, the weakening US dollar will raise the competitiveness of US wine against imports. Although this effect in isolation is likely to move domestic US consumers towards consumption of US-made wine, it

will be constrained by domestic US production. At present, imports account for around 30% of the wine consumed in the United States, offset by exports of about half the volume of imports. California producers around 90% of US wine. Californian winemakers as elsewhere in the world face the prospect of growing water shortages and climate change.

Since overall consumption growth prospects appear good, and enhanced domestic competitiveness will be constrained by limited prospects for vineyard expansion, there appears to be no reason to change the conclusion of last year's paper (Wittwer, 2007). That is, Australian exports to the United States will need to conscious of maintaining and upgrading wine quality. Competing on price alone may be a hazardous exercise. However, since Australia already has a large base in the commercial premium quality range in the US market, even without substantial growth in the category, such wine sold in the United States will retain a significant share of Australia's overall wine exports.

Are bulk wine imports damaging the viability of Australia's warm climate producers?

In the mid- to late-1990s, export growth was more rapid than supply in Australia. This resulted in imports, particularly of bulk red wine, from Spain to Australia in 1997-98 (ABS, 1998). Spanish imports exceeded 10 megalitres in that year. Such wine addressed a relatively sudden shortage and virtually disappeared from the market thereafter as domestic supply increased. The sudden change in supply in recent vintages may have induced a similar temporary surge in imports of bulk wine to Australia. In 2007, bulk wine demands would have been satisfied with inventory decreases. With a second successive vintage with below-average yields looming, suppliers of bulk wine may have increased imports to meet existing demands. There is little reason to believe that the Australian producers prefer to source bulk wine from overseas in normal years.

The future for warm climate inland producers

Red wine grape prices for warm climate inland regions peaked with the 1998 vintage. At the time, such prices were not many-fold lower than for grapes for relatively low yielding vineyards elsewhere. Although prices for white wine grapes from inland regions never soared to the same levels as those for red grapes at the time, prices were high enough to encourage plantings of white varieties.

Since the late 1990s, quality premia for winegrapes have risen. As the prices of warm climate grapes have fallen sharply, the price gap between warm climate grapes and cooler climate grapes has grown. In the vintages of 2004 to 2006, supply growth also affected prices for some cooler climate grapes. Yet prices for grapes from rare, aged vineyards continued to grow – although in the case of some of the most famous wines in Australia, those vineyards are owned by the winery.

Inland grape producers have suffered financial stresses for a number of reasons. First, they have had to deal with low prices arising from supply growth. Second, some input prices, notably those of fertilizer and herbicides, have escalated. Third, two years of drought have resulted in reduced water allocations, soaring prices for water and grape yield decreases. There is evidence of some vineyard grubbing in the warm climate regions in 2007 in the wake of the

second year of drought. Such grubbing would start with grape varieties that appear to be less favoured by the wine industry. It would appear that these will have only a marginal effect on Australia's future wine supply.

The two year drought that has affected the southern Murray-Darling Basin has resulted in stress for irrigators across a range of products. Grape growers in the region who previously had to deal with low prices due to extraordinary supply growth have faced new challenges. With drastically reduced water allocations in 2007-08, they have had to perform a balancing act between purchasing water at high prices, reducing water applications per hectare of vineyards or letting vine stocks die. Relative to other producers of perennials, grape growers have some advantages. First, vineyards appear to be hardier than some competing crops in coping with reduced water applications. Second, despite perceptions of growing international competition, the foundation of exports across a range of varieties and qualities of wine is now well-established.[2] In the face of such rapid supply growth around the turn of the millennium, it was virtually impossible for Australia's wine sales growth to be seamless: low prices for grapes produced in some regions, at least for several vintages, may have been inevitable.

Cask wine's share of domestic wine consumption continues to fall: in 2006-07, the volume of soft pack sales fell behind bottled sales in Australia. In 2007-08, cask wine's volume share of domestic sales of Australian wine had fallen to 42 percent (ABS 2008, table 23). The trend of sales of relatively low quality wine falling relative to sales of higher quality wine is global rather than being confined to Australia. In countries with volumetric taxes on wine, low-priced wine is taxed more heavily than in the case of ad valorem taxes (as apply in Australia), thereby playing a part in the movement away from low quality wine. In the southern Murray-Darling Basin, falling demand for cask quality wine in isolation may not be good news. But since the region produces a substantial share of the grapes used in the growing commercial-premium segment of the market, there is some cause for optimism for grape growers in the southern Murray-Darling Basin.

There are signs that better days are ahead for such producers. While pessimism is an understandable response to low prices prior to the present drought, compounded by water woes now, a recovery is possible. A significant share of Australia's current wine export base is sourced from warm climate, inland regions. Vineyards in these regions are important suppliers of grapes for production of commercial premium wines. It might be that an increasing share of Australia's future sales will be of super-premium rather than commercial-premium wines, which will favour the produce of cooler climate regions. The cornerstone of recent wine marketing strategies in Australia has been to raise the quality of exports. However, the signs from export data for 2007 indicate that there is room for exports of different wine qualities.

Consider the rising quality example: in the US market, despite a substantial appreciation of the Australian dollar against the US from 2006 to 2007, the average unit value of Australian exports in Australian dollar terms rose by 6.5% in this time (Australian Wine and Brandy Corporation, 2008b). This appears consistent with a strategy of raising quality. Yet in the UK market, the average unit value in Australian dollar terms fell by 2.7%. This reflects the increasing share of bulk wine in total shipments. Wine exporters are unlikely to ship super-

[2] Other crops such as citrus are facing growing international competition.

premium wine in any container other than a labelled bottle. Since Australia has a reputation for value-for-money wines, especially reds, bulk shipments to the UK may continue growing. Such shipments are destined for supermarket shelves under a home brand label. Although this might be a segment of the market regarded as being based on price competition rather than quality, growing green-consciousness may attract consumers. Such wine has "green" appeal, in that shipping is more efficient and local bottles may be recycled readily: this may turn out to be a bonus for the Australian industry.

Australia wine's reputation for value-for-money and reliable quality may be challenged by Chile, Argentina and South Africa. Yet available evidence is that Australia is maintaining its dominance in the UK, US and Canadian markets, its three most important export destinations. Australia experienced strong sales growth to the Netherlands in 2007 (92% in volume terms, 77% in value terms) and surprising value growth in China (16% fall in volume, 53% rise in value) (Australian Wine and Brandy Corporation, 2007). Even if there are signs that some consumers overseas are tiring of Australian wine in the commercial-premium quality range, this has not been translated into sharply falling sales in any market yet. In any case, there are reasonable growth prospects in newer markets such as China. On balance, with a gradual broadening of Australia's export base, prospects remain encouraging.

Revised projection from 2006 to 2016

The main difference between the present projection and that of Wittwer (2007) concerns the supply response.[3] The present projection is less optimistic than the previous study concerning the land, capital and water that will be available for grape and wine production to meet growing global demand for higher quality wines. Water scarcity is likely to constrain growth in grape production in a number of countries, including the United States and Australia. Competing agricultural products will limit the movement of resources into winegrape production: in the case of China, table grapes will continue to be a major alternative product. At the macroeconomic level, China's income growth may not be as high as projected in Wittwer (2007). However, if China's massive trade surpluses fall, aggregate consumption, which drives the expenditure effects in theory of household demand within the World Wine Model, may still increase sharply in China even as GDP growth slows.

This projection takes no account of climate change: it is unlikely that a movement towards cooler regions in winegrape production will be evident by 2016, although climate change has the potential to impose such a change over a longer time period.

Productivity growth shocks imposed on the projection are slightly smaller than in Wittwer (2007). Wine productivity growth for super-premium, commercial premium and sparkling wine is limited to 5% in the decade to 2016, although some productivity improvements may be masked by quality improvements. For non-premium wine, the imposed productivity gain is 10% but since we assume a taste swing away from this wine, this results in a global decrease in labour and capital used in non-premium production.

[3] Wittwer (2007) reported projections from 2005 to 2015; the present projections are from 2006 to 2016. Notable differences between 2005 and 2006 are the base export volumes of Australia and New Zealand, which grew from 702 ML to 760 ML and 57 ML to 65 ML respectively.

The projected outcomes in tables 1 to 6 are subdivided into different groups of shocks applicable from 2006 to 2016. The macro column (1) represents the portion of the price or quantity change attributable to economic growth (national population and aggregate consumption). The wine taste column (2) shows the impact of a taste swing from non-premium towards premium wines. The supply shift column (3) indicates exogenous changes in land and capital, and total factor productivity growth imposed on the grape and wine sectors.

In examining the impact of global projections on output prices, we need to be aware that in the base year, 2006, warm climate grape prices were at a low level in Australia.[4] The substantial increases in producer prices for commercial premium wine (52.5%, table 2) should translate to increased prices for warm climate grapes, albeit from the low 2006 level. Since prices for key inputs including fuel, fertilizer and water are likely to rise or remain high, such producer price increases at worst may do little more than cover rising costs. Nevertheless, reductions in input requirements over time induced by their rising scarcity may offset the impact of rising costs on production.

Table 1: Super premium wine output and real price changes, key producers

(% change between 2006 and 2016)

	(1) Macro	+(2) wine taste	+(3) supply shift	=Total output	(1) Macro	+(2) wine taste	+(3) supply shift	=Total price
AUS	7.4	2.3	13.7	**23.5**	47.6	12.3	-15.2	**44.8**
NZL	8.9	2.8	13.5	**25.3**	44.1	12.0	-15.1	**41.0**
USA	6.3	1.9	8.8	**17.0**	50.2	12.4	-15.2	**47.5**
Chile	2.6	0.8	15.3	**18.7**	49.7	12.9	-16.2	**46.5**
SAF	21.6	7.3	2.7	**31.6**	37.9	9.7	-8.6	**39.1**
ARG	7.3	2.1	17.9	**27.2**	54.0	12.7	-30.5	**36.2**
FRA	5.4	1.8	3.3	**10.5**	43.9	12.4	-9.1	**47.2**
ITA	4.7	1.6	-1.1	**5.2**	44.1	12.7	-5.8	**50.9**
POR	4.6	1.8	-0.9	**5.5**	41.9	12.4	-6.3	**48.1**
SPN	5.4	1.8	-0.8	**6.5**	44.6	12.6	-6.7	**50.5**
MOLD	20.1	7.7	7.4	**35.2**	30.9	9.4	-10.2	**30.2**

Source: World Wine Model projections.

In considering Australia's projected output, we should first recall that a substantial proportion of Australia's increased output over the past decade or so has resulted in a build up in wine stocks. We therefore need to define what we mean by "output", as shown in tables 1, 2 and 3. This refers to sales either to domestic consumers or as exports. Australia's apparent output increases reflect in part a slowing down of inventory accumulation: that is, tables 1 to 3 express output growth in terms of sales rather than output inclusive of changes in stocks. The World Wine Model is not dynamic and therefore does not attempt to model stocks disposal following any economic theory. Beyond a certain level, wine stocks are an accident of rapid expansion – in the cases of Australia and New Zealand – or production policies that are far removed from the needs of consumers, as has been evident in the European Union for several decades.

[4] The tables do not include changes in grape prices. In Australia's case, grape prices track super-premium and commercial-premium wine producer price changes closely in the projection to 2016.

Tables 1 and 2 show smaller output responses and larger producer price hikes in response to growing global demand for premium wines than in Wittwer (2007). The traditional exporting nations of Western Europe (i.e., France, Italy, Portugal and Spain) experience output losses in non-premium production (table 3) with relatively small increases in premium production (tables 1 and 2).

A key difference between premium and non-premium production is reflected in producer prices: they rise substantially for premium production (tables 1 and 2) while falling for non-premium production (table 3) in real terms. As is explained in appendix 2, part of the assumption underlying these results is that demand growth continues for premium wine, whether exported in bottles or in bulk, while falling for non-premium wine. The commercial premium category is likely to include a growing proportion of exports of bulk wine.

Table 2: Commercial premium wine output and real price changes, key producers

(% change between 2006 and 2016)

	(1) Macro	+(2) wine taste	+(3) supply shift	=Total output	(1) Macro	+(2) wine taste	+(3) supply shift	=Total price
AUS	6.1	3.2	13.5	**22.8**	45.3	23.0	-15.7	**52.5**
NZL	9.5	4.3	12.5	**26.3**	52.1	22.8	-19.9	**54.9**
USA	4.9	2.5	3.5	**10.9**	47.9	23.3	-13.7	**57.5**
Chile	1.4	0.7	15.5	**17.6**	49.5	23.5	-18.3	**54.7**
SAF	9.2	5.1	3.5	**17.8**	43.5	21.8	-11.7	**53.5**
ARG	6.5	2.8	17.3	**26.5**	53.0	22.5	-35.3	**40.2**
FRA	4.8	3.0	-3.9	**3.9**	41.3	22.7	-7.5	**56.5**
ITA	3.9	2.3	-4.9	**1.4**	40.7	23.1	-6.6	**57.2**
POR	4.3	2.6	-1.6	**5.3**	43.6	23.1	-9.4	**57.4**
SPN	4.8	2.7	-1.4	**6.1**	41.0	22.8	-8.3	**55.5**
MOLD	10.8	4.8	7.2	**22.8**	49.1	20.4	-20.6	**48.9**

Source: World Wine Model projections.

Table 3: Non-premium wine output and real price changes, key producers

(% change between 2006 and 2016)

	(1) Macro	+(2) wine taste	+(3) supply shift	=Total output	(1) Macro	+(2) wine taste	+(3) supply shift	=Total price
AUS	0.7	-0.6	5.3	**5.4**	45.4	-36.0	-8.7	**0.7**
NZL	0.3	-0.3	12.1	**12.1**	52.7	-39.3	-19.0	**-5.7**
USA	1.0	-1.0	10.7	**10.7**	44.4	-38.2	-12.5	**-6.3**
Chile	20.5	-16.2	8.8	**13.2**	36.5	-27.7	-9.9	**-1.1**
SAF	24.9	-24.7	10.7	**10.9**	31.7	-29.0	-9.5	**-6.8**
ARG	2.6	-2.2	25.9	**26.3**	43.4	-31.3	-25.5	**-13.5**
FRA	1.3	-1.8	-0.5	**-0.9**	38.5	-38.2	-4.2	**-3.9**
ITA	0.5	-0.6	-16.6	**-16.8**	37.7	-39.4	8.7	**6.9**
POR	3.7	-6.1	2.3	**-0.1**	37.0	-36.9	-5.2	**-5.1**
SPN	1.5	-1.7	5.1	**4.8**	37.9	-36.4	-6.6	**-5.1**
MOLD	20.8	-20.2	6.5	**7.1**	25.5	-21.3	-13.1	**-8.9**

Source: World Wine Model projections.

Next, we consider consumption patterns across different key destinations. Differences reflect mainly differences in population growth and economic growth. For example, in Germany with an aging population that is no longer growing, there is little growth in premium wine consumption (table 4 and 5) combined with a fall in non-premium wine consumption. Australia's consumption of all three types of still wine grows, reflecting a growing population. In China, projected economic growth results in a doubling of super-premium wine consumption over the next decade. There are also substantial increases in commercial-premium and non-premium consumption. Perhaps China and Russia among the large nations provide the largest sources of uncertainty in the global wine market on the demand side. In China's case, changes in imports in 2007 reflected dramatic changes in wine marketing within Shanghai. The extent to which premium wine consumption spreads beyond Shanghai and a handful of other eastern seaboard cities remains a matter for conjecture.

Table 4: Super-premium wine consumption and real price changes, key consumers

(% change between 2006 and 2016)

	(1) Macro	+(2) wine taste	+(3) supply shift	=Total consumption	ΔCon ML	(1) Macro	+(2) wine taste	+(3) supply shift	=Total real consumer price
AUS	17.2	2.0	7.2	**26.4**	12	24.7	6.5	-7.6	**23.6**
USA	9.4	2.0	6.0	**17.3**	174	24.9	6.5	-6.6	**24.9**
UK	-5.4	1.9	4.7	**1.1**	3	23.4	6.5	-5.7	**24.2**
China	81.6	19.7	6.7	**108.0**	7	23.8	6.2	-5.2	**24.9**
GER	-1.8	1.7	0.4	**0.4**	0	20.7	6.7	-0.5	**26.9**
NLD	-7.5	2.1	3.7	**-1.7**	0	21.2	6.2	-4.5	**22.9**
IRL	-11.4	1.8	4.8	**-4.8**	-1	23.8	6.5	-5.9	**24.4**
JPN	5.4	2.5	4.3	**12.2**	20	19.5	5.7	-4.7	**20.5**
SPN	-0.1	1.8	3.5	**5.2**	0	23.6	6.7	-4.2	**26.1**
Rus	26.9	4.4	6.0	**37.3**	53	26.2	5.1	-7.5	**23.9**

Source: World Wine Model projections.

Table 5: Commercial-premium wine consumption and real price changes, key consumers

(% change between 2006 and 2016)

	(1) Macro	+(2) wine taste	+(3) supply shift	=Total consumption	ΔCon ML	(1) Macro	+(2) wine taste	+(3) supply shift	=Total real consumer price
AUS	13.6	2.4	3.8	**19.8**	29	24.9	12.6	-8.6	**29.0**
USA	9.0	2.6	3.2	**14.7**	163	25.4	12.4	-7.6	**30.2**
UK	-0.5	2.6	2.5	**4.6**	39	23.3	12.1	-6.3	**29.1**
China	31.7	12.4	4.5	**48.6**	70	45.6	20.0	-8.9	**56.7**
GER	-1.2	2.6	1.5	**3.0**	38	22.1	12.2	-4.0	**30.3**
NLD	-1.8	2.8	1.8	**2.8**	8	22.6	12.1	-4.9	**29.8**
IRL	-4.2	2.7	2.6	**1.0**	1	23.9	12.2	-6.9	**29.3**
JPN	3.7	3.3	2.9	**9.9**	26	17.5	9.7	-6.6	**20.7**
SPN	1.1	2.5	1.8	**5.4**	49	22.3	12.4	-4.5	**30.2**
Rus	11.2	3.7	4.8	**19.8**	155	25.9	10.3	-11.9	**24.2**

Source: World Wine Model projections.

In Russia's case, there has been growing demand in the past decade for Western goods among urban elites. The trade ban imposed on wine from Moldova and Georgia in 2006 (see appendix 1) has resulted in changes of origin of wines destined for Russia, but such changes may be transient.

Some marketers may believe that Russia presents a unique opportunity for wine sales growth. But government policies in Russia appear to be concerned increasingly with addressing high levels of alcoholism in the population. In part, this motivation may have provided a smokescreen for the trade bans on Georgian and Moldovan wines in 2006 and 2007; it is more likely that such bans were aimed at suppressing perceived anti-Russian directions in the evolving foreign policies of these two former Soviet republics. It is possible that wine's share in total alcohol consumption in Russia will increase over time. Such a trend might reflect a gradual orientation towards Europe in Russian tastes. On the other hand, policies aimed at reducing alcohol consumption in Russia might thwart growth in wine consumption.[5]

Table 6: Non-premium wine consumption and real price changes, key consumers
(% change between 2006 and 2016)

	(1) Macro	+(2) wine taste	+(3) supply shift	=Total consumption	ΔCon ML	(1) Macro	+(2) wine taste	+(3) supply shift	=Total real consumer price
AUS	10.7	-10.1	1.5	**2.1**	8	25.4	-20.2	-4.8	**0.4**
USA	7.7	-9.9	2.0	**-0.1**	6	23.7	-20.4	-6.4	**-3.1**
UK	0.3	-9.9	1.1	**-8.5**	-26	21.8	-19.5	-3.9	**-1.6**
China	28.3	45.8	3.7	**77.9**	277	32.1	-0.4	-9.4	**22.4**
GER	-0.9	-10.0	0.5	**-10.4**	-59	19.9	-19.0	-2.0	**-1.1**
NLD	-0.2	-10.2	1.0	**-9.4**	-4	20.2	-18.9	-3.6	**-2.3**
IRL	-2.0	-9.9	0.7	**-11.2**	0	20.6	-19.5	-2.5	**-1.3**
JPN	0.8	-10.1	1.3	**-7.9**	1	21.4	-18.5	-4.4	**-1.5**
SPN	0.6	-9.7	1.1	**-8.0**	-22	20.7	-19.9	-3.6	**-2.8**
Rus	8.5	-12.6	1.9	**-2.2**	-12	14.7	-12.1	-6.6	**-4.0**

Source: World Wine Model projections.

Table 7 shows projected export growth by different wine-producing nations. The most surprising result in this table is that in volumetric terms, Argentina will experience the largest growth in wine exports – an increase of over 200 megalitres. This growth will come mainly from commercial premium sales. Argentina's export growth reflects a large projected increase in production in the decade to 2016 than other nations (tables 1 to 3). In 2006, Argentina's exports to Russia increased by over 50 megalitres, due to the ban on wine from Moldova and Georgia. Australia's export growth is somewhat smaller than in previous projections (Wittwer, 2007). The projected growth implies an annual export volume of around 880 megalitres by

[5] India is one rapidly growing major economy that we do not represent separately in the World Wine Market. Despite rapid economic growth, there is little sign that India's wine consumption is growing rapidly (except in proportional terms from a tiny base). It appears that in India, climate, food and culture are conspiring against growth in wine consumption. In the Far East in Japan and China, cultural factors may slow growth in wine consumption. India adds the climatic dimension to cultural considerations: much of India is too hot for wine consumption.

2016. This is consistent with wine availability in the two or three vintages prior to 2007 combined with a slowing of wine inventory build ups in that period. Since some grapes were not picked in 2006, production levels may reach the levels recorded prior to 2007 even if there is some vineyard grubbing.

Table 7: Export growth by producing nation

(change between 2006 and 2016)

	AUS	NZL	USA	Chile	ARG	FRA	ITA	POR	SPN	MOLD
	Change in export value ($US million)									
Super prem	355	58	12	16	11	462	149	12	26	0
Commerc prem	226	11	81	86	225	45	-9	20	71	54
Non-prem wine	-10	0	23	20	38	24	-131	4	29	2
	Change in export vol (ML)									
Super prem	58	8	2	2	2	64	24	2	4	0
Commerc prem	74	4	26	30	123	16	0	7	45	47
Non-prem wine	-9	0	19	42	89	29	-185	12	70	5

Source: World Wine Model projections.

Table 8 shows the change in import values and volumes by destination for the decade to 2016. In value terms, the US market accounts for the largest growth. China has the largest volumetric growth. One surprise is the Russia's imports do not grow more, given the large projected increase in wine consumption. Russia's additional consumption is supplied to a large extent by additional home production.

Next, table 9 shows the sources of growth in Australia's export sales. Despite relatively modest volumetric growth in sales to the United States and United Kingdom, growth in value terms to these destinations is substantial, due to large existing export bases combined with increases in the unit value of exports. Given the developments in 2007, the projections for growth in premium sales to China shown in table 9 may be pessimistic.

Table 8: Import growth by consuming nation

(change between 2006 and 2016)

	AUS	USA	UK	China	GER	NLD	IRL	JPN	Rus
	Change in import value ($US million)								
Super prem	19	494	16	46	8	-7	-5	31	31
Commerc prem	1	190	108	170	103	18	1	-24	51
Non-prem wine	0	-7	-23	151	-38	-4	0	-2	-3
	Change in import vol (ML)								
Super prem	2	72	3	7	1	-1	-1	4	5
Commerc prem	1	63	39	56	41	7	1	-7	51
Non-prem wine	4	1	-26	234	-59	-4	0	1	-12

Source: World Wine Model projections.

Table 9: Australian export growth by destination

(change between 2006 and 2016)

($m)	USA	UK	China	GER	NLD	IRL	JPN
Super prem	397	157	21	5	3	12	16
Commerc prem	228	297	19	34	20	11	2
Non-prem wine	-3	-13	21	-3	-1	0	-1
(ML)							
Super prem	25	2	2	0	0	0	1
Commerc prem	30	26	5	4	2	1	0
Non-prem wine	-2	-14	21	-3	-1	0	0

Source: World Wine Model projections.

Conclusion

Since the US market continues to be important to Australia, accounting for over 30% of value of Australia's wine exports, it is significant that US producers are in a similar position to Australia's producers. That is, water scarcity in California, which accounts for 90% of US wine production, has worsened. One possibility is that grape and wine producers in other countries are not facing such severe water crises. Another possibility is that Australia's and California's water issues are typical of a global problem. If so, this imposes a considerable constraint on grape production in the medium term. In turn, this places a limit on growth in international competition, which may be of some comfort to Australian producers.

The worst outcome for grape producers in the southern Murray-Darling Basin – and indeed, all irrigators, urban users and the environment – is that rainfall in the catchment regions of Australia remains below average for another year or two. While the droughts of 2006 and 2007 may have led to improvements in strategies to deal with extreme water scarcity by irrigators and water managers, grape growers would benefit from several years of respite before such strategies need to be enacted again.

Appendix 1: Will New Europe provide new competition in the global market?

Since the collapse of the Soviet empire and the fall of communism in Eastern Europe, there has been a lot of conjecture as to the role the wine producing nations of that region will play in the global market. One possibility is that with a combination of relatively cheap labour and land, and favourable conditions for grape growing, the Eastern European regions could become serious competitors in the global market. On the other hand, an absence of market-oriented production combined with bureaucratic impediments may continue to prevent such regions from making significant inroads into markets in Western Europe and beyond.

Moldova arguably is the most interesting wine nation in the region, as the most wine-intensive economy in the world. Moldova is also one of the poorest countries in the region. Russia appeared for a time to be a guaranteed export destination for around 80% of Moldova's wine output. Among other nations in the region, virtually all Georgia's wine exports, albeit a much smaller proportion of Georgia's production than for Moldova, were to Russia (Wittwer and Rothfield, 2007). The remaining Eastern European nations followed a similar pattern, exporting wine either to Russia or to other Eastern European nations. Until now, the prognosis for the region appears to have been that it will offer only limited competition to wine producers from elsewhere, as trade patterns have been distinctly regional.

Could this now change? Russia took a heavy-handed measure in banning wine from Georgia and Moldova in 2006. A spat between Russia and Georgia may have originated in the Rose Revolution in Georgia that removed Shevardnadze (a former Soviet Union minister) from office late in 2003 and in pro-NATO and pro-EU moves by Georgia.[6] Meanwhile, the Russian parliament called for a ban on Moldovan wine in 2006 as a consequence of Moldova's "anti-Russian policies", which appeared to arise from a growing relationship between Moldova and the European Community.[7] The Russians also had differences of opinion over the future of the breakaway republic, Transnistria, within the borders of Moldova. The Russians knew what damage a ban on wine from Moldova might do to the Moldovan economy: agriculture and food processing employs around 40% of Moldova's internal workforce and accounts for around 20% of GDP, with wine accounting for about 10% of GDP.[8] Wine's value share of total exports in Moldova is around 20%, having been even higher in the early 1990s after the collapse of the Soviet empire. Ironically, Russia's trade sanctions may have hastened linkages between Europe and the two former Soviet republics.

The ban by Russian created export opportunities for other suppliers. The volume of France's sales to Russia increased from 39 megalitres in 2006 to 81 megalitres in 2006, while in the

[6] Georgia's Minister of Defense may have precipitated trade sanctions by Russia with candid remarks concerning the quality of wine exported to Russia in May 2006 (http://en.wikipedia.org/wiki/Irakli_Okruashvili).
[7] http://en.wikipedia.org/wiki/2006_Russian_ban_of_Moldovan_and_Georgian_wines
[8] Moldova's recorded wine production volume in 2006 was 350 megalitres of which 90% was exported. The value of exports was $US 278m: GDP was around $US 3.2 billion excluding remittances (http://www.studentsoftheworld.info/pageinfo_pays.php3?Pays=MOL&Opt=economy). It is reasonable to speculate that wine production is higher than recorded in official figures, with domestic consumption much higher than apparent consumption.

same period, exports from Argentina increased from 23 megalitres to 76 megalitres. Eventually, after 19 months, Russia lifted the ban on imports of Moldovan wine in October 2007. It would appear that the restoration of trade is incomplete: the Rostpotrebnadzor (Russian Trade and Sanitary Inspection Authority) now issues sales licences but has not done so for all Moldovan wineries that sold wine in Russia prior to the import ban.[9] The inspection authority's new requirements have raised the costs of importing, which might slow down wine sales growth in Russia from what it otherwise would have been. Meanwhile, as of early 2008, the ban remains in Russia on wine from Georgia.

Despite the twin shocks in 2006 of Russia's ban on Moldovan wine and rising prices for oil and gas from Russia, Moldova's economy still grew by 5% in 2006 but less in 2007 due to drought.[10] However, GDP figures for Moldova are potentially misleading, as around 30% of the nation's income is earned by foreign remittances.

Will a lasting impact of Russia's actions on Moldova's wine industry be that the small nation starts exporting significant volumes to Western Europe? A British wine consultant, Angela Muir, has overseen Moldova's first successful commercial export brand, but believes that Moldova has much to do to improve the quality of grape production (Joseph, 2007). Moldova also has the potential to become a wine tourism destination. At present, such tourism is hindered by limited transport infrastructure: long journey times and short distances are common in the region. However, Moldova holds a wine festival each October. To encourage foreigners to attend, visa requirements for entry are relaxed during the festival. Consumers in Western Europe may yet come to regard Moldova as an untapped source of budget-priced, high-quality wine.

But as has been a common experience since the fall of the communist bloc, there are many obstacles to growth and innovation in Eastern Europe. A chasm remains between potential and actual outcomes in the region. It may take more than a generation to orientate business activities in the former communist nations towards consumers. For the moment, the efforts of a handful of foreigners in gearing Moldovan production towards the tastes of Western Europe and elsewhere do not appear to be enough to drive a substantial change in the destination of the country's wine exports.

[9] http://www.azi.md/comment?ID=47603
[10] http://www.traveldocs.com/md/economy.htm

Appendix 2: Putting together the global wine database

The importance of splitting wine into different quality increments

My co-authors and I have placed considerable emphasis in the past in distinguishing between different types of wine (Wittwer *et al*., 2003; Anderson, *et al*. 2003). If we treat wine as a single commodity, it is easy to conclude that in many countries, per capita consumption of wine is decreasing and the future for wine producers consequently is shaky. One example of why composition matters concerns the Australian industry in the mid-1980s: so deep was the crisis in the industry that a short-lived vine-pull scheme came into being, ostensibly to remove inefficient low yielding vines. These days, such low yielding vineyards in the right location are treasured for the rare wines produced from their grapes – they are not dismissed as inefficient and uneconomic. The irony of the policy at the time was that Australia's per capita consumption peaked in the mid-1980s (it has now returned to the levels of then). The problem was one of composition: Australia's wine producers quite simply produced much better wine than consumers of the time were prepared to buy. The cask came into being in the 1970s and introduced many people to wine. It took a long time for domestic consumers to move up the quality scale as a combination of increasing discernment, rising incomes and demography all played a part. The crisis in Australia's wine industry was resolved in the late 1980s with an export boom that continued without interruption until the drought-affected 2007 vintage.

As exports have grown, so too have price premiums for quality. Some wineries that were relatively obscure in the 1990s now have active marketing of exports. Domestic consumers are finding that they must share some of their treasures with overseas' consumers and pay for the privilege. Overall, splitting wine into different quality groups matters. There is a shrinking role in most markets around the globe for bulk wine made from grapes more notable for yield than flavour.

For gathering Australian data, we have been assisted by splits in wine consumption by container type from the Australian Bureau of Statistics and the Australian Wine and Brandy Corporation. Our best source of disaggregated trade data for other countries is the Comtrade data produced by the United Nations. We supplement these data by relying on other national wine agencies, including Vinas de Chile, the Wine Institute of California, the Wine Institute of New Zealand and South African Wine Industry Information and Systems. For nations that rely exclusively on imports, our split of consumption between the wine types is reasonably reliable. For other countries, we require some guesswork. In the case of very large per capita consumers (e.g, France, Italy and Portugal), we assume that most consumption is of non-premium wine.

Comtrade data distinguish wine trade by container type. As the proportion of commercial premium quality wine that is shipped in bulk container grows, the assumption made in the past that bulk wine is of non-premium quality will need to be modified. Already, UK and German importers appear to be relying increasingly on bulk wine shipments. The concept of "food miles" that has grown with increasing environmental awareness may increase demand for wine shipped in bulk in certain markets.

Price points

Disaggregation of still wine into different quality increments in a global model relies on the use of price points. In putting together the database, the assumed unit value of commercial premium wine is $US 2.50 per litre, while that for super-premium wine is $5.00 per litre. These are cif prices, exclusive of taxes, tariffs or margins. If in the case of a bilateral trade, the unit value of trade exceeds $US 5 per litre, we assume that the trade consists entirely of super-premium quality wine.

Household demands within the global wine model

In some respects, the task of putting the model together is the inverse of econometrics. In econometrics, many observed data are used to estimate a handful of behavioural parameters. In the World Wine Model, although we have considered available estimates of demand parameters, most of the work has been in devising a partial equilibrium model and putting together base numbers derived from various data sources. This means that the parameters we impose on the model are conditional on database weights. For example, if there is no wine trade between two particular countries, then trade elasticities play no part in determining the pattern of trade between them.

Although we have put considerable effort into splitting wine into different types, the household demands in the World Wine Model are driven by a linear expenditure system. This does not allow specific substitutability. Therefore, if one were viewing the impacts on a specific nation of a switch from ad valorem to volumetric taxes, the current version of the model, by omitting cross-price effects, would underestimate the switch from low value to higher value wines arising from the change in tax policy. The macro growth assumptions used to project the World Wine Model impact directly on demand for the various wine types in the model via the expenditure elasticities. We impose relatively high expenditure elasticities on the premium wine types, with relatively low elasticities for non-premium wine.

Why taste shifts matter

The usual household demand theory does not explain why wine consumption per capita has decreased in some nations as incomes have risen. A split into different wine types shows that consumption of low quality wine is falling while that of higher quality wine is rising. In addition to the linear expenditure system of demand within the model (that will concern some analysts who would like it to include specific substitution possibilities), a standard assumption in projecting ahead a decade or so is that there is a taste swing from lower quality to higher quality wine. A more elaborate demand system will not explain satisfactorily why total wine consumed is falling in some countries and rising in others, at the same time as consumption of low quality wine is falling. A combination of an initial split of wine consumption by quality for each region combined with a taste swing towards higher quality wine fits the changing pattern of consumption observed since the 1970s globally.

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