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Bugs, Tariffs and Colonies: The Political Economy of Wine Trade 1860–1970

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Bugs, Tariffs and Colonies:

The Political Economy of Wine Trade 1860–1970

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Abstract

The 1860–1970 period is a particularly interesting period to study wine trade because of dramatic changes in the wine markets and trade over the course of a century. The dramatic changes in trade flows were caused by both “nature” and “men”. Mediterranean wine trade represented around 90% of global wine trade and France was the world’s leading exporter. The arrival of *Phylloxera* devastated French vineyards and stimulated Spanish and Italian wine exports. When French wine production recovered, French winegrowers pressured their government to intervene, resulting in high tariffs on Spanish and Italian wines and Greek raisins. The protectionist trade regime contributed to the bankruptcy of Greece and to the substitution of wine trade from Spain and Italy to France’s North African colonies. When Algeria, Morocco and Tunisia became independent, France imposed high wine tariffs, effectively killing their wine exports. The decline of the wine industry in North Africa coincided with the trade and policy integration of the South European wine exporters in the EEC—the predecessor of the EU.

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1. Introduction

It is well known that trade flows are influenced both by “nature” and by “men”. Natural resource endowments affect comparative advantage in production and trade and government policies can stimulate or discourage production, consumption and trade. Nowhere are these factors more clear than in global agriculture and food value chains. Trade in agricultural and food products has been heavily affected by nature (economics) and men (politics). While the geography of the production of many agricultural products is heavily depending on natural factors such as the quality of the soil and the climate, governments have heavily distorted trade patterns with a variety of policy instruments, such as subsidies, tariffs, trade quota, etc. (Johnson, 1973; Anderson, 2009).

The wine sector is an intriguing case to study trade flows because it has a long history and has been heavily influenced/distorted by government policies (Meloni and Swinnen, 2013). During the Roman Empire, the rulers in Rome used their armies to destroy vineyards in the provinces (in what is now Spain and France) when production there was traded cheaply in Rome’s markets and undermined Rome’s winegrowers profits. In the Middle Ages, England became a major export market for wine. The principle of comparative advantage in trade is often explained in David Ricardo’s original example: the long-standing and mutually beneficial wool–wine trade between Britain and Portugal where Britain can produce wool more efficiently than wine and Portugal can produce wine more efficiently than wool. But John Nye (2007) in his famous “War, Wine, and Taxes” book argues that Ricardo’s example is not a good example because few would buy Portuguese wine if they had the choice and that the Portuguese wine industry actually better serves as a historic example of how the antiquated mercantilist theory of trade misguided production. He argues that, of course, Portuguese wine was better than English wine but the fruitful Portuguese–British wine trade heralded by Ricardo can be traced back to the 1703 Methuen Treaty

guaranteeing Portuguese wine lower tariffs than French wine in exchange for preferential treatment of British textile imports. Such trade distortions were obviously not limited to wine trade, but wine trade is a very intrinsic case because of the dramatic changes in trade flows caused by both “nature” and “men”—as we will document in this paper.

The 1860–1970 period is a particularly interesting period to study wine trade because of the dramatic changes in trade flows during this period. It includes the “first globalization period” (from the late 19th to the early 20th centuries), the collapse and recovery of French vineyards in the late 19th century, the growth and decline of North African wine industries, and ends with the independence of French colonies and the creation of the European Union (EU) wine market and Common Wine Policy. While French exports dominated wine trade in the beginning of the 19th century, France became a major importer of wine and grapes in the late 19th century while wine exports from Spain and Italy (and grapes from Greece) grew rapidly. Later Spanish and Italian wine are replaced in international trade by North African wines with Algeria becoming the world’s largest wine exporter.¹ This lasts until the mid-20th century when North African wine exports collapse and France retakes its position of the world’s leading wine exporting nation—the position it had lost for a full century.

In this paper we document these remarkable developments and provide an explanation for the dramatic changes in the wine markets and trade in the Mediterranean region over the course of a century. We focus on the Mediterranean region because this region captures the dominant trade flows (changes) during this period. In earlier periods, wine exports to Britain dominated trade.² In

¹ Throughout the paper when we talk about wine production and trade, we consider Algeria, Tunisia and Morocco separately from France. Algeria, Tunisia and Morocco were French colonies/protectorates for much of the period 1830–1962 (see further).

² During this period, French wine was exported mainly to Britain from its main harbors on the Atlantic coast—La Rochelle during the 13th and 14th centuries and then Bordeaux in the 17th and 18th centuries (Francis, 1972; Rose, 2011).

the past decades, wine exports from the New World (Argentina, Australia, Chile, New Zealand, South Africa, the United States, etc.) grew in importance, but these trade flows were less important during the period covered by our analysis. From 1860 to 1970, Mediterranean wine trade represented 80% to more than 90% of global wine trade (see Table 1).

Key conclusions of our analysis (captured in the title) are that trade flows were strongly affected by (a) the arrival of *Phylloxera* (“bugs”) in France with a devastating effect on the vineyards, by (b) trade policies (“tariffs”) introduced to protect French winegrowers as vineyards recovered later, and by (c) French colonial policies (“colonies”) in North Africa which stimulated a rapid wine production growth in the late 19th and early 20th centuries and which destroyed North African wine exports after independence from France.

Our analysis is related to other studies. Morilla Critz, Olmstead, and Rhode (1999, 2000) investigate the production and trade of Mediterranean fruits and nuts during the end of the 19th and early 20th centuries and how competition from cheap American agricultural products contributed to economic and political crises in southern Europe. However, their study does not include wine trade. Pinilla (2014), Pinilla and Ayuda (2002, 2010), and Pinilla and Serrano (2008) provide excellent analyses on the political economy of the Spanish wine trade in the first globalization period. A forthcoming edited volume by Anderson and Pinilla (2017) analyses production and trade in many wine producing countries and a historical database on the two waves of globalization of wine. Swinnen (2009) and Tracy (1989) explain and document major agricultural trade distortions in Europe and the political economy reasons and mechanism behind them. Swinnen (1994) and Anderson (1995) provide theoretical explanations for government interventions in agricultural and food markets. Finally, our analysis in this paper is related to Meloni and Swinnen’s (2013, 2014) political economy studies of the historical roots of current EU wine regulations.

2. The Devastation of French Vineyards and its Trade Effects

By the mid-19th century, viticulture played a major role in France's economic development. It created income, wealth, and employment for many citizens. However, all this changed with the arrival of a devastating insect around 1864. The appearance in France of *Phylloxera*—an insect that originated in North America, lives on the vines' root systems and kills the plant³—ravaged France's vineyards and caused a collapse in the supply of wine (Augé-Laribé, 1950; Chevet, 2017; Lachiver, 1988). Unlike American vine species (e.g., *Vitis riparia* or *Vitis rupestris*), European vine species (*Vitis vinifera*) were not resistant to it. The impact was dramatic. One-third of the French vine area was destroyed, and the remaining (infected) vineyards produced little wine. As a consequence, French wine production declined by about 70% in the 1870s and 1880s (Meloni and Swinnen, 2013).

While potential cures for *Phylloxera* were searched and tested, France moved from being the world's leading wine exporter to a wine importing country in less than a decade. By 1890, average annual production in France had fallen to 30 million hectoliters, while consumption remained at about 45 million hectoliters (see Figure 1).

To fill this gap, France followed a strategy with four components. First, and most obviously, France searched for ways to make vineyards resistant to *Phylloxera*. The second was to increase wine imports, mostly from Spain and Italy where *Phylloxera* was slow to arrive. Third, France started importing raisins (dried grapes) which were used to produce wine in France. The

³ Unlike American native vine species (e.g., *Vitis riparia* or *Vitis rupestris*), European vine species (*Vitis vinifera*) are not resistant to it. *Phylloxera* spread through much of Europe. First in Portugal and Turkey in 1871, then in Austria-Hungary in 1872, in Switzerland in 1873/4, in Spain in 1875, in Italy in 1879, and in Germany in 1881 (Ordish, 1987; Unwin, 1991, p.284).

fourth element was that France stimulated wine production in its North African colonies (Algeria, Tunisia and Morocco). We will now explain each of these strategies and their effects.

2.1. Increasing Wine Imports

France started to import wine, mostly from Spain and Italy. Wines were imported for consumption or to be mixed with French table wines. French wine imports increased tenfold in a ten-year period: from 1.2 million hectoliters in 1875–79 to 10.6 million in 1885–89 (see Figure 2). The main source of wine imports was Spain.

In the second half of the 19th century, Spain's production and export of wine increased strongly. Initially, the growth (also referred to as the “*golden age*” of wine) was driven by the integration of the domestic market (through the extension of railway lines) and the increase in urban wine consumption determined by an increase in per capita incomes. After the *Phylloxera* outbreak in France, the main driver was French demand for Spanish wine (Fernández and Pinilla, 2017).

In order to facilitate large inflows of wine, France granted a favourable tariff regime to Spanish wine imports in 1877. Following the reduction of French import tariffs, the main wine-producing regions in Spain (such as Aragon, Navarre and La Rioja) started to plant more vines and export wine to France. The vine area increased by around 40% between 1860 and 1888 (Pinilla and Ayuda, 2016). As a result, Spain became the world's largest wine exporter, followed by Italy. Almost all their wines exports went to France. In 1891, Spanish exports were “*32 times greater than those of 1850 or six times those of 1877,*” with the French market accounting for 85% of the Spanish exports between 1886 and 1890 (Pinilla and Serrano, 2008).

The developments were similar in Italy, but somewhat smaller. Italian wine exports to France increased from about 200.000 hectoliters in the early 1870s to 2 million hectoliters in the

mid-1880s. For Italy as well, France became the main wine export destination, absorbing about 80% of Italian wine exports (Federico and Martinelli, 2017).

2.2. Increasing Raisin Imports⁴

The second element of France's strategy to deal with the production declines was to import raisins as a raw material for wine production. The main source of the raisins was Greece, which captured 60% of the French market, followed by Spain and Turkey (the two other big raisins producers) (Petmezas, 1997). Until 1830, there was little production or exports of raisins in Greece. Raisin production took off during the 1830s, after the War of Greek Independence (1821–1832), fueled by growing British demand. Greek raisins were consumed by the British middle class and used in their traditional pudding (Progoulakis and Bournova, 2001).⁵ Until the 1860s, Britain was the principal consumer of Greek raisins. But, from the late 1870s onwards, new (and unexpected) consumers spurred demand for Greek raisins.

France started to import raisins from Greece to produce wine out of them (Tsiovaridou, 1980). During the second half of the 1880s, between 1 and 2 million hectoliters of wine were officially declared French 'raisin wines' (wines produced from raisins) and they accounted for 8% of total French wine production (see Figure 3).⁶ This was mirrored by an increase in raisin imports. French imports of Greek raisins increased fourfold in a decade. The export growth was spectacular: from almost nothing in the early 1870s to about 9,000 tons in 1878, to 30,000 tons four years later

⁴ See Meloni and Swinnen (2016) for a detailed analysis of the Greek-French raisin trade at the end of the 19th century.

⁵ By the mid-1960s, vineyards-owners enjoyed a larger return, about 9 drachmas per hectare, compared to the cereal-owners, about 2 drachmas per hectare—four to five times more profitable (Progoulakis and Bournova, 2001).

⁶ "Raisin wines" were one of the "adulterations" allowed during the late 19th century. Taking into account "raisin wines" (wines produced from raisins), "sugar wines" (obtained either from the addition of sugar to the wine or from the addition of water and sugar to the grape marcs) and "grape marc wines" (or "*piquettes*" obtained from the addition of only water to the grape marcs), the percentage of "adulterated wines" increased to 25% of French wine production in the second half of the 1880s (Bichet, 1934, p. 259; Heath, 2014, p. 95; Stanziani, 2003, 2004).

(1881) to 71,000 tons in 1889—representing around 40% of the total Greek raisin exports (Table 2).

The combined growth of British and French demand during the second half of the 19th century caused a dramatic growth of raisin production in Greece: from 25,000 tons in 1830 to 150,000 tons in 1890 (Pizánias, 1988). The increased demand for Greek raisins, coupled with the 1871 land distribution act,⁷ led to a large increase in vineyards in Greece, in particular in the Peloponnese region in southern Greece (Aroni-Tsichli, 2014). The cultivated vine area in Greece increased almost fivefold from 24,000 hectares in the 1860s to 114,000 hectares in the 1880s—with the Peloponnese region increasing its share from 7% to 26% over the same period (Franghiadis, 1990, pp. 17/24). Raisin production followed quickly thereafter, tripling from 55,000 tons in 1870 to 150,000 tons in 1890. Raisin exports followed the same impressive pace as almost all of the Greek raisin production was exported (Pizánias, 1988, pp. 136–139).⁸

In summary, in the 20-year period between 1870 and 1890, France became a large importer of Greek raisins and Greek raisin production and exports grew exponentially. Raisins not only became Greece’s principal export (representing about 55% of Greek export value during the 1886–90 period) but also the main crop cultivated in Greece (Meloni and Swinnen, 2016).

⁷ In 1871, a land-reform program was enforced and more than 250,000 hectares of national lands were redistributed among 350,000 families between 1871 and 1911 (Progoulakis and Bournova, 2001; Gallant, 2015).

⁸ The main export harbor from which raisins were exported was Patras, in the northern Peloponnese region (Frangakis-Syrett, 1994; Pizánias, 1992).

2.3. The Growth of the Wine Industry in North Africa: 1880–1930⁹

French wine trade and investment policies had a major impact on wine production and exports in North Africa. The effect was most spectacular in Algeria. It is hard to imagine in the twenty-first-century global wine economy, but in 1960—more than 50 years ago—Algeria was the largest exporter of wine in the world. It exported twice as much wine as the other three major exporters (France, Italy, and Spain) combined. Moreover, it was the fourth-largest producer of wine in the world. All this started with the collapse of vineyards in France which triggered massive vineyard investments in Algeria in the 1880s. In the 50-year period between 1880 and 1930, Algerian wine production and exports grew dramatically, turning the industry from nonexistent into the world’s largest exporter of wine (Meloni and Swinnen, 2014).

The success of Algeria in wine trade also triggered vineyard investments in Tunisia and Morocco, two countries colonized by France later on.¹⁰ While the impact was similar (a strong growth in vineyards and wine production, mostly for exports to France), both countries never reached the importance of the Algerian wine industry, in terms of area planted, production or trade. The total vine planted area in Tunisia reached a maximum of 50,000 hectares in the 1930s and 78,000 hectares in Morocco in the 1960s—compared to 400,000 hectares in Algeria. The maximum wine production was 22 million hectoliters of wine in Algeria in the 1930s—ten times more than the maximum produced by Tunisia and Morocco (respectively 2 and 3.5 million hectoliters in the 1960s). The lower production and exports in Tunisia and Morocco were because

⁹ See Meloni and Swinnen (2014) for a detailed analysis of the rise and the fall of the Algerian wine industry.

¹⁰ Algeria was a French colony from 1830 to 1962; Tunisia was a French Protectorate from 1881 to 1956; and Morocco was a French Protectorate from 1912 to 1956. While Algeria was a “true” colony (considered part of the France and divided in several departments), Tunisia and Morocco were French “protectorates”—retaining some sovereignty. In a “true” colony, there was a total assimilation of culture, politics, regulations and trade (direct control of the French administration). On the other hand, in the “protectorates”, the indigenous rulers continued to govern at home under the influence of the French administration (indirect control through a French resident-general and a military presence) (Wesseling, 2004).

both countries were colonized later on and because they did not have the same preferential access to the French market as Algeria had. We explain this below.

2.3.1. *Algeria*

Three factors contributed to the spectacular growth of the Algerian wine industry in the late 19th century (Meloni and Swinnen, 2014). The first factor was the devastation of French vineyards caused by *Phylloxera*. This not only caused an increase in the demand for Algerian wine but also induced an inflow of skills in wine-making through the migration of many broke French winegrowers to Algeria. The second factor was technological progress in wine production. At the beginning (1830–1860) winegrowers did not have the technology to produce drinkable wines in a hot climate. However, in the late 19th century, advanced refrigeration systems were introduced to control temperature during fermentation in the tank. The third factor was free trade with France (as Algerian wine imports were not taxed) that stimulated the growth of Algerian exports when high import tariffs were re-imposed by France on wine imports from Spain and Italy in the late 19th century when French wine production recovered (Blanc, 1967; Isnard, 1947; Isnard and Labadie, 1959).

Beginning in 1880, vine plantations expanded massively. Between 1880 and 1900, the area under vines increased from 20,000 to 150,000 hectares and wine production followed quickly thereafter. From about 25,000 hectoliters in 1854, Algerian production increased to 200,000 hectoliters in 1872, and to 400,000 hectoliters in 1880. By 1890s, French settlers did not need to import wine from France anymore but consumed Algerian wine (see Figure 4). By 1900 Algerian production had reached 5 million hectoliters per year, and by 1915 it doubled to 10 million hectoliters (Figure 5). World War I (1914–18) and the spread of *Phylloxera* in Algeria caused a temporary decline in Algerian wine production. However, Algerian wine production and exports

rapidly increased again in the 1920s and the early 1930s, to 400,000 hectares of vines and to 20 million hectoliters of wine by 1935 (Isnard, 1949).¹¹

2.3.2. *Tunisia*

As in Algeria, the growth of wine production and export in Tunisia is closely linked to French policies. Before the arrival of the French in 1881, less than 2,000 hectares of grape vines were cultivated and some *kosher* wine was produced by the Jewish communities. Following the creation of the French Protectorate, the Tunisian wine industry grew rapidly.

As in Algeria, the French administration stimulated the extension of the vineyards (among other things by providing loans for vineyard investments) as it ensured the French settlements in the colonies and it filled the French production shortfall induced by the invasion of *Phylloxera*.

From 1881 to 1892, vineyard expansion was stimulated by the arrival of two different “types of colonizers”. The first wave of immigrants were French wealthy landowners and capitalists seeking for new (cheap) lands. The second wave of immigrants was triggered, as in Algeria, by the *Phylloxera* crisis but now it were ruined Italian winegrowers (mainly from Sicily and Pantelleria, off the Tunisian coast) that were seeking for a new place to live and to farm the land (Poncet, 1962, p. 141; Riban, 1894, p. 57).¹²

These different groups of settlers brought new technologies, viticultural know-how and the capital to start planting vines on a large scale. The new large wine estates combined (a) capital to invest in modern technologies (as large cellars, mechanical wine presses); (b) the Algerian

¹¹ In 1925, a law allowed agriculture credit banks to provide medium and long-term loans (Isnard, 1949).

¹² The allocation of land between French and Italian settlers was unbalanced. In 1892, a total of 331 French estates were owning 236,000 hectares of land, with more than a third of them having an average size of more than 400 hectares. On the other hand, the average size of the estates owned by Italian immigrants was below 30 hectares (Poncet, 1962, p. 143).

experience to produce wine in a hot climate (the cooling system during fermentation); (c) and an experienced labor force (former winegrowers) from Italy (Poncet, 1962, p. 159).

Tunisian wine production and exports to France benefited also from a regime of preferential trade tariffs. A new law in 1890 changed the trade regime between France and Tunisia, and permitted Tunisian wines to enter France duty free, provided they had an alcohol degree of less than 11 degree alcohol (Poncet, 1962, p. 488; Nogaro and Moye, 1910, p. 221).

As a result, vine planting (and consequently wine production) expanded massively. In 1892, around 6,000 hectares were planted with vines and production reached 95,000 hectoliters (see Figures 5 and 6).¹³ World War I temporarily interrupted the growth of wine production but Tunisian wine production and exports rapidly increased again in the 1920s (Znaïen, 2015). Tunisian wine production doubled from 500,000 hectoliters in 1920 to almost 1 million hectoliters in 1925 and exports tripled from 200,000 hectoliters to 600,000 hectoliters over the same period (Figures 5 and 7). The spectacular growth was driven both by higher productivity (from 20 hectoliters per hectares in 1920 to 35 hectoliters per hectares in 1925) and expanding vineyards (from 18,000 hectares in 1915 to 28,000 hectares by 1925) (Tiengou des Royeries, 1959, p. 77).¹⁴

¹³ European settlers borrowed substantial amounts of capital: a total of 1,500,000 francs were granted to invest in vineyards (Poncet, 1962, p. 197). At the beginning of the 20th century, French investments policy changed somewhat to support smaller vineyards (Leroy-Beaulieu, 1887, p. 430).

¹⁴ After World War I, more ruined Italian immigrants arrived. Their establishment was encouraged by the Protectorate by buying the large domains and selling land and vineyards to the small settlers (mainly Italians). The result was a shift in vineyards ownership. In 1913, French settlers owned 9,186 hectares of vineyards and the Italian settlers 6,448 hectares. By 1920, Italian winegrowers had 10,112 hectares while the French stabilized their vineyards at 9,436 hectares. In 1938 half of the vineyards in Tunisia (about 24,000 hectares out of 43,000 hectares total) were cultivated by 1,845 Italian winegrowers—representing two-thirds of the total European winegrowers (Huetz de Lempes, 2001, p. 323; Poncet, 1962, p. 248).

2.3.3. *Morocco*

Morocco was the third North African country (partly) colonized by France and only in 1912, much later than Algeria and Tunisia. Morocco was divided in two Protectorates—the southern part of the country was occupied by France while the northern part was occupied by Spain. The total European settlers increased from 65,000 in 1911 to 207,000 in 1936 (Wesseling, 2004; Tiengou des Royeries, 1959, p. 89). When the French imposed their protectorate in 1912, around 2,000 hectares were already planted with vines—mainly for the production of fresh grapes. European settlers triggered the growth in vineyards and wine production both for local consumption (they started to drink wine as they did in their home country) and for exports.

At first, wine production was not enough to cover the internal demand from the French and Spanish settlers and Morocco imported about 180,000 hectoliters of wine. However, at the end of the 1920s, there was a true “planting fever” triggered by government loans for agricultural (vineyard) investment. The settlers borrowed substantial amounts of capital which led to a tenfold increase of the area planted with vines (from 2,000 hectares in 1924 to 25,000 hectares in 1938), resulting in increased wine production (from 60,000 hectoliter to 700,000 hectoliters) and decreased wine imports (from around 260,000 hectoliters in 1922 to 55,000 hectoliters in 1933—a 70% decrease) (Huetz de Lempis, 2001, p. 322; *Statistique Générale de la France*, 1878/1901).

Soon wine production exceeded internal demand and Morocco was ready to export Moroccan wine. However, things were different for Morocco than for Algeria and Tunisia. By the time Moroccan wine arrived on the international market in the 1930s, the export market was already flooded with Algerian (and Tunisian) wine and French wine production had recovered.¹⁵

¹⁵ Morocco also exported to Belgium, Switzerland and West Africa but these markets were able to absorb only a small fraction of Moroccan wine production (Huetz de Lempis, 2001).

2.4. Making French Vineyards *Phylloxera*-Resistant

It took France more than twenty years to understand why vines were dying and to make vineyards resistant to *Phylloxera*. French experts were initially led astray by history. French vineyards had been destroyed a few decades earlier by *oidium* (powdery mildew). From 1847 to 1854, wine production decreased from 54 million to 11 million hectoliters. The discovery of sulfur to tackle the *oidium* vine disease allowed France to rapidly recover its wine production levels (production was back at 54 million hectoliters by 1858) (*Statistique Générale de la France*, 1878/1901). This stimulated winegrowers to fight *Phylloxera* with the same means, but unsuccessfully.

In the search for a cure, two groups of scientists opposed each other diametrically: the “Chemists” and the “Americanists”. The first group advocated chemical treatments, and steam engines were adapted to pump expensive carbon disulfide into vineyards. The second group claimed that the solution to *Phylloxera* was, paradoxically, its cause. Vineyards could be saved only through the use of the *Phylloxera*-resistant American vines (Gale, 2011; Paul, 1996).

By the 1880s, new types of *Phylloxera*-resistant vines had been developed, using two ways to bring in the resistant American vines. The first solution—grafting—consisted of attaching European vines to the roots of the *Phylloxera*-resistant American vine species. The second solution—hybrids—consisted of crossing two or more varieties of different vine species. Hybrids were the result of genetic crosses either between American vine species (“American direct-production hybrids”) or between European and American vine species (“French hybrids”). During the 1890s, French vineyards were reconstructed with new plantings that used grafting and hybrid grape varieties. As a result, French vineyards began to recover and production increased, and by

1900 it had reached around 65 million hectoliters, the level of the pre-crisis years (Chevet, 2017; Gale, 2011; Paul, 1996).

3. French Wine Recovery and Tariff Increases

Hence, by the beginning of the 20th century, French wine production had recovered. This recovery and the increased imports caused a fall of wine prices (see Figures 1 and 8). From the peak in 1880, average wine prices fell by more than 60% over the course of the next 25 years. The most dramatic decline was during the 1890s, when imports were high and French production began to recover.

The declining prices resulted in demands by French producers to limit imports of wine and raisins.¹⁶ As wine prices continued to fall, the protests by winegrowers grew increasingly intense.

Under pressure from French wine producer organizations, the government introduced a series of laws aimed at limiting imports by imposing high tariffs on wine and raisins, regulating wine “quality”¹⁷ and controlling wine supply (by restricting the total area of land under vines) (Meloni and Swinnen, 2013). The increased tariffs on wine and raisins imports had major implications for the Mediterranean wine and raisin trade. The tariffs effectively blocked the imports of Spanish and Italian wines into France (Fernández and Pinilla, 2017; Pinilla, 2014). They also had major implications for raisin trade and for Greece, and for wine exports from the North African colonies.

¹⁶ At the turn of the century, viticulture in France was still very important. By 1900, about 1.7 million winegrowers were supporting around 7 million people—representing 18% of the total population in France (Paul, 1996, p 11).

¹⁷ At the beginning of the 20th century, several laws defined wine, imposed the notification of annual production levels and forbade the addition of water and sugar of wines. Moreover, other laws were introduced linking the “quality” of the wine, to its production region (the *terroir*) and the traditional way of producing wine. The system of *Appellations d’Origine Contrôlées* (AOC) was born (for details see Meloni and Swinnen, 2013).

3.1. French Tariffs and Wine Imports

The first response of the French government was to increase tariffs on wine imports. Tariffs on Italian wine were increased from 5% to almost 50% in the late 1880s, as part of a “trade war” between France and Italy (Becuwe and Blancheton, 2014; Nogaro and Moye, 1910).¹⁸ Next, with the 1892 “Méline tariff”,¹⁹ France increased the tax on the imports of Spanish wines and Greek raisins.²⁰ Figure 9 shows that import tariffs increased from 5% in 1885 to more than 40% after 1892. These increases in French import tariffs (further raised in 1899) led to a dramatic decrease in imports of Spanish and Italian wine (see Figure 10) (Golob, 1944; Morilla Critz et al., 1999; Pinilla and Ayuda, 2002, 2008).

The increase in import tariffs reduced total imports and caused a substitution of wine imports from Spain and Italy to France’s North African colonies, in particular Algeria and Tunisia (Morocco did not produce an export surplus until the 1930s). The French government continued to allow tariff-free entry of Algerian and Tunisian wine,²¹ produced by French winegrowers ruined by *Phylloxera* who had emigrated to the colonies. Moreover, France still needed extra wine to meet domestic demand—average French annual production was 30 million to 40 million

¹⁸ The “trade war” (1887–1892) between Italy and France included also Italy’s increase of tariffs on wheat and manufactures in 1887 (Federico and Tena, 1999).

¹⁹ The “Méline tariff” of 1892 was named after the French statesman, Jules Méline, at that time president of the Chamber of Deputies. The “Méline tariff” of 1892 set a double-tariff system, a “general tariff” applied to all the countries and a “minimum tariff” applied to countries who gave France correlative advantages in trade, i.e. an invitation for bilateral agreements (Barral, 1974; Haight, 1941, p. 66). According to Smith (1992), the Méline tariff is “credited with ending France’s experiment in free trade and returning the country to a policy of high protection (...) it was arguably the most important piece of economic legislation in the history of the Third Republic”.

²⁰ Wines made with raisins were already taxed in France with a 1890 law (for more details see Meloni and Swinnen, 2016).

²¹ Algeria’s external trade was entirely dependent on France. Initially (after annexation in 1830), there were tariffs on both French and Algerian products in bilateral trade. In 1835, tariffs were removed from French products entering Algeria, but not vice versa. Algerian products were still considered “foreign” imports by France. In 1851, a new law permitted certain Algerian products, such as fruits, vegetables, cotton, and tobacco, to enter France duty free. However, wine was not initially included. Tariffs on Algerian wine imports were lifted in 1867 (Isnard, 1954, p. 30; Leroy-Beaulieu, 1887, p. 176).

hectoliters in the 1890s, compared with its annual pre-*Phylloxera* average of 50 million hectoliters (see Figure 1).

Figure 10 shows that imports fell from more than 10 million hectoliters in the late 1880s to 5 million hectoliters in the early 1900s, mostly as a consequence of the decline in Spanish imports. Over this period, the imports of Algerian and Tunisian wine more than tripled, partially offsetting the reduced imports from Spain and Italy. As Figure 10 illustrates, French wine imports equaled Algerian and Tunisian production during the first two decades of the 20th century. Moreover, after 1905, further increases in Algerian and Tunisian imports (from 4 million hectoliters to 6 million hectoliters) caused total wine imports (which now consisted mostly of Algerian and Tunisian wine) to increase between 1905 and 1915. This caused wine prices in France to continue to decline during the first decade of the 20th century (see Figure 8).

3.2. A Protectorate is not a Colony: Tariffs on North African Wine Imports

Wine imports from Algeria, Tunisia and Morocco were initially not subject to tariffs and caused a substitution of wine imports from Spain and Italy to these North African countries. Yet, trade regimes were not the same for the three countries and this mattered when the pressure on the government from French wine producers continued to grow.

While Algeria was a “true” colony, and therefore part of a French custom union with zero internal tariffs, Tunisia and Morocco were French “protectorates”—retaining some sovereignty, but also different trade relationships. France had a regime of preferential trade tariffs with Tunisia and Morocco (based on a system of duty free quota). As previously explained, Tunisian wine exports benefitted from the 1890 law that permitted Tunisian wines to enter France duty free. However, as French production increased and Algerian imports continued to grow, there was strong pressure on the French government to constrain imports from Tunisia (and Morocco). A

first restrictive trade measure was introduced in 1928, when a new law imposed an annual quota of 550,000 hectoliters of Tunisian wine which could be exported free of duty into France. Beyond this quota wine imports were taxed at a minimum tariff rates (JORF, 1928). Not surprisingly, Tunisia objected vehemently. Tunisia was producing 1.2 million hectoliters and exporting around 700,000 hectoliters of wine (see Figure 5).²² Tunisian winegrowers therefore strongly lobbied the French government for a larger duty free quota (Marseille, 1984). After seven years of lobbying, a 1935 law increased the duty free import quota to 750,000 hectoliters of wines and an extra quota of 500,000 hectoliters could be imported at a lower tariff of 30 francs per hectoliter—below the minimum tariff rates (Chaudier, 1898; Haight, 1941, p. 244; Poncet, 1962, p. 488; Marseille, 1984).

As explained above, Morocco never benefited from the preferential access to French wine markets. By the time that it produced an export surplus, in the mid-1930s, France was a saturated market and the French government was under strong political pressure from the domestic wine producers to protect them. France immediately imposed high tariffs on Moroccan wines (Tiengou des Royeries, 1959, p. 92).

The only “country” that escaped the protectionist wine trade regime change in France was Algeria. As a colony integrated in France’s zero tariff custom union, it continued to export wine to France, and with its competitors blocked it continued to increase exports until the mid of the 20th century. Only a significant change in its political status with France would change this—and dramatically so, as we will explain in section 5.

²² Domestic consumption never exceeded 350,000 hectoliters in Tunisia (Tiengou des Royeries, 1959, p. 80).

3.3. French Tariffs and Regulations and the Collapse of Raisins Trade in the Mediterranean

The impressive growth of Greek raisin production and exports in the 19th century was followed by an equally spectacular fall.²³ In 1889, 43% of Greek raisins were exported to France. However, French vineyards (and production) had begun to recover during the 1890s and wine and grape prices fell. French wine and grape producers lobbied the government to restrict raisin imports and the use of Greek raisins for French wine production. In 1889, at the peak of Greek raisin exports to France, the French government gave in to the pressure and introduced four major regulations to reduce the use of raisins in French wine production: (1) it introduced compulsory labeling of “raisin wines” to distinguish these from “wine” for consumers, (2) it imposed high taxes on “raisin wines” production in France, (3) it imposed high tariffs on Greek raisin imports and (4) it forbade adding water to wines—which effectively destroyed the production of “raisin wines” in France (Meloni and Swinnen, 2016).

The combined effect of the wine regulations and the increased tariff were dramatic. Greek raisin exports to France fell from 71,000 tons in 1889 to 14,600 tons in 1893 and French production of “raisin wines” decreased from 4 million hectoliters (the production peak) to less than a million after 1893 (see Figure 11). It fell further to almost nothing after the beginning of the 20th century (Petmezas, 2000).

Although the measures only directly impacted the Greek producers and traders of raisins, the French measures ultimately led to a national crisis. With the domination of raisins in agricultural production and Greek exports, the Greek economy had become highly dependent on raisin markets (Franghiadis, 1990, p. 33; Petrakis and Panorios, 1992). Even if British demand

²³ Corinthian raisins (or ‘currants’) are dried small grapes of the Greek variety ‘Black Corinth’ (Aroni-Tsichli, 2014). In our analysis we will name them ‘raisins’.

remained stable, the fall in French demand caused a raisin overproduction crisis (especially in the southern Peloponnese region where raisin cultivation dominated). The impact on the Greek raisin market was dramatic. Raisin prices dropped from 0.63 francs per kilograms in 1890 to 0.09 francs per kilograms in 1893—a 85% decrease (Tsiovaridou, 1980).

Because of its importance as export revenue (as almost all raisin production was exported), there were important macro-economic implications. Foreign debts represented one-third of the national budget and were partially guaranteed by the revenues from raisin exports. The fall in raisin prices and export value contributed thus to a significant decrease in government revenues and ultimately to the bankruptcy of the Greek government.²⁴ In 1893, Prime Minister Charilaos Trikoupis announced to the parliament the historic words: “*Regretfully, Gentlemen, we are bankrupt.*” (Chiotellis, 2014; Gallant, 2015; Morilla Critz et al. 1999; Pepelasis Minoglou, 1995; Stavrianos, 1958).

4. Non-Tariff Measures to Restrict North African Exports

In the 1930s, France had totally banned imports of wine from Spain and Italy and raisin imports from Greece through tariffs (and other regulations) and limited imports from Morocco and Tunisia through tariff quotas. However, the pressure on the French wine market continued. At first the wines coming from the colonies served as *vin de coupage*²⁵ for the French wines—they were

²⁴ This was not the first time that a bankruptcy occurred. The government of modern Greece had defaulted in 1826, 1843 and 1860. The first Greek bankruptcy occurred in 1826 (four years before the Greek state was declared) and was caused by the inability to reimburse interests on British loans granted for the War of Greek Independence (1821–1832) against the Ottoman Empire (Levandis, 1944).

²⁵ “*Is considered ‘vin de coupage’, any wine resulting from the blending by a merchant of wines with different origin.*” [Translation by the authors. “*Est considéré comme vin de coupage, tout vin résultant du mélange par un commerçant de vins différant entre eux par la provenance.*”] (JORE, 1930).

blended in order to increase French alcoholic content.²⁶ However, from the end of the 1920s, they started to compete with French wines. With growing internal production, growing imports from Algeria and the 1929 Great Depression reducing demand, prices kept falling. Between 1927 and 1935, real wine prices declined by 50% in France (see Figure 8).

Restrictions grew further as the wine crisis stimulated more protests from wine growers in France (Chevet, 2017). France now tried to stop wine imports from North African countries by other means than tariffs. It prohibited the blending of French wines with those of other countries, and it introduced laws aimed at reducing vineyards surface and at banning new planting of vines.

A 1930 French law prohibited the blending of foreign wines with national wines.²⁷ Moroccan and Tunisian wine exports were directly affected by the blending prohibition but Algerian wine exports not. As Algeria was formally part of France, Algerian wines were not considered “foreign wines” and therefore not affected by the 1930 law (Isnard, 1966; JORF, 1930, Article 4).²⁸

The second major action taken by the France aimed at reducing wine imports by reducing vineyards surface and at banning new planting of vines in North Africa.²⁹ French winegrowers

²⁶ French demand for high alcohol wines increased after the *Phylloxera* outbreak. Hybrids vines (one of the solutions to *Phylloxera*) produced wines with lower alcohol levels—no higher than 8% or 10%. In order to increase the alcohol content of their wines, French wine producers had to either add sugar or blend their wines with North African wines that had a much higher alcohol level—from 13% to 16% (Gautier, 1930). This increased demand for North African wines to blend with French wine.

²⁷ The 1930 law established that: “*Imported wines will be able to circulate for sale, be offered for sale or sold, if the indication of the country of origin and their alcohol content is clearly marked on the containers, invoices and other official documents (...)*” [Translation by the authors. “*Les vins importés ne pourront circuler en vue de la vente, être mis en vente ou vendus, que si l’indication de leur pays d’origine et de leur degré alcoolique figurent clairement sur les récipients, factures et pièces de régie*”] (Article 4, JORF, 1930).

²⁸ This regulation was eased for Tunisia in 1933. A new law considered Tunisian wines as “French wines”, allowing their use in blending (Tiengou des Royeries, 1959, p. 79).

²⁹ French winegrowers at first tried to lobby the government to impose import tariffs and quotas to protect them against Algerian wines. However, the French government was not willing to impose tariffs on Algerian wines, as it would have hurt the interests of French citizens overseas and because it was inconsistent with the integration of Algeria as French territory (Barrows, 1982; Isnard and Labadie, 1959).

from the south of France lobbied the French government to halt the expansion of north African vineyards (Meynier, 1981, p. 129). Because almost all North African production was exported to France, a limit on vineyard expansion was equivalent to import constraints. Between 1931 and 1935, a series of laws (*Statut Viticole*)³⁰ aimed at controlling the wine supply were introduced and applied to producers in both France and Algeria.³¹

These laws did not immediately reduce total wine production but stopped the growth. In 1934 and 1935, the combined production of France and Algeria was almost 100 million hectoliters. However, the *Statut Viticole* did immediately halt the increase in vineyard area (see Figure 6). Total vineyard area in Algeria never expanded beyond the level reached in the mid-1930s (400,000 hectares).

Tunisia and Morocco were hit by similar regulations. In Tunisia, a 1932 law prohibited the extension of vineyards above 10 hectares. It was followed, a year later, by the total ban of new planting and replanting of vines. In 1934, grubbing-up premiums were provided to winegrowers who permanently (and voluntarily) abandon vineyards.³² In Tunisia the total surface planted with vines decreased from 51,000 hectares in 1933 to 42,000 hectares in 1937. Similarly to Tunisia, three laws were introduced in Morocco to halt the expansion of vineyards. In 1935, an edict (*dahir*)

³⁰ The *Statut Viticole* included the following measures: an obligation to store part of the excess production (*blocage*), obligatory distillation of surpluses, and the establishment of a levy on large crops and yields, a ban on planting new vines, and premiums for grubbing up of “overproductive” vines. The regulations applied to producers in both France and Algeria. However, the policy was biased in favor of wine producers in France and hit (large) Algerian producers much harder than French producers. For instance, new planting of vines was forbidden for ten years for producers who owned vineyards of more than 10 hectares or who produced more than 500 hectoliters of wine. During the 1930–1935 period, the average vineyard for French winegrowers was around 1 hectare, whereas in Algeria it was around 22 hectares. Furthermore, the average yield in France was 38 hectoliters per hectare, whereas in Algeria it was almost 50 hectoliters per hectare. Moreover, due to the hot climate, the obligation to store part of the excess production was more difficult for Algerian wine producers (Isnard, 1947; Loubère, 1990; Meloni and Swinnen, 2014).

³¹ Article 17 of the 1931 law and article 54 of the 1935 law stated that the regulations were applicable to Algeria (Meloni and Swinnen, 2014).

³² The winegrowers committed at reducing by 10% the planted areas, a percentage lifted to 15% in 1935 (Tiengou des Royeries, 1959, p. 80).

prohibited the planting of new vines and, in 1937, another edict provided restrictions not only on new plantings but also on the replanting of vines (Poncet, 1976; Tiengou des Royeries, 1959, p. 80/93).

4.1. A Decade of Destruction

In the decade between 193 and 1945, North African wine exports were (further) reduced by two external factors: the arrival of *Phylloxera* and the destructions caused by World War I.

The vine area declined with the arrival of *Phylloxera* in Morocco (1935) and Tunisia (1936). This reduced the vineyards by a third: vineyards in Tunisia decreased from 42,000 hectares in 1937 to 30,000 in 1945. Whereas vineyards in Morocco decreased from 26,000 hectares to 18,000 hectares over the same period (*Statistique Générale de la France*, 1878/1901).

Starting in 1939, Algerian wine exports were paralyzed as the fighting in World War II (1939–45) seriously affected maritime trade and caused destruction and abandonment of many vineyards in France and Algeria, leading to a sharp fall in wine production. The German occupation of Tunisia and severe draughts of 1941–45 reduced production and exports. Somewhat paradoxically, World War I also stimulated the wine industry in some regions. In Morocco and Algeria, the internal consumption increased after the landing of allied troops (code-named ‘Operation Torch’) in 1942. As a consequence, local wine consumption increased as Americans and British soldiers were asking for wine.³³

The destructions also affected the French regulations. With falling North African production and exports, the *Statut Viticole* was repealed and planting restrictions were liberalized in 1942 (Meloni and Swinnen, 2014).

³³ Wine consumption increased so abruptly that Morocco had to import wines (250,000 hectoliters) in 1944.

4.2. A Brief Post-War Recovery

After the war, wine production recovered as vineyards were replanted, with production in Algeria doubling from 9 million hectoliters in 1945 to 18 million in 1953 (Meloni and Swinnen, 2014). The Moroccan and Tunisian wine industry also witnessed an increase in wine production and exports. In 1946, special loans were granted by the Tunisian government to winemakers eager to replant their vineyards (Isnard, 1949).

Also now French wine and trade policies played a crucial role. World War II had caused a sharp fall in French and Algerian wine production and France needed more wine than it could produce. A new trade agreement between France and Morocco was reached in 1948. A total of 1 million hectoliters of wines could enter France duty free.³⁴ Moreover, the restrictive regulations of the *Statut Viticole* were eased: in 1943 the Sultan Mohammed V allowed the planting of 10,000 hectares of new vines and, from 1953 onwards, allowed the planting of 3,000 hectares per year. Morocco vine plantings increased fourfold (from 20,000 hectares in 1946 to about 70,000 hectares in 1956) and its wine production increased sixfold (from 300,000 hectoliters to 2 million hectoliters) over the same period (Huetz de Lempis, 2001, p. 327; Valay, 1966).

A new customs agreement with Tunisia (1955) raised the duty free quota to 1.25 million hectoliters (instead of 750,000 hectoliters). As a result, Tunisian wine production doubled in four years (from 1 million hectoliters in 1954 to 2 million hectoliters in 1958) and wine exports tripled (from 400,000 to 1.3 million hectoliters) over the same period (Poncet, 1962, p. 488).

³⁴ The 1 million hectoliter quota was divided in: 300,000 hectoliters for wines with an alcohol degree of less than 12 degree alcohol and 700,000 hectoliters for wines with an alcohol degree of more than 12 degree alcohol (Tiengou des Royeries, 1959, p. 95).

5. Decolonization and the Collapse of the Wine Industry and Trade in North Africa

In 1961, North Africa still accounted for almost two-thirds of the world's wine exports and Algeria was still the world's largest exporter of wine—a share that the three largest wine producers, France, Spain and Italy never achieved (see Figure 12). This lasted until the French colonies became independent in the late 1950s and early 1960s when Morocco (1956), Tunisia (1956) and Algeria (1962) achieved independence. From then on, France imposed high tariffs on their wine imports. The combination of the French import tariffs, a drop in domestic North African consumption, a loss in wine production skills, and mismanagement of the vineyards caused the collapse of the North African wine industry. The impact was most dramatic in Algeria.

5.1. French Import Constraints After Independence

Until 1962, Algeria was a part of France and, therefore, of the European Economic Community since 1957 (the precursor of the European Union). After independence, Algeria no longer enjoyed the same trade status with France nor with the European Economic Community (EEC)—the predecessor of the EU. Algerian wine was no longer a “French product” and therefore subject to tariffs. In 1964, a five-year agreement was reached between France and Algeria in which France committed to purchasing 39 million hectoliters of Algerian wine—between 7 million and 9 million hectoliters per year over the next five years, but in decreasing quantities. The negotiated import volumes were considerably lower than imports before independence (e.g., in 1961 Algeria exported 15 million hectoliters to France). Actual French imports were even lower since the French government did not fulfill the agreement and imported only 6.2 million hectoliters instead of the agreed 14 million hectoliters. Consequently, Algerian wine exports to France fell by two-thirds in only a few years (Isnard, 1966; Meloni and Swinnen, 2014).

After the independence of Tunisia and Morocco, France eliminated their preferential wine tariffs and did not allow duty-free wine imports anymore. Paradoxically, in 1955 (on the eve of its independence from France), Tunisia formed a customs union with France. This would change with independence. In 1959, a new trade agreement was reached, with Tunisian exports still enjoying some preferences in the French market under the most-favored-nation rule. However, in 1964 the Tunisian government decided to nationalize vineyards belonging to the European settlers. As a consequence, France decided to end the Franco-Tunisian trade agreement and to stop wine imports from Tunisia as retaliation (Angles, 1996; Valay, 1966). For Morocco as well, France decided in 1967 to eliminate the duty free quota of 1 million hectoliters. As a result, exports decreased sharply in less than a decade in Morocco (from 1.7 million hectoliters in 1959 to 700,000 hectoliters in 1968) and in Tunisia (from 1.3 million hectoliters to 600,000 hectoliters over the same period) (Figure 7; Huetz de Lemps, 2001, p. 328).

5.2. Loss of Skills and Local Demand with the Departure of European Settlers

The departure of the French army and a large part of European settlers resulted in the loss of skilled labor and in a sharp decrease in wine consumption in North Africa countries. The departure of European settlers—owner of the large estates or winegrowers with viticultural skills and knowledge—caused a disorganization of production during the transition process. This also resulted in a sharp fall in wine consumption in Muslims countries where the Koran forbade alcohol consumption. In Tunisia, about 100,000 Europeans left the country in 1956–57, leading to a 30% drop in consumption in one year (from 370,000 hectoliters in 1956 to 250,000 in 1957). In Morocco, domestic consumption decreased by 70% (from 724,000 hectoliters in 1956 to less than 200,000 hectoliters after independence). In Algeria the situation was even more dramatic as 900,000 European-Algerians (*pieds-noirs*) emigrated to France between 1962–75. As a

consequence, Algerian wine consumption declined by about 90%—from 1.5 million hectoliters in 1960 to 160,000 in 1975 (Huetz de Lempis, 2001, p. 317/323/328; Stone, 1997, p. 218).

5.3. Nationalization and Poor Management

The collapse of the North African wine exports were reinforced by poor management, the nationalization of vineyards and the inability to re-orient exports. The North African countries unsuccessfully tried to find other export markets for their wine. In 1969, Algeria signed a seven-year agreement with the Soviet Union which agreed to buy 5 million hectoliters of Algerian wine every year at a fixed price. The Soviet Union became Algeria's principal wine export market, which led to a brief surge in exports. In 1969 and 1970, wine exports increased to around 12 million hectoliters, but the recovery did not last. Exports to France continued to decline, and exports to the Soviet Union were not successful. The prices set by the Soviet government were lower than world market prices for wine, a price at which production was not profitable for Algeria (Sutton, 1988).

Morocco and Tunisia also tried to re-orient wine exports. Morocco found other (minor) markets in Germany (100,000 hectoliters in 1969) and in West Africa (Ivory Coast and Senegal) but at below-cost prices (Huetz de Lempis, 2001, p. 328). Tunisia also (unsuccessfully) tried to export to other countries, such as the United States, Germany and West Africa. However, already in 1965, the just-elected President of Tunisia, Habib Bourguiba, advised winegrowers to stop planting and to progressively replace vines by more profitable crops such as flowers and asparagus (Isnard, 1966).

Moreover, after independence, vineyards were run by state organizations and governed by local politicians without much agricultural knowledge or wine-making skills. In Algeria, the ruling political party (National Liberation Front) nationalized agricultural land in 1962, including vineyards and the entire wine sector. In Morocco as well vineyards were gradually taken over and

owned by the *Société de Développement Agricole* (SODEA)—established in 1972 to manage agricultural areas (Birebent, 2007; Huetz de Lemp, 2001, p. 328).

In summary, the combination of low domestic consumption, poor domestic management of the wine sector after its nationalization and French import constraints caused a dramatic reduction in exports. The state-managed system was unable to respond effectively to the changed international market situation and could not find alternative outlets or reposition North African wines for a growing global market.³⁵ The fall of the North African wine industry continued through the rest of the 20th century. The largest impact was on Algeria—by the early 1990s, 30 years after independence, the Algerian wine industry was restored to where it had been 120 years earlier, before its spectacular rise as the world’s leading exporter. From a global perspective, it has effectively disappeared. Production, vineyard surface, and exports have fallen back to negligible levels. French policies were crucial in its growth and in its fall.

6. Conclusion

To understand the dramatic changes in wine trade from the middle of the 19th and to the mid-20th centuries, it is crucially important to recognize the central role of France. France was the world’s leading wines exporter for centuries but the invasion of *Phylloxera* devastated French vineyards. This was the start of dramatic changes in wine trade as France imported millions of hectoliters of wine from Spain and Italy. Spain became the world’s largest wine exporter, followed by Italy, and France became the world’s largest wine importer. It not only imported wine but also

³⁵ For instance, the state decided to uproot a large share of the vineyards in Algeria. Between 1970 and 1973, 20% of the total vineyards were uprooted, some 71,300 hectares of vine (Sutton, 1988).

dried grapes (raisins) to produce wine from. Greece started to massively plant vineyards in the Peloponnese region in southern Greece in order to export raisins to France.

Imports also came increasingly from the North African colonies. When France annexed Algeria in 1830, Tunisia in 1881 and Morocco in 1912, no one could have predicted that North Africa would account for almost two-thirds of the world's wine exports nor that Algeria would become the world's largest exporter of wine. In these three countries, viticulture was not encouraged, as the Koran forbade alcohol consumption. It was only after France colonized the region that North African viticulture developed. The French colonists and settlers consumed wine because it was considered the safest drink and it was part of their Mediterranean diet. Wine production and exports grew rapidly when France needed wine in the late 19th century and stimulated vineyard investments.

However, after French production recovered, French producers lobbied the government to impose high tariffs on Spanish and Italian wines and Greek raisins. The result was a protectionist trade regime and high tariffs on Spanish and Italian wines and Greek raisins. This contributed to the bankruptcy of the Greek government and induced a substitution of wine imports from Spain and Italy to France's North African colonies (mainly Algeria).

While wine imports from Tunisia and Morocco were also increasingly restricted by French trade policies and wine regulations, Algerian wine imports kept growing, making Algeria the world's largest wine exporter. Wine imports from the colonies continued until Algeria, Morocco and Tunisia became independent and France imposed high wine tariffs, effectively killing their wine exports. Attempts to shift exports to other regions, such as the Soviet Union, Germany and West Africa, failed and the wine industry in North Africa mostly collapsed.

The collapse of the North African wine industry coincided with the establishment of the EEC and heralded the beginning of a new era in wine trade. From 1970 onwards the French and Italian wine markets and wine trade were integrated in the EEC (later EU). Wine trade was subject to heavy regulations under the EU's Common Wine Policy (Meloni and Swinnen, 2013, 2014). The following decades saw the growth of exports from the New World and the integration of Spain and Portugal to the EU. While the EU's wine market grew even larger with the accession of East European wine exporting countries such as Bulgaria and Hungary, the share of the EU in global markets was reduced by the success of the New World's wine exports.

References

- Anderson, K. (1995). "Lobbying Incentives and the Pattern of Protection in Rich and Poor Countries," *Economic Development and Cultural Change*, 43(2): 401–23.
- Anderson, K. (ed.) (2009). *Distortions to Agricultural Incentives: A Global Perspective, 1955 to 2007*. London: Palgrave Macmillan and Washington DC: World Bank.
- Anderson, K. and V. Pinilla (2017), *Annual Database of Global Wine Markets, 1835 to 2015*, Wine Economics Research Centre, University of Adelaide, March (freely available in Excel files at www.adelaide.edu.au/wine-econ/databases)
- Angles, S. (1996). "Les Aspects Récents de la Viticulture Tunisienne," in Le Gars, C. and P. Roudié (eds.) *Des vignobles et des vins à travers le monde: Hommage à Alain Huetz de Lempis*. Cervin: Presses Universitaires de Bordeaux, pp. 567–574.
- Aroni-Tsichli, K. (2014). "The Agrarian Question: The Agrarian Movement and Issues of Land Ownership in Greece, 1821–1923," *Martor*, 19: 43–62.
- Augé-Laribé, M. (1950). *La Politique Agricole de la France de 1880 à 1940*. Paris: Presses Universitaires de France.
- Barral, P. (1974). "Les Groupes de Pression et le Tarif Douanier Français de 1892," *Revue d'Histoire Economique et Sociale*, 52(3): 421–426.
- Barrows, S. (1982). "Alcohol, France and Algeria: A Case Study in the International Liquor Trade," *Contemporary Drug Problems*, 11: 525–543.
- Becuwe, S. and B. Blancheton. (2014). "The Dispersion of Customs Tariffs in France between 1850 and 1913: Discrimination in Trade Policy," in C. Hanes and S. Wolcott (eds) *Research in Economic History (Research in Economic History, Volume 30)*. Emerald Group Publishing Limited, pp.163–183.
- Bichet, R. (1934). "Piquettes et Vins de Sucre," in Hitier, H. and L. Brétignère (eds.), *Journal d'Agriculture Pratique*, Paris: Librairie de la Maison rustique du XIXe siècle.
- Birebent, P. (2007). *Hommes, vignes et vins de l'Algérie Française: 1830–1962*. Nice: Editions Jacques Gandini.
- Blanc, G. (1967). *La Vigne dans l'Économie Algérienne. Essai d'Analyse des Phénomènes de Domination et des Problèmes Posés par l'Accession à l'Indépendance Économiques dans le Secteur Agricole*. Thèse présentée et publiquement soutenue devant la Faculté de Droit et des Sciences Economiques de Montpellier pour l'obtention du grade de Docteur en Sciences Economiques.
- Chaudier, J. (1898). *Le Régime Douanier de la Tunisie : La loi Française du 19 juillet 1890, le Décret Beylical du 2 mai 1898*. Montpellier: Imprimerie de Serre et Roumégous. Available at <http://gallica.bnf.fr/ark:/12148/bpt6k57728089> (Accessed March 16, 2016).
- Chiotellis, A. P. (2014). "Sovereign Debt Restructuring and the Internal Legal Framework: The Greek Experience," in Christoph G. Paulus (ed.), *A Debt Restructuring Mechanism for Sovereigns: Do We Need a Legal Procedure?* München: C.H. Beck, pp. 99–117.

- Chevet, J.-M., Fernandez, E., Giraud-Héraud, E. and V. Pinilla. (2017). "France," in Anderson, K. and V. Pinilla. (eds.), *Wine's Evolving Globalization: A New Comparative History*, Cambridge: Cambridge University Press, forthcoming.
- FAO (2016). FAOSTAT. *Food and Agriculture Organization of the United Nations*. Available at <http://faostat3.fao.org/home/> (Accessed May 1, 2016).
- Federico, G. and A. Tena. (1999). "Did Trade Policy foster Italian industrialization? Evidences from the Effective Protection Rates, 1870–1930," *Research in Economic History*, 19: 111–138.
- Federico, G. and P. Martinelli. (2017). "Italy before World War Two," in Anderson, K. and V. Pinilla. (eds.), *Wine's Evolving Globalization: A New Comparative History*, Cambridge: Cambridge University Press, forthcoming.
- Fernández, E. and V. Pinilla. (2017). "Spain," in Anderson, K. and V. Pinilla. (eds.), *Wine's Evolving Globalization: A New Comparative History*, Cambridge: Cambridge University Press, forthcoming.
- Francis, A.D. (1972). *The Wine Trade*. London: Adams and Charles Black.
- Frangakis-Syrett, E. (1994). "Monoculture in Nineteenth-Century Greece and the Port City of Patras," *Journal of the Hellenic Diaspora*, 20: 9–34.
- Franghiadis, A. (1990). *Peasant Agriculture and Export Trade: Currant Viticulture in Southern Greece, 1830–1893*. Florence: European University Institute.
- Gale, G.D. (2011). *Dying on the Vine. How Phylloxera Transformed Wine*. Berkeley: University of California Press.
- Galet, P. (1964). *Cépages et Vignobles de France*, Tome IV. Montpellier: Imprimerie du Paysan du Midi.
- Gallant, T. (2015). *The Edinburgh History of the Greeks, 1768 to 1913: The Long Nineteenth Century*. Edinburgh: Edinburgh University Press.
- Gautier, M.E.F. (1930). "L'Evolution de l'Algérie de 1830 à 1930," in Comité National Métropolitain du Centenaire de l'Algérie (ed.), *Les 12 cahiers du Centenaire de l'Algérie* (ed., vol 3). Orléans: A. Pigelet & Cie.
- Golob, E. O. (1944). *The Méline Tariff: French Agriculture and Nationalist Economic Policy*. New York.
- Haight, F. A. (1941). *A History of French Commercial Policies*. New York: Macmillan. Available at <https://catalog.hathitrust.org/Record/001153650>.
- Heath, E. (2014). *Wine, Sugar and the Making of Modern France: Global Economic Crisis and the Racialization of French Citizenship, 1870–1910*. Cambridge: Cambridge University Press.
- Huetz de Lemps, A. (2001). *Boissons et civilisations en Afrique*. Pessac: Presses Universitaires de Bordeaux.
- Isnard, H. (1947). "Vigne et Colonisation en Algérie (1880–1947)," *Annales. Économies, Sociétés, Civilisations*, 2(3): 288–300.

- Isnard, H. (1949). "Le Vignoble Européen de Tunisie au lendemain de la Guerre," *L'information géographique*, 13(4): 159–161.
- Isnard, H. (1954). *La Vigne en Algérie, Etude Géographique*. Book II. Ophrys: Gap.
- Isnard, H. (1966). "La Viticulture Nord-Africaine," in *Annuaire de l'Afrique du Nord-1965* (Vol. 4). Paris: Editions du CNRS, pp. 37–48.
- Isnard, H. and J.H. Labadie. (1959). "Vineyards and Social Structure in Algeria," *Diogenes*, 7: 63–81.
- Johnson, D. G. (1973). *World Agriculture in Disarray*. London: Macmillan.
- JORF. (1928, April 1). Loi du 30 mars 1928 modifiant le régime douanier applicable aux vins et autres produits tunisiens, *Journal Officiel de la République Française*, p. 3719.
- JORF. (1930, January 12). Loi du 1^{er} Janvier 1930 sur les vins, *Journal Officiel de la République Française*, p. 394.
- Kassab, A., Abdussalam, A. A. and F.S., Abusedra. (1987). "L'Economie Coloniale: L'Afrique du Nord," in Albert Adu Boahen (ed.), *L'Afrique sous domination coloniale, 1880-1935*. Paris: Editions UNESCO, pp. 455–493.
- Lachiver, M. (1988). *Vins, vignes et vigneron. Histoire du vignoble français*. Paris: Fayard.
- Lequément R. (1980). "Le Vin Africain à l'Epoque Impériale," *Antiquités Africaines*, 16: 185–193.
- Leroy-Beaulieu, P. (1887). *L'Algérie et la Tunisie*. Paris: Librairie Guillaumin.
- Levandis, J.A. (1944). *The Greek Foreign Debt and the Great Powers, 1821–1898*. New York: Columbia University Press.
- Loubère, L.A. (1990). *The Wine Revolution in France: The Twentieth Century*. Princeton, NJ: Princeton University Press.
- Marseille, J. (1984). *Empire colonial et capitalisme français. Histoire d'un divorce*. Paris: Albin Michel.
- Meloni, G., and J. Swinnen. (2013). "The Political Economy of European Wine Regulations," *Journal of Wine Economics*, 8(3): 244–284.
- Meloni, G., and J. Swinnen. (2014). "The Rise and Fall of the World's Largest Wine Exporter – And Its Institutional Legacy," *Journal of Wine Economics*, 9(1): 3–33.
- Meloni, G., and J. Swinnen. (2016). "Dried Grapes, Shrunk Budgets, and the Definition of Wine. The Economic Impact and Regulatory Legacy of French–Greek Raisin Trade in the Late 19th Century," mimeo.
- Meynier, G. (1981). *L'Algérie révélée: La guerre de 1914–1918 et le premier quart du XXe siècle*. Geneva, Paris: Librairie Droz.
- Milhau, J. (1953). "L'Avenir de la Viticulture Française," *Revue économique*, 4(5): 700–738.
- Morilla Critz, J.M., Olmstead, A.L. and P.W. Rhode. (1999). "Horn of Plenty: The Globalization of Mediterranean Horticulture and the Economic Development of Southern Europe, 1880–1930," *Journal of Economic History*, 59(2), 316–352.

- Morilla Critz, J.M., Olmstead, A.L. and P.W. Rhode. (2000). "International Competition and the Development of the Dried-Fruit Industry, 1880–1930," in Pamuk, S. and J.G. Williamson (eds.), *The Mediterranean Response to Globalisation before 1950*. London: Routledge, pp. 199–232.
- Nogaro, B. and M. Moye. (1910). *Les Régimes Douaniers. Législation Douanière et Traités de Commerce*. Paris: Colin. Available at <https://archive.org/details/lesrgimesdouan00moyeuoft> (Accessed April 6, 2016).
- Nye, J.V.C. (2007). *War, Wine, and Taxes: The Political Economy of Anglo-French Trade, 1689–1900*. Princeton NJ: Princeton University Press.
- Ordish, G. (1987). *The Great Wine Blight*. 2nd ed. London: Sidgwick and Jackson.
- Özdemir, D. (2013). "Turkey's Arduous Journey from Vine to Wine: Why Can a Country, with the Fourth Largest Vineyard in the World, not Make Wine from its Grapes?," AAWWE Working Paper No. 143.
- Paul, H.W. (1996). *Science, Vine and Wine in Modern France*. Cambridge: Cambridge University Press.
- Pepelasis Minoglou, I. (1995). "Political Factors Shaping the Role of Foreign Finance. The Case of Greece, 1832–1932," in Colin M. Lewis, John Harriss, and Janet Hunter (eds.) *The New Institutional Economics and Third World Development*, London: Routledge, pp. 250–264.
- Petrakis, P.E. and H. Panorios. (1992). "Economic Fluctuations in Greece: 1844–1913," *Journal of European Economic History*, 21(1): 31–46.
- Petmezas, S. D. (1997). "El Comercio de la Pasa de Corinto y su Influencia sobre la Economía Griega del Siglo XIX (1840–1914)," in José Morilla-Critz, J. Gómez-Pantoja and P. Cressier (eds.), *Impactos exteriores sobre la Agricultura Mediterranea*, Madrid, pp. 523–562.
- Petmezas, S. D. (2000). "Export-dependent Agriculture, Revenue Crisis and Agrarian Productivity Involution. The Greek Case (1860s–1930s)," *Histoire & Mesure*, 15(3–4): 321–337.
- Pinilla, V. (2014). "Wine Historical Statistics: A Quantitative Approach to its Consumption, Production and Trade, 1840–1938," AAWWE Working Paper No. 167.
- Pinilla, V. and M.-I. Ayuda. (2002). "The Political Economy of the Wine Trade: Spanish Exports and the International Market, 1890–1935," *European Review of Economic History*, 6: 51–85.
- Pinilla, V. and R. Serrano. (2008). "The Agricultural and Food Trade in the First Globalization: Spanish Table Wine Exports 1871 to 1935—A Case Study," *Journal of Wine Economics*, 3(2): 132–148.
- Pinilla, V. and M.-I., Ayuda. (2010). "Taking Advantage of Globalization? Spain and the Building of the International Market in Mediterranean Horticultural Products, 1850–1935," *European Review of Economic History*, 14(2): 239–274.
- Pizánias, P. (1988). *Οικονομική ιστορία της ελληνικής σταφίδας, 1851–1912. Παραγωγή, διεθνής αγορά, διαμόρφωση τιμών, κρίση* [The Economic History of the Greek Raisin 1851–1912: Production, international market, price formation, crisis]

- Production, International Market, Price development, Crisis*]. Athens: Institute of Research and Education of the Commercial Bank of Greece.
- Pizánias, P. (1992). “Surplus Agricole et Circulation du Capital Commercial: La Grèce au XIX^e siècle,” *Annales. Économies, Sociétés, Civilisations*, 47(2): 293–314.
- Poncet, J. (1962). *La Colonisation et l'Agriculture Européenne en Tunisie depuis 1881. Étude de Géographie Historique et Économique*. Paris–La Haye: Mouton & Co.
- Poncet, J. (1976). “La Crise des années 30 et ses Répercussions sur la Colonisation Française en Tunisie,” in C. Coquery-Vidrovitch (ed.), *L'Afrique et la crise de 1930 (1924–1938)*. Revue Française d'Histoire d'Outre-mer, tome 63, n°232–233, 3e et 4e trimestres, pp. 622–627.
- Progoulakis, G. and E. Bournova. (2001). “Le monde rural grec, 1830–1912,” *Ruralia*, 08| 2001. Available at <https://ruralia.revues.org/214> (Accessed May 10, 2016).
- Riban, C. (1894). *Causeries sur la Tunisie agricole*. Tunis: Imprimerie Rapide.
- Rose, S. (2011). *The Wine Trade in Medieval Europe 1000–1500*. London: Bloomsbury Academic.
- Simpson, J. (2011). *Creating Wine: The Emergence of a World Industry, 1840–1914*. Princeton, NJ: Princeton University Press.
- Smith, M.S. (1992). “The Méline Tariff as Social Protection: Rhetoric or Reality?” *International Review of Social History*, 37(2): 230–243.
- Stanziani, A. (2003). “La Falsification du Vin en France, 1880–1905: Un cas de Fraude Agro-alimentaire,” *Revue d'histoire moderne et contemporaine*, 50(2): 154–186.
- Stanziani, A. (2004). “Wine Reputation and Quality Controls: The Origin of the AOCs in 19th century France,” *European Journal of Law and Economics*, 18(2): 149–167.
- Stanziani, A. (2012). *Rules of Exchange: French Capitalism in Comparative Perspective, Eighteenth to Early Twentieth Centuries*. Cambridge: Cambridge University Press.
- Statistique Générale de la France (1878). *Annuaire Statistique de la France. Ministère de l'agriculture et du commerce, Service de la statistique générale de France. 1878-1899*. Paris: Imprimerie Nationale. Available at <http://gallica.bnf.fr/ark:/12148/cb343503965/date> (Accessed September 20, 2016).
- Statistique Générale de la France (1901). *Annuaire Statistique de la France. Ministère de l'agriculture et du commerce, Service de la statistique générale de France. 1901-1952*. Paris: Imprimerie Nationale. Available at <http://gallica.bnf.fr/ark:/12148/cb34350395t/date> (Accessed September 20, 2016).
- Stavrianos, L. S. (1958). *The Balkans since 1453*. New York: Holt, Rinehart and Winston.
- Stone, M. (1997). *The Agony of Algeria*. London: Hurst & Co.
- Sutton, K. (1988). “Algeria’s Vineyards: A Problem of Decolonisation,” *Méditerranée*, 65(65): 55–66.
- Swinnen, J. (1994). “A Positive Theory of Agricultural Protection,” *American Journal of Agricultural Economics*, 76(1):1–14.

- Swinnen, J. (2009). "The Growth of Agricultural Protection in Europe in the 19th and 20th centuries," *World Economy*, 32(11): 1499–1537.
- Tiengou des Royeries, Y. (1959). *La Production Viticole hors de France*. Paris: Librairies Techniques.
- Tracy, M. (1989). *Government and Agriculture in Western Europe 1880-1988*, 3rd ed., New York: Harvester Wheatsheaf.
- Tsiovaridou, T. (1980). "La Répercussion en Grèce à la fin du XIXe siècle de la Crise du Raisin Sec," *Balkan Studies*, 21: 128–145.
- Unwin, T. (1991). *Wine and the Vine: An Historical Geography of Viticulture and the Wine Trade*. London: Routledge.
- Valay, G. (1966). "La Communauté Economique Européenne et les pays du Maghreb," *Revue de l'Occident musulman et de la Méditerranée*, 2(1): 199–225.
- Walter, A. and G. Sen. (2008). *Analyzing the Global Political Economy*. Princeton: Princeton University Press.
- Wesseling, H.L. (2004). *The European Colonial Empires: 1815–1919*. Harlow: Pearson Education Limited.
- Znaïen, N. (2015). "Le Vin et la Viticulture en Tunisie Coloniale (1881–1956): Entre Synapse et Apartheid," *French Cultural Studies*, 26(2): 140–151.

Tables

Table 1
Share of World Wine Export Volume, 1860–1970 (in percentage)

	<i>1860</i>	<i>1875</i>	<i>1885</i>	<i>1900</i>	<i>1925</i>	<i>1950</i>	<i>1970</i>
France	40.0	49.2	18.7	16	9.4	5.7	11.0
Italy	4.9	4.8	10.6	15.4	8.7	3.3	13.6
Portugal	4.1	6.7	9.3	6.9	6.2	5.9	5.8
Spain	27.8	27.3	51.5	32.5	17.5	5.1	9.2
Greece	1.1	0.8	1.3	1.8	3.7	1.1	3.3
Algeria	-	0.1	2.3	20.6	47.1	71.3	34.8
Rest of the World	22.1	11.1	6.3	6.8	7.4	7.6	22.3

Source: Anderson and Pinilla (2017).

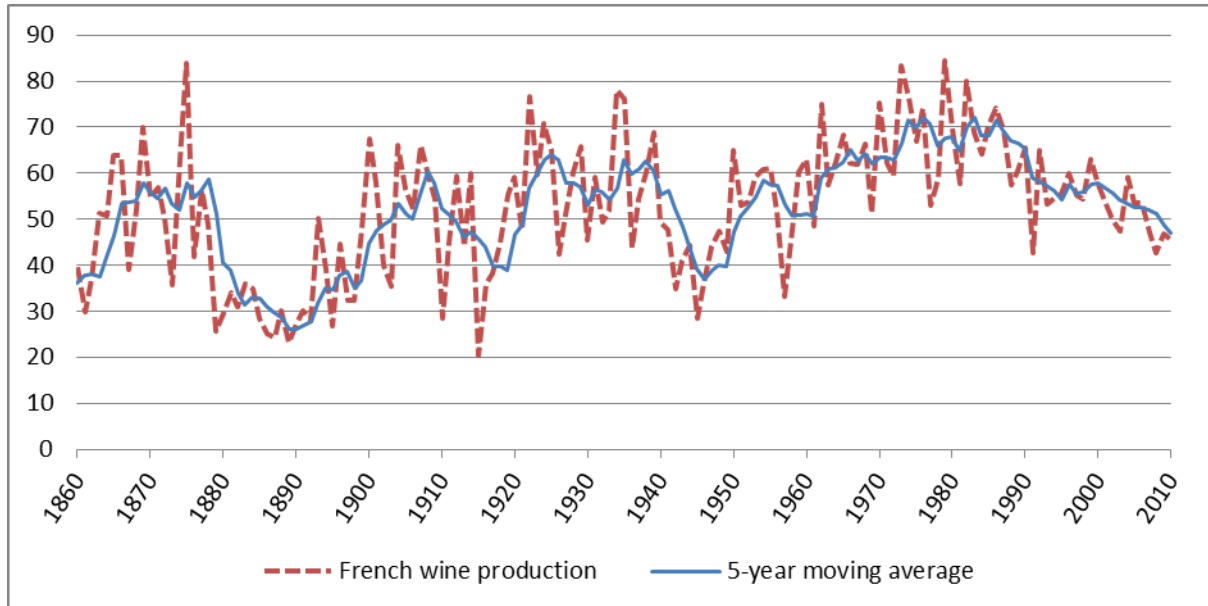
Table 2
Greek Raisin Exports by Major Importing Countries, 1878–1893

	<i>Greek raisin exports to Britain</i>		<i>Greek raisin exports to France</i>		<i>Total Greek raisin exports 1000 tons</i>
	<i>1000 tons</i>	<i>% of total exports</i>	<i>1000 tons</i>	<i>% total exports</i>	
1878	62.5	62	9.2	9	101.3
1879	57.7	60	19.3	20	96.2
1880	58.7	63	21.3	23	93.2
1881	70.5	57	30.6	25	123.2
1882	61.8	56	29.6	27	110.5
1883	65.1	56	25.1	22	116.1
1884	71.9	55	39.6	30	130.5
1885	58.9	51	38.1	33	114.4
1886	54.8	43	45.4	35	128.8
1887	57.9	44	37.8	28	134.1
1888	64.7	48	33.9	25	136.9
1889	53.1	32	71.1	43	166.3
1890	68.6	48	45.1	31	143.8
1891	71.9	40	53.8	30	180.4
1892	61.4	51	18.8	16	121.4
1893	72.7	52	14.6	10	140.9

Source: Tsiovaridou (1980) and authors' calculations.

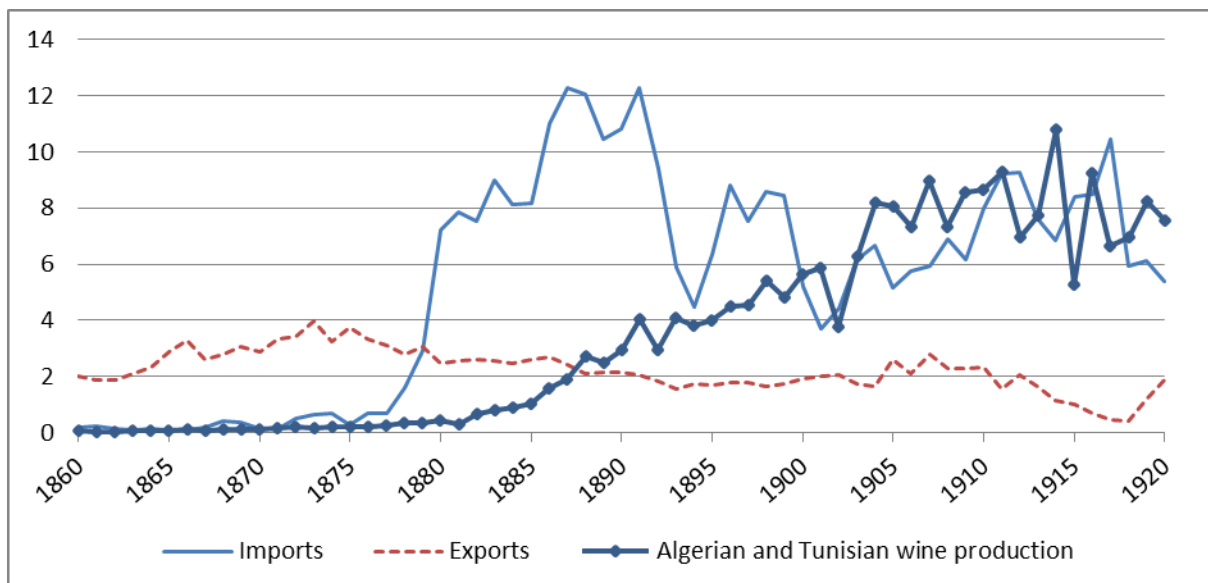
Figures

Figure 1
Wine production in France, 1860-2010 (in million hectoliters)



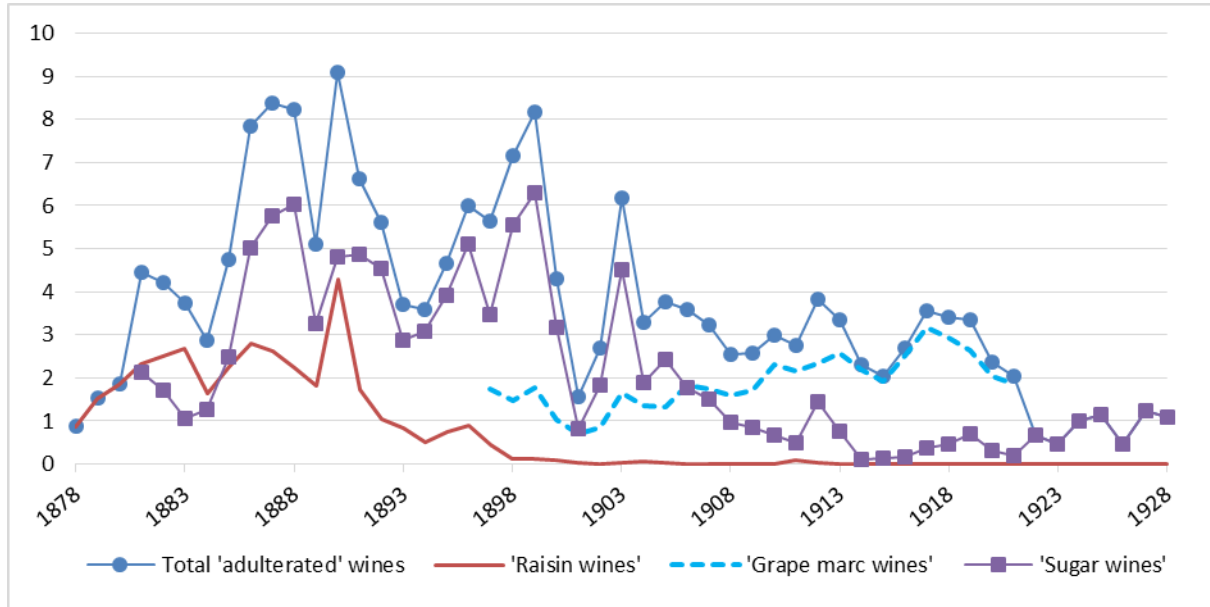
Source: Meloni and Swinnen (2014).

Figure 2
French Imports and Exports of wine and Algerian and Tunisian wine production, 1860–1920 (in million hectoliters)



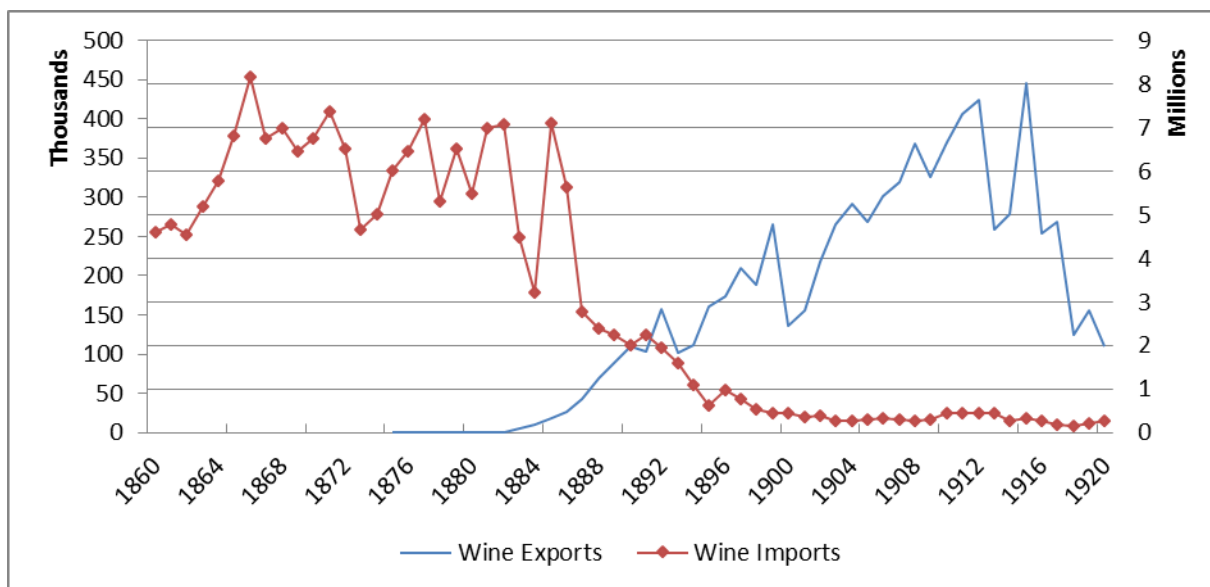
Source: Meloni and Swinnen (2014).

Figure 3
The Production of ‘Adulterated’ Wines in France, 1878–1928 (in million hectoliters)



Note: “Adulterated” wines included “raisin wines” (wines produced from raisins), “sugar wines” (obtained either from the addition of sugar to the wine or from the addition of water and sugar to the grape marcs) and “grape marc wines” (or “*piquettes*” obtained from the addition of only water to the grape marcs).
 Source: Galet (1964, pp. 30–31).

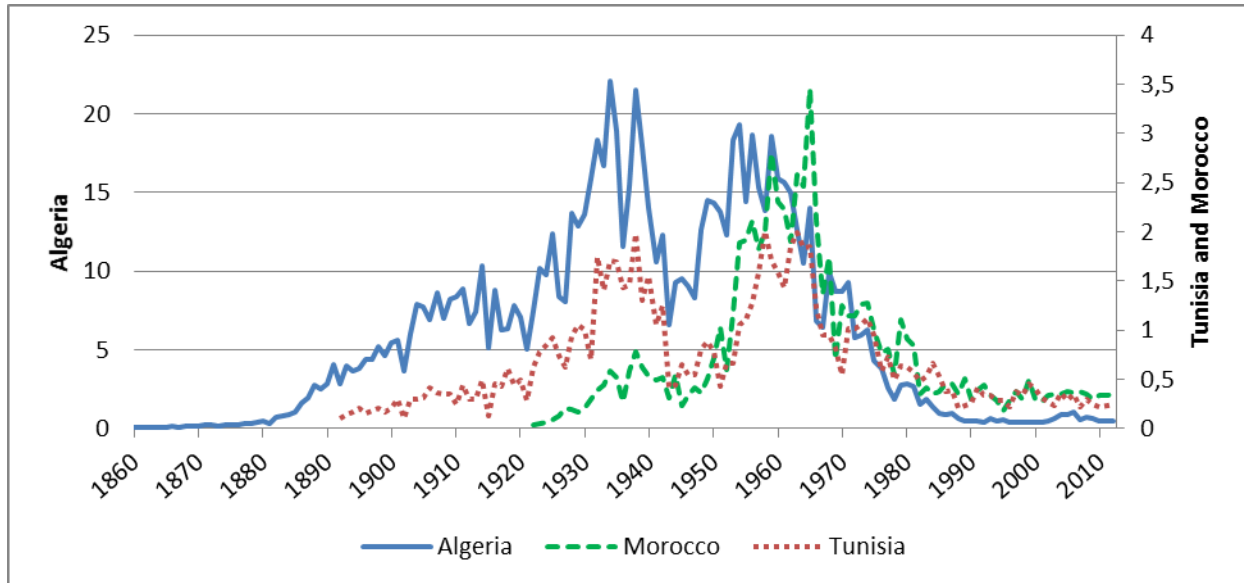
Figure 4
Wine imports and exports in Algeria, 1860–1920 (in hectoliters)



Sources: Anderson and Pinilla (2017); *Statistique Générale de la France* (1878/1901); FAO (2016).

Note: The first y-axis (on the left) refers to Algerian wine imports while the second y-axis (on the right) refers to Algerian wine exports.

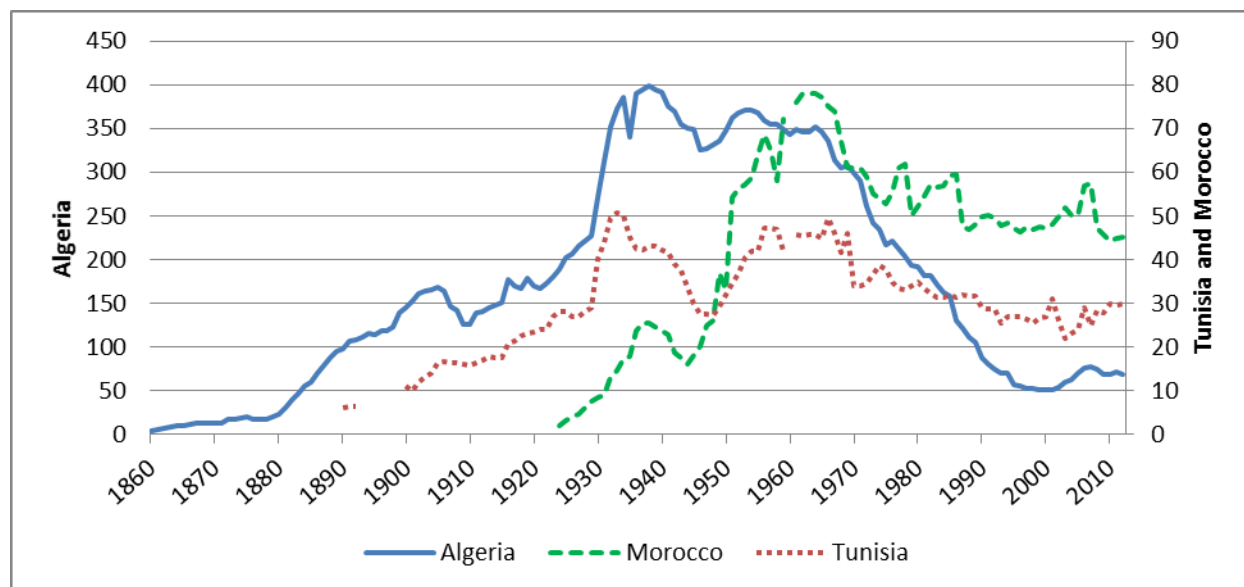
Figure 5
Wine production in North Africa, 1860–2010 (in million hectoliters)



Sources: *Statistique Générale de la France* (1878/1901); FAO (2016).

Note: The first y-axis (on the left) refers to Algeria while the second y-axis (on the right) refers to Tunisia and Morocco.

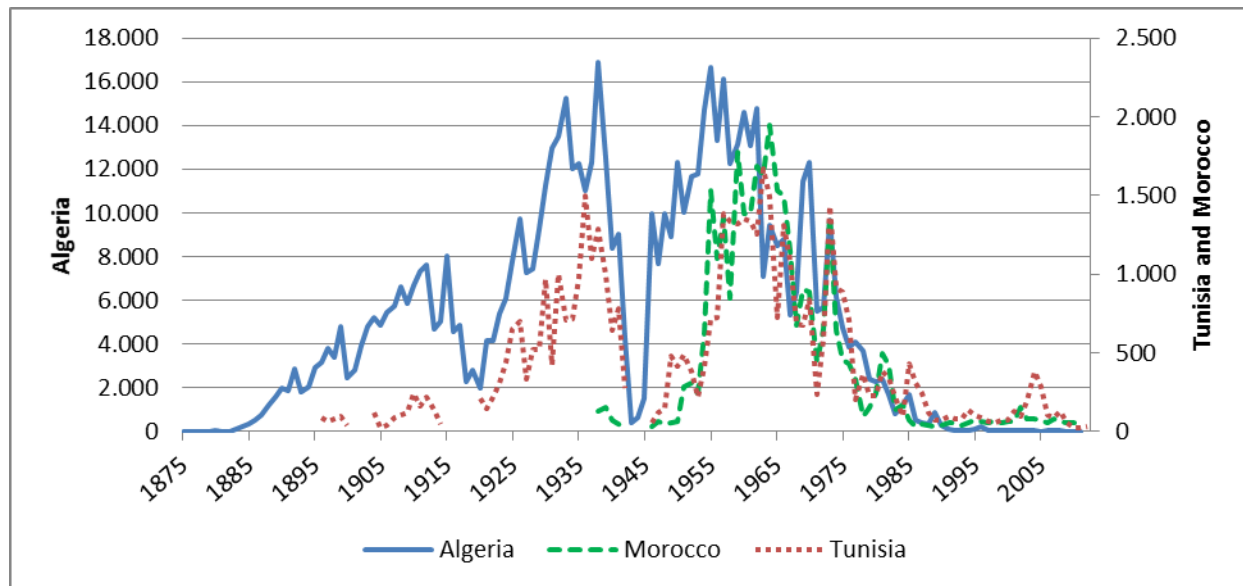
Figure 6
North African Cultivated Vineyard Area (in thousands hectares), 1860–2012



Sources: *Statistique Générale de la France* (1878/1901); FAO (2016).

Note: The first y-axis (on the left) refers to Algeria while the second y-axis (on the right) refers to Tunisia and Morocco.

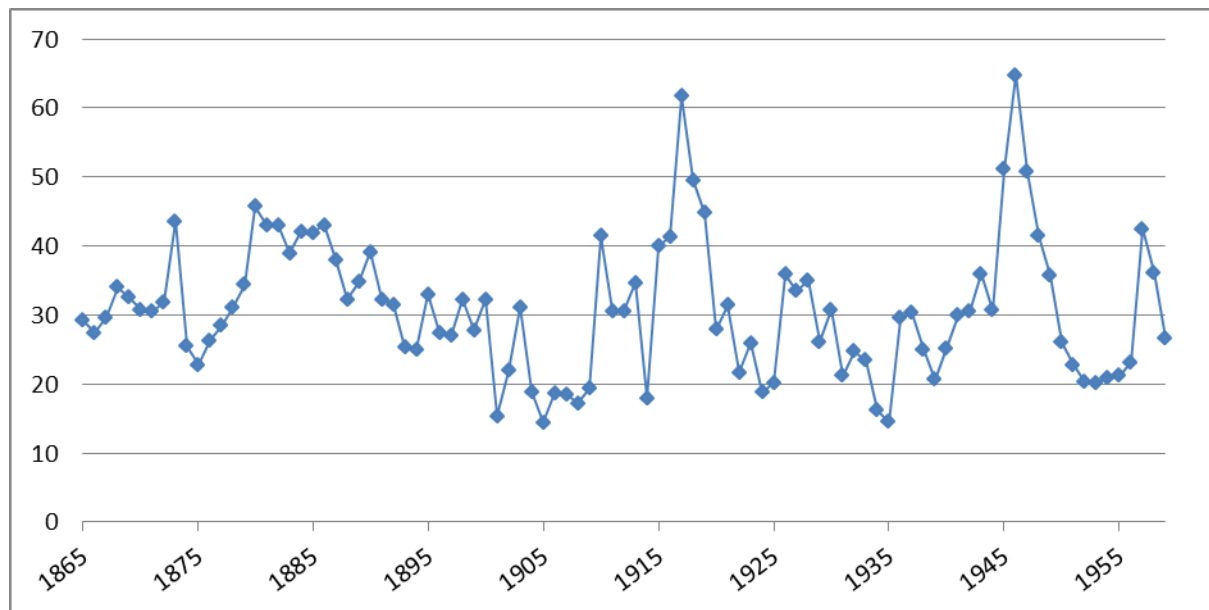
Figure 7
North African Wine Exports, 1875–2012 (in thousands hectoliters)



Sources: *Statistique Générale de la France* (1878/1901); FAO (2016).

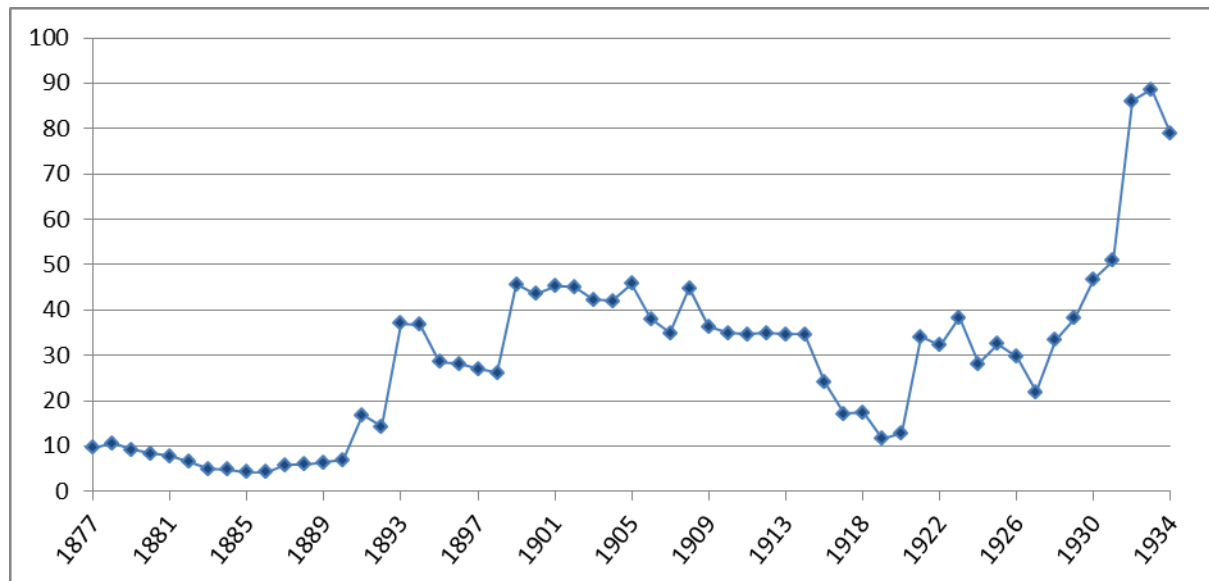
Note: The first y-axis (on the left) refers to Algeria while the second y-axis (on the right) refers to Tunisia and Morocco.

Figure 8
CPI-deflated Wine Prices in France, 1865-1959 (in ancient Francs per hectoliter)



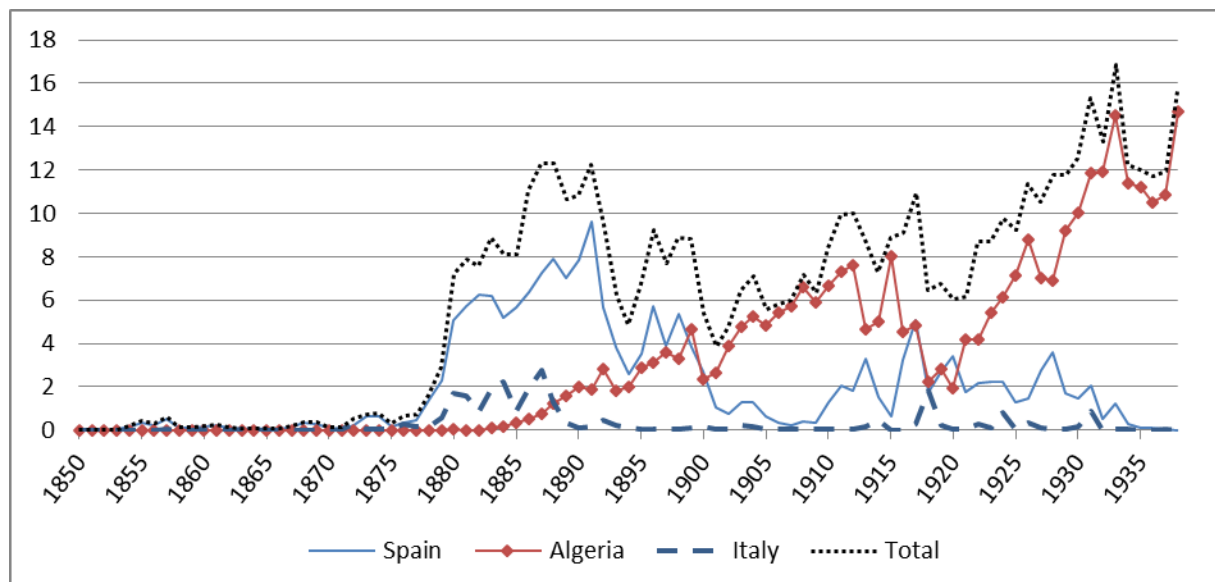
Source: Meloni and Swinnen (2014).

Figure 9
French import tariffs on bulk wine imports (in %) (1877–1934)



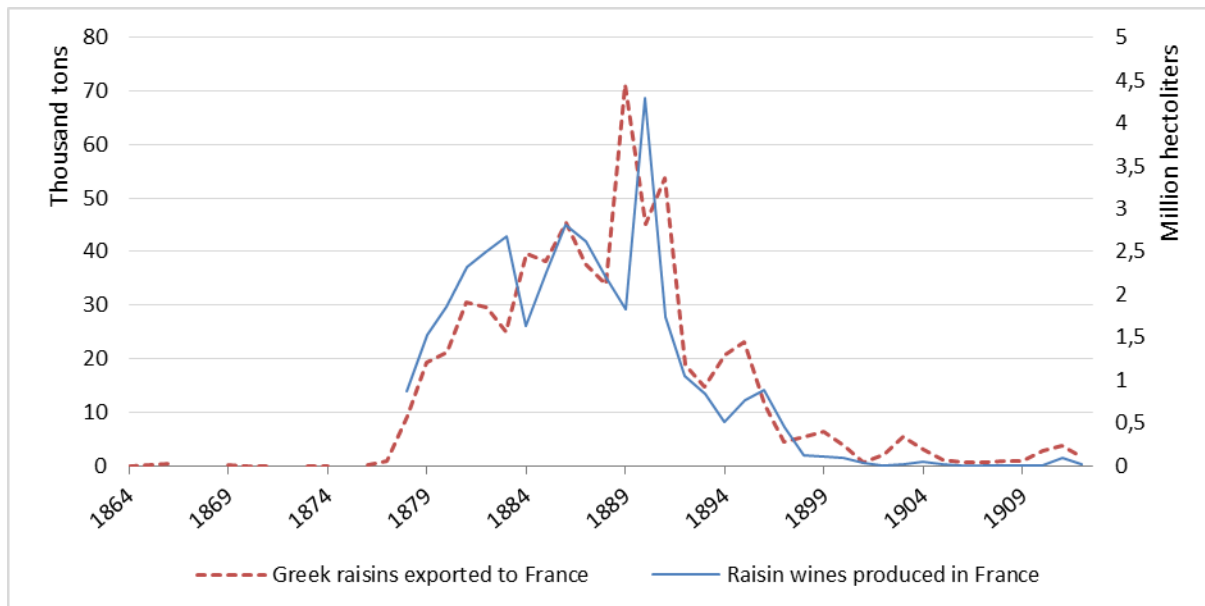
Source: Pinilla and Ayuda (2002).

Figure 10
French imports of bulk wines by major exporting countries (in million hectoliters)



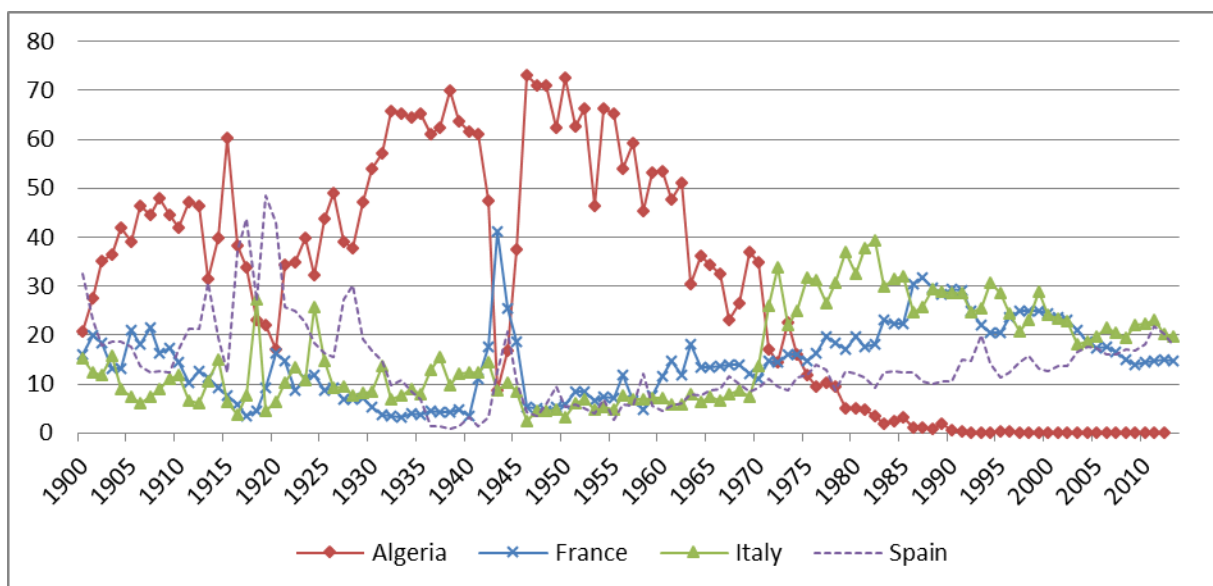
Sources: Pinilla and Ayuda (2002); Pinilla (2014).

Figure 11
Greek Raisin Exports and French Production of “Raisin Wines”, 1864–1912
(in thousand tons)



Sources: Galet (1964, pp. 30–31); Pizánias (1988, pp. 136–139).

Figure 12
Share of World Wine Export Volume, 1900–2012 (in percentage)



Sources: Anderson and Pinilla (2017).