Wine: a short history

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> In tracing the history of French wines, we are struck with the fact, that many vineyards, which have now little or no repute, were renowned in former times for the excellence of their growths; while those which, of late years, have maintained the greatest celebrity, were then unknown, or almost unnoticed. Thus, the wines of Orleans and of the Isle of France were at one time in greater estimation than those of Burgundy and Champagne; and even Mantes, which is on the borders of Normandy, was famed for the produce of its vines.[2]

Viticulture originated in the region south of the Black and Caspian seas, perhaps as early as the fourth millennium B.C. The expansion of the Greek, and then the Roman Empire, saw the vine spreading over the whole Mediterranean, and then inland into northern Europe's beer drinking regions. With the collapse of the Roman Empire, the Catholic Church and especially the monasteries saw that a wine-drinking culture remained in parts of Europe. However, despite the many attempts to introduce the vine into their colonial possessions, viticulture remained essentially a European occupation until the end of the nineteenth century.

There were changes in the historical centers of viticulture within Europe even before industrialization and the railway age, as noted by Alexander Henderson. In England for example, the planting of vines advanced and retreated over the centuries, often in response to climatic change. Between around 900 and 1300, just as today, warm summers allowed the grapes to ripen sufficiently in the south of the country, but the little ice age between the fourteenth and late nineteenth centuries saw most of them disappear. Politicians also encouraged and discouraged viticulture at different times. Under the supposed need to maintain grain supplies in order not to leave the population hungry, the planting of new vines was prohibited by such diverse rulers as the Roman emperor Domitian (cAD90-92) and Louis XIV of France (1731), although the success of such measures were probably limited. Shifts in national boundaries also presented growers with new opportunities, or destroyed existing markets. In Roman times, the Iberian Peninsula was able to export wines to Rome, while a millennium later Bordeaux, ruled by English kings between 1154 and 1453 and enjoying cheap water communications, sent large quantities of wine to London. The return of the city to

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[2] Henderson, 1824, p.146.

French rule effectively ended this trade in cheap wines until the late nineteenth century. Finally taxation everywhere shaped the demand for all alcoholic beverages. Historically, many governments obtained a significant part of their revenues from excise duties which fell on spirits, beer, and wine, but in exchange protected domestic producers with tariffs from foreign competition. This resulted in only limited quantities of wine crossing international frontiers, but those that did were often expensive luxuries. Wine therefore was a major export commodity for centuries, accounting for around half of all Portugal's exports, a quarter of Spain's and fifteenth of France's as late as 1850. Only exceptionally, such as during the phylloxera-induced shortages in France during the 1870s and 1880s, or briefly in Britain between 1860 and 1914, did governments actually encourage wine imports.

This short chapter looks at the major changes that occurred from the mid seventeenth to allow a better understanding of today's industry. It begins with the creation of today's fine wines, and continues by looking at the impact of phylloxera and the major technological and institutional changes that were introduced in Europe and the New World from around the turn of the twentieth century. It concludes with some comments on the more recent history of the industry.

1. **Fine wines and Europe's 'Agricultural Revolution', c1650-1850**

From the late seventeenth century product innovation and improved vineyard techniques and winery practices in such diverse places as Champagne, Bordeaux, Porto or Madeira were as spectacular as anything associated with the British agricultural revolution. Fine wine production was capital intensive, required high levels of skills, and was only found where the terroir was suitable. Consequently, in volume terms, they accounted for just one or two per cent of a nation's wine output. According to the highly observant James Busby, writing in 1833:

> In all those districts which produce wines of reputation, some few individuals have seen the advantage of selecting a variety of grape, and of managing its culture so as to bring it to the highest state of perfection of which it is capable. The same care has been extended to the making, and subsequent management of their wine, by seizing the most favourable moment for the vintage, - by the rapidity with which the grapes are gathered and pressed, so that the whole contents of each vat may be exactly in the same state, and a simultaneous and

equal fermentation be secured throughout, - by exercising equal discrimination and care in the time and manner of drawing off the wine, and in its subsequent treatment in the vats or casks where it is kept, - and lastly, by not selling the wine till it should have acquired all the perfection which it could acquire from age, and by selling, as the produce of their own vineyards, only such vintages as were calculated to acquire or maintain its celebrity.[3]

Fine wines were luxury items, and price was not an important consideration for consumers in determining demand. However the nature of these wines changed significantly over time, in part because taste changed, but also because foreign merchants in wine producing regions played a crucial role in developing new products. In Bordeaux, land reclamation and better drainage from the seventeenth century improved the terroir, while the introduction of bottles and corks made it possible to mature the wine.[4] Samuel Pepys drank Ho Bryan (Haut Brion, Graves) in 1663 and half a century later Sir Robert Walpole enjoyed vintage claret from a variety of estates. By the mid eighteenth century, there were approximately 250 vineyards covering some 3,200 hectares, often owned by the nobility, producing 80,000 hectoliters of fine wines which were dispersed among Bordeaux´s thousands of small vineyards producing common wines.[5] Wealthy consumers increasingly sought wines from famed estates, which were first ranked for their convenience by André Jullien in his *Topographie de tous les vignobles connus* in 1816, and translated into English in 1824. More lists followed, but the definitive one was the 1855 Classification based on the prices brokers had paid for their wines over the previous decades, which became an instant success and has remained in use until today. In order to emulate the leading estates, small and previously insignificant producers also created their own private brands, and used Bordeaux's unofficial wine guide (Cocks and Féret) to advertise themselves, so that the number of chateaux in the region reached 1,600 in 1900, five times more than thirty years earlier.[6]

Sparkling wines from the Marne were drunk in Charles II's court in London as early as the 1660s, and quality was increased significantly by Dom Perignon, the blind

[3] Busby, 1833, p.
[4] 74?, Lewin, 2009, ch. 5.
[5] Lachiver, 1988, p.303.
[6] Roudié, 1994, p.142.

cellarer at Hautvillers between 1668 and 1715.[7] Production costs remained very high, not least because the problems associated with the secondary fermentation in some years left the wines flat, while in other years the bottle break could reach 30 or 40 percent. Only after André François showed how to measure the exact amount of sugar required in 1837, did the industry boom, with sales quadrupling over the rest of the century, although until the 1890s only 15 per cent of champagne was drunk within France.

The 1703 Methuen Treaty allowed Portuguese wines to enter British markets paying only two thirds of the duty that was levied on French wines. Duties remained high, and according to David Hume (1752) this resulted in consumers having to 'buy much worse liquor at a higher price'. It allowed for the creation of the port trade however, and foreign merchants experimented to develop a drink that would be suitable to British consumers. Brandy was added during the fermentation process, which left the wines naturally sweet but with a harshness that required them to be matured several years before drinking. Something similar happened with sherry, and Ralph Davis notes that 'between 1780 and 1830 the occasional practice of allowing long maturity for port and sherry became general'.[8] In Madeira, favorable taxation and trade winds which attracted American bound ships saw another revolution in wine-making, especially when it was discovered that the time to mature wines could be greatly reduced by the heat and movements of the ships in the West Indies. When costs became prohibitive because of the American Revolutionary War, hot houses were built in Madeira itself, and the ships movements artificially created by steam engines. According to David Hancock, 'a wine that would be palatable to Americans only after four or five years in England, three years in Madeira, or one year in the East or West Indies could be readied in a stove in three or six months'.[9]

2. Common wines: from Phylloxera and shortages, to adulteration and overproduction

These fine wines were very different from the vast majority of wines produced and drunk in Europe. Instead of requiring high levels of capital investment, cheap commodity wine production was labor intensive and fitted neatly into the polyculture of

[7] Paul, 1996, p.206.
[8] Davis, 1972, p.96.
[9] David Hancock, *Oceans of Wine. Madeira and the Emergence of American Trade and Taste* (New Haven & London: Yale, 2009)., pp. 92-93.

millions of European peasants. As Arthur Young noted in the late 1780s, French viticulture depended "almost entirely on manual labor . . . demanding no other capital than the possession of the land and a pair of arms; no carts, no ploughs -, no cattle."."[10] The vine could be grown on land which was marginal for other crops, allowing many laborers to own a small plot. Yet few wished to rely exclusively on it because vineyards in one year "yield nothing: in another, perhaps, casks are wanted to contain the exuberant produce of the vintage: now the price is extravagantly high; and again so low, as to menace with poverty all who are concerned in it."[11] In France harvest size had a coefficient of variation more than four times greater than other crops.[12] Grape quality also fluctuated widely, and to avoid the risk of being left with unsellable grapes, virtually all growers made their own wine.

Unlike cereals, most vines were worked by their owners, and the use of wage labor outside the harvest and rental contracts were rare because, as one agronomist noted in 1807, "no crop suffers more from the omission or poor quality of work, requiring many years to recover from the abuses of a single year."[13] There were very few economies of scale in viticulture and winemaking, and in France at the turn of the twentieth century over 1.5 million producers worked an average of just one hectare each, and most of them their own wine and owned their vineyards. The situation was similar elsewhere. For growers, wine was usually the alcoholic beverage of first choice and considered an integral part of local diets, being drunk with water at most meals. Some was also sold, and given the minuscule production of most vineyards implied that merchants had to buy from large numbers of producers and blend the wines to create a standard product in terms of quality and price for consumers.[14] Quality was often poor, and any old wines remaining in cellars at the end of the year it was either distilled or thrown out to make room for the new harvest.

Wine consumption increased significantly in all producer countries with the decline in transport costs brought about by the railways, urbanization, and rising incomes, doubling for example in France between the 1850s and 1900s to reach an annual 160 liters per capita. This growth occurred despite the presence of the vine disease *phylloxera vastatrix*, which destroyed large areas of Europe's vineyards. The

[10] Young, 2, 25.
[11] Ibid., 2, 203.???
[12] Toutain, 1978, p.121.
[13] Boutelou, 1807, p.66.
[14] Simon, 1920, p.77.

destruction initially was greatest in France, where production virtually halved between 1866/75 and 1886/95. The only long-term solution to phylloxera was to uproot the dead vines, and replant using American disease resistant roots stock, and grafting European scions. Considerable amounts of scientific research was undertaken to find suitable phylloxera resistant vines which produced both a drinkable wine and adapted successfully to the site specific characteristics of each vineyard. The new vines produced higher yields, but they were more susceptible to other diseases which required heavy expenditure on chemicals, so small growers had either to spend valuable cash, or risk heavy crop losses. By the end of the century sufficient vines had been replanted to allow domestic production to recover virtually to pre-phylloxera levels.

Scientific advances were just as spectacular in the wineries as in the vineyards, with Pasteur's work on fermentation providing an understanding of the causes of fermentation, and how to keep wines in good conditions. One major breakthrough of the period was the ability to produce good cheap wines in hot climates, which allowed a rapid reallocation of production to these new regions, and by 1914 the Midi and Algeria produced the equivalent of about half French wine consumption. Montpellier, having first established itself as the world's center for scientific research in finding a solution to phylloxera, now became the leading center into new wine-making technologies.[15] The advances were quickly reported in other regions with hot climates thanks to individuals such as Frederic Bioletti (University of California, Davis), Arthur Perkins (Roseworthy, South Australia**)** or Raymond Dubois (Rutherglen, Victoria).

The new large modern wineries were capital intensive and enjoyed lower production costs and produced better quality wines. They required large quantities of grapes if they were to be worked at full capacity and in the Midi and Algeria, unlike the New World, these were usually produced by wine-makers integrating backwards into grape production. Large, high-yielding vineyards were planted on the fertile plains and valley floors, and owners used labor-saving plows and introduced new work practices to co-ordinate wage labor in vineyards. Increasing wine output in these regions no longer depended on small growers using their underemployed labor to slowly extend their vineyards to create new capital assets, but rather large producers looked to commercial banks for credit to plant vineyards on a major scale and create modern wineries. While the high transaction costs associated with using wage labor allowed the small, family

[15] For viticulture, see Gale.

vineyards to remain competitive in grape production, they found it increasingly difficult to compete with the scale-dependent methods used in wine-making.

The high wine prices caused by phylloxera encouraged wine merchants to look for new sources of supply in countries such as Spain or Algeria (an administrative region of France at this time), while in the New World growers increased production with the new wine-making techniques to reduce their dependence on imports from the Old World. Wine shortages also led to the wide-spread production of substitutes - artificial wines which were made from a variety of substances including raisins, sugar or 'second' wines, industrial alcohol produced from potatoes or sugar beet, and an assortment of chemicals. At the same time the replanting with phylloxera resistant vines led to a recovery in French production. From the turn of the century wine prices collapsed, and in the Midi between 1900 and 1906 growers sold at cost or below in five out of the seven harvests.[16] Yet the causes of this crisis were not obvious, as net per capita supply of wines in France in the early 1900s was not so different from the level immediately prior to phylloxera.[17] There was even some evidence that consumption was falling. However, many believed that the cause of low prices was the increased sale of artificial wines. In the Midi there were some 150,000 growers, and rock bottom prices and economic depression united landowners and laborers, as well as those outside the sector. The wine defense group, as the historian Leo Loubère noted, cut across party lines, 'and included deputies and senators who were moderate republicans, some who were royalists, and, after 1900, some socialists'.[18] A series of protests culminated with over half a million demonstrating in the streets of Montepellier in June 1907.[19] New laws were introduced that significantly reduced the amount of sugar that could legally be used in winemaking, and made it easier to prosecute fraudulent wine producers.[20] In particular, a winegrowers association -the *Confédération générale des vignerons du Midi* (CGV) - was created and in 1912 its agents were officially allowed by the state to sue for, and collect damages from, those convicted of fraud. The broad base of its support within the wine communities was crucial to its success, and the CGV's 30 agents in 1911/2 carried out 3,042 investigations that led to 601 successful prosecutions

16 Warner, 1960, p.18 and Pech, 1975, p.512.
17 This is domestic production plus imports, minus exports.
18 Loubère, 1974, pp.xv and 177.
19 Frader, 1991, p.141 and Lachiver, Vignoble, p.468.
20 Warner, *Winegrowers*., p.41, and Frader, *Peasants and Protest*., p.145.

for fraud. For every ten cases initiated and involving wine fraud, the public prosecutor was responsible for just two, and the CGV of the Midi eight.[21]

3. The limits to the export market

On the eve of the First World War only 12 percent of the world's wine was exported and when Algeria, which sold almost exclusively to France, is excluded, the figure declines to eight percent. Even more striking, is the fact that imports to countries other than France were equivalent to just six percent of world production. Therefore few wines were exported to non-producer countries, and most consumption took place among traditional European producers (Table 1).

Table 1 about here

Consequently, although the flow of new ideas and technology was increasing crossing national frontiers after 1900, the export trade remained limited. This was mainly because taxes on alcohol were everywhere an important source of national revenue, and countries preferred to use excise taxes that favored their domestic beer, spirits, and wine producers, rather than encourage foreign wine imports. This major constraint was relaxed when phylloxera devastated French production, providing countries such as Spain with a unique opportunity to export. It was short-lived, and ended once tariffs were increased once more in 1892 after French growers had replanted.[22]

Another problems facing exporters was the widely believed idea that adulteration of all wines was common, and this affected the reputation of even fine wine producers, and helps explain the failure to extend and deepen the market for wines in Britain at the end of the nineteenth century.[23] This country, as noted above, had been crucial for fine wine producers for several centuries, but Gladstone cut duties on all wines in the early 1860s by up to 80 percent in an effort to spread consumption to the middle and 'popular classes'. Gladstone noted how similar reductions had produced a major growth in consumption of commodities such as tea and sugar, and believed this would now happen with wine. Imports duly doubled between 1860 and 1870, but then stagnated,

[21] Loubère, 1974, p.355.
[22] Simpson, 1995 and Pinilla and Ayuda, 2002.
[23] Simpson, 2004.

and by 1913 per capita wine consumption was no greater than it had been in 1815, even though the retail price of the cheapest wines was a fifth of what it had been, and living standards had grown significantly over the century. Just as in France and elsewhere, contemporaries blamed poor sales on concerns over the purity of wines and information asymmetries, which made it difficult for consumers to measure quality prior to consumption. Problems of adulteration and mislabeling of wines were hardly new, but their nature changed significantly over the second half of the nineteenth century because of the growing physical separation between producers and consumers; the shortages of genuine wines caused by phylloxera and other vine diseases; and the development of new preservatives, such as borax, benzoic acid, and salicylates, that allowed manufacturers to mask food deterioration and to lower costs, often making food adulteration imperceptible to consumers.[24] The fact that quality of genuine wines varied significantly provided greater opportunities for fraud and adulteration than were present with other imported goods, such as cereals, butter, coffee, or frozen meat. The commercial success of an individual ("Château Lafite") or collective ("claret") brand encouraged producers from other regions and countries to label their own wine in such a way that they could also benefit from the name, which produced bad publicity even for the leading fine wine producers. As *The Telegraph* noted in 1887:

> An immense proportion of the wine sold in England as Claret has nothing to do with the banks of the Garonne, save that harsh heavy vintages have been brought from Spain and Italy, dried currants from Greece, there to be manipulated and re-shipped to England and the rest of the World as Lafite, Larose, St. Julien and St.Estephe.[25]

Confusion was increased by the fact that it was legal to sell in the British market "British claret," "Hamburg sherry," or "Spanish port." To put it bluntly, cheating in the wine trade was very easy, and an increasingly belligerent local and national press presented consumers with large numbers of real and fictional food scares, so that by the turn of the twentieth century it was widely believed in Britain that most wines were adulterated in some form or another.

To reduce these types of problems, the wine industry responded in two different very ways. First, although limited in Europe, companies integrated vertically to control the quality of wine along as much of the commodity chain as was possible, and achieve

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[24] Law, 2003, p.1116.
[25]

sufficient scale to permit the creation of private brands. Second, growers lobbied governments to pass legislation which would allow them to establish regional appellations to control the use of collective brands such as 'claret', 'champagne' or 'port'.

The Second Industrial Revolution in the second half of the nineteenth century witness not just the growth of industries enjoying major economies of scale and scope, but also radical changes in retailing, as firms in countries such as the United States and Britain introduced chain stores, mass-marketing techniques, and the consolidation of the use of brands to help reduce information costs for consumers by differentiating products, guaranteeing the good's purity, and creating producer reputations.[26] Attempts were also made in the wine industry to import in bulk, and cut retail prices by selling branded products through multiple outlets. However, importers such as the Victoria Wine Company or Gilbey's found it difficult, especially with European table wines, to create a standard homogenous product which could be sold at a fixed price such as they were able to do increasingly with beers and spirits. Therefore, although 'purity' might be guaranteed, volume remained relatively small and distribution costs high, resulting in companies being unable to create significant entry barriers to potential competitors.[27]

Unlike most other agricultural commodities, the limited supplies of suitable land to create fine wines encouraged a small handful of producers to invest in private brands, with the object of guaranteeing the wine's origin, and therefore create scarcity and add value. This was most obvious with champagne, which benefitted from the fact that the blended wines had to be bottled before they could be exported, thereby reducing the opportunities for fraud, and allowing the houses to control quality. British consumers therefore were willing to pay high prices for champagne because they preferred 'certainty with high charges, to uncertainty, even when baited with low prices', but it was also noted in 1890 that "within ten years we will no longer recognise the name of champagne, but only those of Roederer, Planckaert, Bollinger, without any idea what the wines will be made out of."[28] It was widely believed that this commercial success of the leading champagne houses increased their bargaining power, both in the British retail markets and in their dealings with the grape producers.

[26] By 1914, British imported around 60 per cent of its food and beverage needs.
[27] Even so, Gilbey's was still selling 'Hambro sherry' in 1880, and as note above, health concerns of drinking genuine sherries were also common at this time.
[28] Lamarre, cited in Faith (1988:78).

In Bordeaux, the major fine wine producers benefited from the publicity given by the 1855 Classification, and by the 1880s a number were experimenting with chateau bottling in an attempt to guarantee the quality of the wine that was sold under their labels, and capture more of the value chain. The experiment failed because of the bad publicity associated with wines that had unexpectedly deteriorated because of downy mildew several years after bottling, while the successful attempts by growers to control phylloxera by chemical led to an excessive use of fertilizers, and consequently much higher yields but a major decline in quality and prices. By the turn of the twentieth century the reputation of claret among consumers had sunk dramatically, and many of the big houses had to turn to the merchants for financial help.

Traditionally both the port and sherry houses made up orders for British retailers who then sold the wines under their own private brands. The nineteenth century saw attempts by exporters in both Porto and Jerez to exert greater influence along the chain. In Porto, vintage wines were developed, which consisted of wines chosen by the shipper after a particular good year, and exported under their own brand. Shippers' names were seen by consumers as a guarantee of quality, while the market for cheap ports was in general met by British merchants importing from other countries 'port' type wines. Unlike port, sherry does not improve in the bottle, and quality did not vary significantly between years, discouraging the development of creating a high value vintage wine. Instead, brands were created of homogenous wines such as Tio Pepe or Dry Sack, but these were expensive, and shippers moved down market and sold large quantities of cheap wines, competing directly with 'generic' sherries produced in places such as Hamburg or Britain.

4. Collective action and the creation of regional appellations and cooperatives

In Europe, the separation between the production and selling of wines created tensions, which became particularly acute during the late nineteenth century because of the ability of merchants to purchase wines from over a much greater geographical area, and the constant complaints of adulteration. For cheap wine producers such as those in the Midi, competition came directly from the artificial 'industrial' wines, but for ordinary producers in places such as Bordeaux or Jerez, it came from 'outside' wines, which were sold under the 'collective' names of claret and sherry. Local growers had long claimed that claret, port, champagne, and sherry constituted collective trademarks for a wine made only from grapes produced in these specific regions, and from 1900 onward they were vociferous in their demand for regional appellations. Appellations, they argued, would improve consumer information about wine quality and guarantee that only local wines would be sold. Critics, by contrast, claimed that appellations would simply create local wine monopolies and shift rents to growers, and one contemporary compared this to a return to the provincial monopolies of the ancien régime.[29]

While growers were united in their opposition to outside producers appropriating the local name, they faced formidable organizational problems in creating a regional brand. The sixty thousand or so growers in Bordeaux in 1900, for example, might agree not to make wines from raisins or to sell cheap Midi wines as claret to maintain the region's collective reputation, but few would have been willing to make the sacrifice if they believed others would continue to cheat .[30] Only when growers believed that a system could adequately identify and punish cheats were they likely to respect the rules themselves. This required government legislation and this was strongly opposed by those growers living outside the appellation, and by the merchants who looked to strengthen their private brands and demanded the right to purchase and blend wines from wherever they considered necessary to sell cheaply in the highly competitive international markets.

As noted, the costs and benefits from regulation were unequally distributed, and this created incentives for individual groups to capture "rents" at the expense of others. However, while the thousands of small growers in Bordeaux and Champagne were able to use their political influence to create advantageous institutions for themselves, such as regional appellations, the situation was often less favorable in those countries with "elite democracies." In Spain, for example, authorities routinely dismissed the demands by small sherry growers in Jerez for a regional appellation or local bank, which would have made them less dependent on a handful of powerful Spanish shipping families. By contrast, in Porto, the small vine-growers found a considerably more sympathetic state, and a regional appellation was reestablished. The foreign nationality of most of the leading port shippers placed them at a distinct disadvantage when negotiating with the Portuguese state, although it did allow them to negotiate successfully with the British government the Anglo-Portuguese Commercial Treaty Acts of 1914 and 1916.

[29] See the debate on Bordeaux in chapter 5.
[30] Olson (1965:10).

Another area witnessing collective action among growers was the creation of cooperatives. The *crise de mévente* of the early 1900s led a number of influential French writers, including Charles Gide, Michel Augé-Laribé, and Adrien Berget, to propose them as a means to reduce small growers' production costs, and integrate vertically to absorb some of the marketing functions of merchants. By combining their scarce capital, several hundred family grape producers could build and equip a large winery to cut costs, pay for a skilled enologist to produce better-quality wines, and store these cheaply to be sold later in the year at higher prices. Wine cooperatives could also distill the remains of the grapes, and produce tartaric acid. Finally, they could act as banks, providing loans to their members.

The first attempt to establish a wine cooperative in France took place in Champagne in 1893 and ended in failure, but those from the turn of the century, especially after the government offered cooperatives credit at 2 per cent and payable over twenty five years to build and equip new wineries. Yet despite considerable interest, there were only 79 cooperatives in France in 1914, and although numbers had grown to over 600 by the early 1930s, they accounted for only **xx** percent of production. Figures elsewhere were even lower. Access to credit markets was crucial, but there were other potential obstacles for cooperatives to overcome. In particular, grape quality often varied significantly, both because a wide variety of vines were often planted in the same vineyard, and also because of weather conditions and the fact that growers mixed ripe with unripe and overripe fruit. By contrast cooperatives usually paid for their grapes just by their weight and sugar content. This led to a number of the early ones allowing their members to sell all or part of their harvest to private wineries, with the inevitable result that the cooperative ended up being a repository for poor quality grapes which could be sold elsewhere. Yet the remedy to this problem, namely obliging growers to sell all their grapes to the cooperative and accept a standard price, hardly produced better results. Growers now realized that there was little point in keeping their shy bearers which produced better quality wines, and planted instead varieties which produced large volumes of mediocre wine, but which maximized incomes. Consequently the early cooperatives were found mainly in those regions where a limited number of grape varieties were used (southern France), or where wine prices were sufficiently high to cover the costs associated with a close monitoring the vineyards and harvesting (Burgundy).

5. The spread of commercial viticulture to the New World

Wine production was of little importance in the New World until the late nineteenth century because of a variety of factors, including vine disease, poor wine-making systems, the very low population densities in those areas most suitable for specialized viticulture, and the huge distances that separated these areas and potential markets. These restrictions were relaxed with the rapid development of the global economy in the late nineteenth century, which brought massive immigration, improved transportation, and a better understanding of the needs of viticulture and wine making. Production conditions were very different from those found in Europe. Factor prices were reversed, as land was relatively cheap and abundant, and labor expensive. Wages for unskilled workers in Argentina in 1910, for example, were 34 percent more than in France, in Australia 90 percent more, and in the United States 139 percent more.[31]

Another difference was terroir, and in particular climate. Vines were easy to grow and the risks from disease limited in the New World, but the hotter climates produced grapes with a high sugar content that caused fermentation to end prematurely, leading to the development of bacterial diseases and ruining the wine. A number of colorful pioneers, such as Agoston Haraszthy in California and James Busby in New South Wales, traveled to Europe to collect vines and learn at first hand production techniques, although it was only in the 1890s that European technology started to resolve the problems associated with wine making in hot climates. This revolutionized the sector and allowed the possibility of producing large quantities of homogenous cheap wines that could be sold under brand names.

High import tariffs and the arrival of millions of immigrants, together with the New World's high fertility, gave the new industry a rapidly growing potential market. Population increased eleven fold in Australia between 1850 and 1910 (from 0.4 to 4.4 million); six fold in Argentina (from 1.1 to 6.8 million); fourfold in the United States (from 23.3 to 92.8 million), and almost threefold in Chile (from 1.4 to 3.4 million).[32] Immigrants arriving in the New World brought with them their own drinking customs, and wine was the favorite alcoholic beverage for many of the Italians and Spaniards settling in Argentina and Chile. By contrast, most consumers in Australia and the United States drank beer and spirits, increasing marketing costs for merchants as they

[31] Williamson (1995:178-81). Figures are for unskilled urban building workers.
[32] Maddison (1995:104, 106, 112).

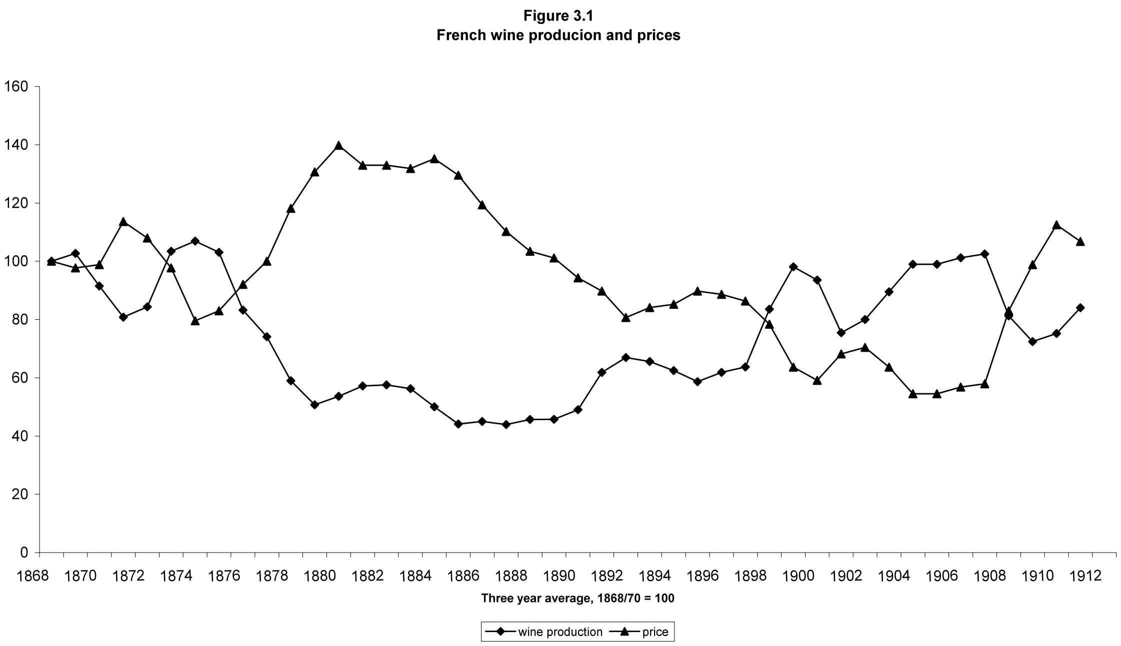
had to educate drinkers about wine and compete with other sectors of the alcohol industry, which underwent even greater changes in this period, especially in standardizing quality and reducing adulteration.

Producers responded to these differences in factor endowments, terroir, technology, and market demand by creating an industry that was very different from the artisan nature of European production.[33] In particular, the new, large-scale wineries producing often in excess of 10,000 hectoliters were dependent in a way they were not in Europe on specialist grape producers, and wine producers became much more involved in marketing. In Europe, grape production and wine making were usually integrated in a single business, and producers therefore had to expand capacity in both sectors to respond to market upturns.[34] In the New World this was not the case, and growers and wine owners faced different investment incentives, which in the case of Argentina especially led to periodical major downturns. Important differences also emerged among New World producers concerning who put the brand and controlled the value chain. In California a handful of San Francisco's merchants created a hierarchical organization, integrating horizontally and vertically and investing heavily in advertising and brands to sell to distant consumers, controlling at one time about 80 percent of the state's wine sales and making it one of the world's largest wine businesses. By contrast, it was a British importer who created a buyer's organization that distributed two-thirds of Australian exports and controlled the value chain. Finally, the Argentine industry was dominated by a dozen or so winemakers, but these had only limited success at creating brands and integrating forward into marketing. Instead they sold huge quantities of wine in a market where annual per capita consumption reached 60 liters by 1914, compared with just 2 in the United States and 5 in Australia. By 1913 Argentina was the world's seventh largest producer, Chile the ninth, the United States the tenth, and Australia the eighteenth.

[33] Simon (1919:105).
[34] In the Midi a separation was becoming apparent in some areas by 1900, resulting in a similar problem of a lack of cellar space. The problem was resolved by the creation of producer cooperatives (chapter 3).

Figure 1

French wine production and prices, 1851-1912



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