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Standards, Tariffs and Trade:

The Rise and Fall of the Raisin Trade Between Greece and France in the Late 19th Century and the Definition of Wine

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Abstract

There is much debate on the impact of product and process standards on trade. The conceptual arguments are complex and empirical evidence is mixed. We analyze the impact of standards and tariffs on the dramatic rise and fall of the raisin trade between France and Greece in the course of 25 years at the end of the 19th century. The case illustrates how product standards can be used to address consumer concerns and to protect producer interests. Economic conditions and French policies first stimulated Greek raisin imports. Later, changing conditions and political pressures led to the introduction of tariffs and wine standards which caused major declines in Greek exports and ultimately the bankruptcy of the Greek economy. Interestingly, this trade episode of more than a century ago still has a regulatory legacy today as it is the origin of the EU's definition of wine.

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1. Introduction

Adulterations and frauds have existed as long as products have been exchanged and traded. The addition of water in wine or in milk to increase the volume has been documented throughout history and across the globe. Standards to prevent fraud have been introduced by governments, religious authorities, private agents and NGOs.

In recent years, standards have increased rapidly, both geographically and in addressing new concerns. Production and trade are increasingly regulated through stringent public and private standards on quality, safety, environmental, and ethical aspects. An illustration of the rapid increase in public food standards is the number of notifications of new SPS measures to the WTO. These have increased exponentially from a few hundred in the mid-1990s to more than 15,000 (Maertens and Swinnen, 2014). Private standards are often more stringent than public ones (Fulponi, 2007; Vandemoortele and Deconinck, 2014).

The rise and spread of standards has triggered vigorous debates on the impacts on international trade.¹ The literature identifies two characteristics of standards which affect trade. On the one hand, they can be trade facilitating by reducing transaction and information costs. On the other hand, they can be trade constraining: many trade economists consider them as non-tariff barriers to trade. As international trade agreements such as the WTO have contributed to a global reduction in tariffs, it is often argued that countries have turned to standards as new instruments to shield their domestic markets from foreign competition (see arguments in e.g., Anderson et al., 2004; Beghin et al., 2012; Fischer and Serra, 2000; Marette and Beghin, 2010; Van Tongeren et al., 2009).

¹ There is another major debate in the development literature. The debate is whether developing countries and the poor can comply with the standards and, if not, whether this is leading to the exclusion of small and weakly capitalized producers from these “high standard value chains” and, for those who can participate, whether they are hurt by rent extraction through superior bargaining power of increasingly concentrated downstream agents, or whether they may benefit from institutional innovations in the value chains (see arguments in e.g., Dries et al., 2009; Maertens and Swinnen, 2009; Minten et al., 2009; Reardon et al., 2003, 2009; Swinnen, 2007, 2016).

However, the implicit comparison with tariffs in the trade debate is not entirely valid. In a small open economy, the socially optimal tariff level is zero. A positive tariff level constrains trade, is harmful to social welfare, and is by definition protectionist. However, this is not necessarily the case for standards since this ignores the potential consumer or societal benefits induced by standards. Standards can generate efficiency gains by solving (or reducing) externalities or asymmetric information problems and reduce transaction costs, but they also involve implementation costs and affect trade. Models which include both negative and positive aspects of the standards yield nuanced/complex theoretical conclusions, and that careful empirical analyses support such nuanced arguments and complex effects (Beghin et al., 2015; Swinnen and Vandemoortele, 2011; Swinnen et al., 2015).² The simple “standards as protectionism” arguments ignore the social benefits of standards in terms of consumer welfare, for example by reducing asymmetric information, and in terms of reducing externalities in society. Including these other effects of standards makes the impact of standards on trade and welfare less obvious: the direction and magnitude of effects on trade are sector specific and specific for different standards (Marette and Beghin; 2010; Sheldon, 2012; Van Tongeren et al., 2009; Xiong and Beghin, 2014).

However, at the same time, one should not ignore that standards do create winners and losers in society as its effects can differ for consumers and producers, and within consumer and producer groups. This does induce lobbying by firms and consumer groups, including protectionist pressures, which may lead to suboptimal standards (Swinnen and Vandemoortele, 2008, 2011).

The complexity and nuances of these conceptual arguments are mirrored in difficulties in the empirical measurement. The informational requirements are huge: one needs reliable

² See also the special issues of the *World Trade Review* (guest edited by Heckelevi and Swinnen in 2012) and the *World Economy* (guest edited by Beghin and Orden in 2012) and Beghin et al. (2015) for reviews.

estimates of fixed and variable costs for heterogeneous firms and valuation of external effects by consumers. Moreover, the policy instruments involved are often dissimilar and difficult to aggregate; data are scarce for effects of public regulations and almost inexistent for private standards (Baldwin, 2000; Marette, 2014). Li and Beghin (2014) conclude that sorting out the protectionism of standards is complex once one moves beyond simple detection strategies. Perhaps not surprisingly, in a review of the literature, Beghin et al. (2015) conclude that there is a wide variety of results of empirical studies, with some finding anti-trade, others pro-trade and yet others no effect on trade.

In this paper we use a different approach. We focus on a specific historical case where both tariff and standards were introduced. We explicitly link the introduction of the standards to pressures of lobby groups. We also document how they relate to import tariffs and other policies—and discuss their effects.

We believe the case is a useful addition to this literature because the forces behind the introduction of standards, and their effects, were quite dramatic. Both the rise and fall of the raisin trade between France and Greece in the course of 25 years at the end of the 19th century were equally spectacular, as illustrated in Figure 1. The case provides an amazing example of how major changes in trade can be caused by environmental shocks and government policies, including standards, and of its important implications for trade, economic growth and decline. It also provides an illustration of how standards can be used to address consumer concerns and to protect producer interests, or both.

Throughout history, governments have often used a combination of different policy instruments, including tariffs and non-tariff barriers to affect trade and protect domestic industries and European agricultural policies are a prime example of this (Anderson et al., 2013; Swinnen, 2009; Tracy, 1989). The European wine sector is a particularly interesting sector to study the use of standards as non-tariff instruments because they have been so pervasive,

particularly in countries where the wine sector and trade was a very important sector for the economy (Meloni and Swinnen, 2013).

Greece was arguably the first global wine power house, dominating wine production and trade in the last millennium AD (McGovern, 2007; Unwin, 1991). However, by the mid-19th century this was (literally) ancient history. Greece had fallen from a mighty empire to a small and agricultural economy, cultivating cereals, vines, and olives. The global wine business was dominated by France (Francis, 1972; Lampe, 1975; Rose, 2011).³

However, all this was about to change with the arrival of an unexpected—and unwelcome—guest in France: a small insect called *Phylloxera*. In the second half of the 19th century, *Phylloxera* arrived in France from its home in North America and it will devastate French vineyards in the decades after. This devastation transforms the entire wine industry and trade around the Mediterranean (Meloni and Swinnen, 2016a).

A major consequence was the rapid growth of vineyards in Greece. Greece started to massively plant vineyards in the Peloponnese (a region in Southern Greece) in order to export raisins and meet French demand for grapes and wine. Raisin exports tripled between 1870 and 1890, with most of the export growth going to France. Raisins became the main export revenue for Greece and an important tax source for the government budget.

However, the good times do not last. When France finally finds a way to deal with the infestation, its domestic grape production recovers, and, under pressure from its wine growers, it forbids the use of Greek raisins to make French wine, it raises import tariffs on raisins and defines wine as “*the alcoholic fermentation of fresh grapes*”. The new French regulations

³ Since the Middle Ages, France has been dominating wine trade from its harbors on the Atlantic coast—first La Rochelle and later Bordeaux. Bordeaux exported an annual average of about 790,000 hectoliters to Britain during the first 30 years of the 14th century (Francis, 1972, Appendix).

contributed to destroy the raisin trade. Moreover, they ultimately lead to the bankruptcy of the Greek government.⁴

In this paper we document in detail these remarkable developments and its causes. Section 2 describes the rise of the raisin production and trade in Greece. Section 3 examines how French vineyards were reconstructed with new plantings and how, as a result, French vineyards began to recover and production increased. Section 4 shows how growing raisin imports and the recovery of French wine production caused political pressures on the French government to intervene and led to several radical measures to reduce the use of raisins in French wine production. As a result, the impressive growth of Greek raisin production and exports in the 19th century was followed by an equally spectacular fall. Section 5 analyses how these French regulations ultimately led to a national crisis and, ultimately, to the bankruptcy of the Greek government. Section 6 shows how, in order to solve the raisin overproduction crisis, the Greek government searched for new export markets and tried to regulate the supply of raisins in order to stabilize falling prices. Section 7 explains how these French standards that contributed to destroy the raisin trade still have a regulatory legacy today as they are the origin of the EU's definition of wine. Section 8 concludes.

⁴ Raisins from the US (California) and Turkey are bigger and different from the raisins ('currants') produced in Greece (which were sweeter and smaller)—and the French preferred the Greek currants (Aroni- Tsihli, 2014). Turkey also experienced a similar path of growth and decline but the impact of French policies were less severe. Vineyards in Turkey (then known as Anatolia) existed as early as 4,000 BCE. It is considered one of the birthplaces of wine. However, during the Ottoman Empire (1299–1923) wine drinking was banned and only raisin production remained (Özdemir, 2013). During the 1880s, French increased demand for raisins also led to increase in vine plantings and raisins production, with Turkish raisin production doubling between the early 1870s and mid-1880s. Turkey became the world's largest raisin producer at the end of the 19th century, surpassing Spain. However, this changed during the 1890s, when *Phylloxera* devastated Turkey, and France imposed high tariffs on Turkish raisin imports. The crisis was further exacerbated by the rise of California and Australia that were now competing with Turkish raisins (Morilla Critz et al., 1999, 2000).

2. The Rise of the Raisin Trade

“Raisin wine is a very healthy drink; It is a hundred times preferable to these synthetic drinks that are sold in Paris under the name of wine and which contain chemicals ... It would therefore be useful that this industry would develop further in order to counter as much as possible the shortages of the production of our natural wines”

*Journal des Chambres de Commerce, 1886 (In: Stanziani, 2003, p. 171)*⁵

In 1830, there was little production or export 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).⁶ Until the 1860s, Britain was the principal consumer of Greek raisins. But, from the 1870s onwards, new (and unexpected consumers) spurred demand for Greek raisins.

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 plant⁷—ravaged France’s vineyards and caused a collapse in the supply of wine (Augé-Laribé, 1950; Lachiver, 1988). Unlike American native 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)

⁵ Translation by the authors. “(...) le vin de raisin sec est une boisson très saine; il est cent fois préférable à ces boissons sophistiquées que l’on vend à Paris sous le nom de vin et qui contiennent des préparations chimiques... Ce serait donc utile que cette industrie se développe encore afin de parer autant que possible aux insuffisances de la production de nos vins naturels” (Stanziani, 2003, p. 171).

⁶ 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).

⁷ 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).

vineyards produced little wine. As a consequence, French wine production declined by about 70% in the 1870s and 1880s (Meloni and Swinnen, 2013, 2014).

While potential cures for *Phylloxera* were searched and tested, France moved from 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 (*Statistique Générale de la France*, 1891).

To fill this gap, France followed a strategy with four components (Meloni and Swinnen, 2016a). First, and most obviously, France searched for ways to make vineyards resistant to *Phylloxera*. Second, it increased wine imports, mostly from Spain and Italy. Third, France stimulated wine production in its North African colonies (Algeria and later on Tunisia and Morocco). Finally, France also started importing raisins (dried grapes) which were used to produce wine in France.

From the 1870s onwards, France started to import raisins from Greece at fast speed and to produce “raisin wines” (wines produced from raisins) out of them (Petmezas, 1997; Tsiovaridou, 1980).⁸ “Raisin wines” were one of the “adulterations” allowed during the late 19th century. The concept of “adulterated wines” referred both to wines where extra ingredients were added which were not harmful to the consumer's health (as “sugar wines”⁹ and “grape marc wines”¹⁰) and wines with harmful ingredients as tartaric acid, citric acid, and sulfuric acid.¹¹ The combination of “raisin wines”, “sugar wines” and “grape marc wines” accounted

⁸ In order to produce one hectoliter of wine, the wine producer needed to ferment about fifteen days in 30-35 kilograms of raisins mixed in 100 liter of water at 30 degrees (Sempé, 1898, p. 87).

⁹ French “sugar wines” were obtained either from the addition of sugar to the wine or from the addition of water and sugar to the grape marcs (i.e., the solid remains of grapes after their first pressing). This procedure, also known as “chaptalization” named after his inventor the French statesman and chemist Jean-Antoine Chaptal (1756-1832), was used to increase the wine alcoholic strength (Chaptal et al., 1801, p. 81).

¹⁰ French “grape marc wines” (or “*piquettes*”) were obtained from the addition of water (without added sugar nor alcohol) to the grape marcs (the solid remains of grapes after their first pressing) (Article 3, JORF, 1897).

¹¹ A famous 19th century recipe in France gave the quantities needed to produce 6 hectoliters of wine with 100 kilograms of sugar “*Pour a kilogram of tartaric acid, a kilogram of citric acid, and a kilogram of sulfuric acid in a barrel. Add a liter or two of cold water to avoid explosion, then put 60 liters of boiling water, stir with a stick and throw in 100 kilograms of sugar. Hold in motion by stirring for half an hour. The resulting syrup is ready to*

for 25% of French wine production in the second half of the 1880s (Bichet, 1934, p. 259; Heath, 2014, p. 95; Stanziani, 2003, 2004). During that period, French “raisin wines” accounted for between 1 and 2 million hectoliters—about 8% of total French wine production (see Figures 1 and 2 and Table 1). The growth of raisin wine production was mirrored by a spectacular increase in raisin imports. French imports of Greek raisins increased from almost nothing in the early 1870s to about 9,000 tons in 1878, to 30,000 tons four years later (1881) to 71,000 tons in 1889—representing around 40% of the total Greek raisin exports (see Table 2). Moreover, by the end of the 1880s, 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) (see Table 3).

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 (see Figure 3). The increased demand for Greek raisins, coupled with the 1871 land distribution act,¹² led to a large increase in vineyards in Greece, in particular in the Peloponnese region in southern Greece (Aroni- Tsihli, 2014). The cultivated vine area in Greece increased almost fourfold: from about 15,000 hectares in the early 1860s to 53,000 hectares in the late 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 in two decades from 55,000 tons in 1870 to 150,000 tons in 1890. Raisin exports followed the same impressive pace—with almost all of the Greek raisin production

use. (...) The above mixture is used to produce 6 hectoliters of wine (...).” [Translation by the authors. “Dans un fût défoncé, mettre un kilo d'acide tartrique, un kilo d'acide citrique, un kilo d'acide sulfurique. Jeter dessus un litre ou deux d'eau froide pour éviter l'explosion, puis mettre environ 60 litres d'eau bouillante, agiter avec un bâton et jeter dedans 100 kilos de sucre. Tenir le tout en mouvement en agitant pendant une demi-heure. Le sirop ainsi obtenu est prêt à employer. (...) Le mélange ci-dessus est bon pour 6 hectolitres de vin (...).”] (In: Napo, 1971, p. 25).

¹² 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).

being exported. Their export value increased fourfold, from 20 million drachmas in 1860 to 80 million drachmas in the late 1880s (see Figure 4).¹³

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 (see Table 4 and Figure 5).

3. French Vineyard Recovery

“(...) two important agricultural organizations were created in 1887-1888 (...) to defend their particular interests: the Syndicat Général des Sériculteurs (...) and the Syndicat Général des Viticulteurs whose constitution marks the conversion of ‘liberal’ winegrowers to protectionism, following the phylloxera crisis”

Barral, 1974, p. 422¹⁴

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, with 54 million hectoliters by 1858 (Insee, 1935). This stimulated winegrowers to fight *Phylloxera* with the same means, but unsuccessfully.¹⁵

¹³ The main export harbor from which raisins were exported was Patras, in the northern Peloponnese region (Frangakis-Syrett, 1994; Pizánias, 1992).

¹⁴ *“(...) deux secteurs importants du monde agricole mettent sur pied en 1887-1888 (...) pour défendre leur intérêts particuliers: le Syndicat Général des Sériculteurs (...) et le Syndicat général des Viticulteurs, dont la constitution marque la conversion au protectionnisme des viticulteurs longtemps libre-échangistes, à la suite de la crise du phylloxéra”* (Barral, 1974, p. 422).

¹⁵ 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,

By the 1880s, new types of vines had been developed, using American vines, to resist *Phylloxera*. During the 1890s, French vineyards were reconstructed with new plantings that used grafting and hybrid grape varieties. 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”). 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 (Gale, 2011; Paul, 1996).

Hence, by the beginning of the 20th century, French wine production had recovered. This recovery and the increased imports caused a strong fall of wine prices. From the peak in 1880, average wine prices fell by more than 60% over the course of the next 25 years (Meloni and Swinnen, 2014). The most dramatic decline was during the 1890s, when French production began to increase. The declining prices resulted in demands by French producers to limit imports of wine and raisins. As wine prices continued to fall, the protests by winegrowers grew increasingly intense.

Under pressure from French wine producer organizations, as the *Syndicat Général des Viticulteurs* (General Union of Winemakers), the government introduced a series of laws aimed at limiting imports by imposing high tariffs on wine and raisins, regulating wine “quality”¹⁶ and controlling wine supply (by restricting the total area of land under vines) (Meloni and Swinnen,

paradoxically, its cause. Vineyards could be saved only through the *Phylloxera*-resistant American vines (Gale, 2011; Paul, 1996).

¹⁶ 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).

2016a). The increased tariffs on wine and raisins imports had major implications for exporters of wine and raisins. The tariffs effectively blocked the imports of Spanish and Italian wines into France (Chevet et al., 2017; Fernández and Pinilla, 2017). They also had major implications for raisin trade and for Greece.

4. The Fall of the Raisin Trade

“It is not only fraud that was removed, but the entire production of wine from dried grapes.”¹⁷

Sempé, 1898, p. 102

The impressive growth of Greek raisin production and exports in the 19th century was followed by an equally spectacular fall. In 1889 more than 40% of Greek raisins were exported to France (although Britain remained the largest raisin export market for Greece). However, as French vineyards and production had recovered and prices fell, French wine and grape producers lobbied the government to restrict raisin imports and the use of Greek raisins for French wine production. 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.

First, a 1889 French law (‘Loi Griffé’)¹⁸ defined “wine” as a beverage exclusively made from the “*fermentation of fresh grapes*” (see Table 5).¹⁹ The result was that wines made from

¹⁷ Translation by the authors. “*Ce n'est pas la fraude seulement qu'on a supprimée, mais la fabrication même des vins de raisins secs*” (Sempé, 1898, p. 102).

¹⁸ A month earlier, as a fiscal measure, a new tax was introduced on all wine entering towns (Article 12, JORF, 1889a).

¹⁹ “*No person shall send, sell or offer for sale under the denomination ‘wine’ a product other than the one obtained from the fermentation of fresh grapes.*” [Translation by the authors. “*Nul ne pourra expédier, vendre ou mettre en vente sous la simple dénomination de vin un produit autre que celui de la fermentation de raisins frais*” (Article 1, JORF, 1889b).]

raisins (dried grapes) could no longer be called “wine” but had to be labelled as “raisin wines”—which typically sold at a lower price (Article 3, JORF, 1889b).²⁰ Moreover, the barrels containing wines made from raisins had to be labelled in large letters “raisin wines” (Article 4, JORF, 1889b).²¹ As a consequence, French demand for raisin imports fell. French imports of Greek raisins decreased by more than 30% in a single year: from about 70,000 tons in 1889 to 45,000 tons in 1890 (Milhau, 1953; Stanziani, 2012, p. 132).

Second, in 1890, the French government imposed a tax on “raisin wines” production (“*droit de fabrication*”). This wine was subject to a duty of 40 cents per degree of alcohol content up to 10%, and 60 cents from 10% to 15%. This meant that producers of a wine with an alcohol content of 10% had to pay a production tax of 4 francs per hectoliter of wine. Since “raisin wines” were sold on average at 10-12 francs per hectoliter, this implied a 40% tax (Article 7, JORF, 1890; Arnauné, 1911, p. 311; Sempé, 1898, p. 146). The tax was further increased in 1897 as “raisin wines” were moved from the “wine” tax regime to the “hard alcohol” tax regime (Article 1, JORF, 1897).

Third, in 1892, three years after the ‘Loi Griffé’, France increased tariffs on raisin imports. Previously, the tariffs on raisins were set at a fixed rate of 6 francs per 100 kilograms. With the “Méline tariff” of 1892, tariffs on raisin imports were increased to 25 francs per 100 kilograms if the “general tariff” applied and to 15 francs per 100 kilograms if the “minimum tariff” applied²²—a threefold or fourfold increase (JORF, 1892; Sempé, 1898, p. 100). In 1894, the tariffs on raisin imports were further increased from 25 francs per 100 kilograms to 40 if

²⁰ On average, in the mid-1890s, “wines” made from fresh grapes were sold at 26 francs per hectoliter, whereas a “raisin wines” were sold at 10-12 francs per hectoliter in the mid-1890s—50% less (Sempé, 1898, p. 146).

²¹ The same law established that also the fermentation of grape marc with sugar and water could not be sold as “wine” but as “sugar wine” (Article 2, JORF, 1889b).

²² 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*”.

the “general tariff” applied and from 15 francs per 100 kilograms to 25 if the “minimum tariff” applied (Sempé, 1898, p. 101).

Fourth, in 1894, a law forbade the addition of water and alcohol to the wines (Article 1, JORF, 1894).²³ The ban on the watering down of wines was particularly harmful for “raisin wines” as the recipe required the addition of water to the raisins during the winemaking process in order to start the fermentation (Simpson, 2011, p. 61; Stanziani, 2003). This law was confirmed in 1907 (JORF, 1907a).

The combined effect of the wine regulations and the increased taxes and tariffs were dramatic. Greek raisin exports to France fell from 70,000 tons in 1889 to 45,000 tons in 1890 and to 14,600 tons in 1893 (Table 2; Morilla Critz et al., 1999; Petmezas, 2000). French production of “raisin wines” decreased from 4 million hectoliters (the production peak) to less than a million after 1893. It fell further to almost nothing after the beginning of the 20th century (see Figures 1 and 2 and Table 1).

5. The Fall Out

*“Greek people (...) are actually smarting under a financial crisis, the principal cause of which is to be traced to over-production of their almost unique article of cultivation—the currant.”*²⁴

Gabrielidis, Editor of the ‘Akropolis’ Athens, 1895

²³ A previous 1891 law had regulated “fraud” by banning some (harmful) additives that were used during winemaking. “*It is considered an adulteration of food any addition to wine, sugar wine or marc, raisin wine of the following elements: 1. any coloring matter; 2. products such as sulfuric, nitric, hydrochloric, salicylic, boric acids; 3. sodium chloride above 1 gram per liter*” [Translation by the authors. “*Constitue la falsification des denrées alimentaires (...) toute addition au vin, au vin de sucre ou de marc, au vin de raisins secs: 1. de matières colorantes quelconques; 2. de produits tels que les acides sulfuriques, nitriques, chlorhydriques, salicyliques, boriques ou analogues; 3. de chlorure de sodium au-dessus de 1 gramme par litre.*”] (Article 2, JORF, 1891). Moreover, the same 1891 law regulated another form of wine adulteration. “Plastering”, or “*plâtrage*”, an old technique discovered by the Ancient Romans, was used to clarify the wine and to improve its color through the addition of sulphate of potash or soda. Since these substances were considered harmful, their addition was forbidden beyond two grams per liter (Article 3, JORF 1891; Stanziani, 2012, p. 174).

²⁴ Corinthian raisins (or ‘currants’) are dried small grapes of the Greek variety ‘Black Corinth’ (Aroni- Tsihli, 2014). In our analysis we will name them ‘raisins’.

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 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 remained stable, the fall in French demand caused a raisin overproduction crisis (especially in the southern part of the 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.²⁵ In 1893, Prime Minister Charilaos Trikoupis announced to the parliament the historic words: “*Regretfully, Gentlemen, we are bankrupt.*” (Chiotellis, 2014; Dakin, 1972, p. 147; Gallant, 2015; Morilla Critz et al. 1999; Pepelasis Minoglou, 1995, p. 257; Stavrianos, 1958, p. 477).²⁶

6. The Aftermath: Overproduction and Supply Regulations in Greece

“(…) under the mass pressure from the majority of the currant production areas, the Prime Minister Theodoros Deligiannis passed a new law in Parliament, in July 1895. (...) This law constituted the first form of implementation of a currant policy on the part of the state, yet without being able to definitely solve the currant problem.”

Aroni- Tsihli, 2014

²⁵ 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).

²⁶ As a result, the crisis led to massive migration. Between 1906 and 1914, about 250.000 broke Greek raisins growers migrated to the United States (Campbell and Sherrard, 1968, p. 97).

To solve the crisis, the Greek government searched for new export markets and tried to regulate the supply of raisins in order to stabilize falling prices. First, Greece tried to export more raisins to Britain, its traditional exporting market but Spain and Turkey already occupied the remaining market shares (see Table 3). Second, Greece tried to export Greek raisins to other countries such as Holland, Germany and Russia. In Russia, this was temporarily successful as Russia increased consumption from 1,000 tons to 30,000 tons in 1895 but the solution was short lived as Russia soon also imposed high import tariffs on Greek raisins (Gabrielidis, 1895).²⁷ Greek raisin exports to Holland and Germany were more successful as they doubled their exports from 12,000 tons in the 1884–91 period to 26,000 tons in the 1893–1900 period. However, the northern European markets never managed to substitute for the reduction in French demand (which averaged 46,000 tons in the 1884–91 period) (see Figure 6).

Third, from 1895, the Greek government imposed a “withholding” (storage) of raisins of 15% of the quantities exported.²⁸ Through the “withholding”, part of the raisin production was stored and kept for internal consumption or burned through distillation.²⁹ In addition, from 1899 to 1904, the Raisin Bank was established and directly managed the “withholding” of raisins (Aroni- Tsichli, 2014; Lampe and Jackson, 1982, p. 179; Petmezas, 1997; Progoulakis and Bournova, 2001; Tsiovaridou, 1980).

The various measures helped to stop the fall in raisin prices. Prices somewhat recovered from 0.1 francs per kilograms in 1894 to 0.5 francs per kilograms in 1897 (Tsiovaridou, 1980).

²⁷ Part of the demand came from raisin consumption by Russian Jews. For religious reasons, by the 19th century, Jews started to use unfermented raisin wine during the holiday of Passover (Sarna, 1988).

²⁸ Gabrielidis (1895) notes that (at that time) famous economists—as Professor Sidgwick (Cambridge University) and Mr. J. N. Keynes—agreed with the policies implemented at that time in Greece and claimed that “*it very possible that the proposed retainment might prove temporarily effective in ameliorating the position of the currant-growers*”.

²⁹ Even if the “withholding” was initially perceived as a temporary measure, the system lasted until 1937 (Petmezas, 1997).

However, the storage regulations created a great divergence between produced and exported quantities: raisin production exceeded raisin consumption approximately by 30% (Frangakis-Syrett, 1994).³⁰ Moreover, the importance of raisins exports in total exports in Greece had drastically reduced. Still, in 1902, raisin exports represented about 30% of total Greek export value (see Table 4 and Figure 5).

7. The Regulatory Legacy of Standards: The Definition of Wine

*“No beverage may be kept or transported for sale, offered for sale or sold under the name of wine unless it derives exclusively from the alcoholic fermentation of fresh grapes or of the juice of fresh grapes.”*³¹

Journal Officiel de la République Française (JORF), 1907

“Wine’ means the product obtained exclusively from the total or partial alcoholic fermentation of fresh grapes, whether or not crushed, or of grape must.”

EU Regulation, 2013, p. 809

“Wine — alcoholic drink made by fermenting the juice of fruits or berries. (...) The narrower definition, relevant to this book and accepted throughout Europe, is that wine is ‘the alcoholic beverage obtained from the fermentation of the juice of freshly gathered grapes (...)’.”

Holford-Strevens, The Oxford Companion to Wine, 2015, p. 817

Today Greece produces around 57,000 tons of raisins and is still the largest producer in the European Union (EU).³² However, the main legacy of the rise and fall of the Greek raisin exports to France is probably not in Greece’s raisin production, but in the EU’s wine regulations.

³⁰ These measures might have been an incentive for higher raisin yields. As with wine distillation and storage measures implemented in France, and later on in the EU, these measures might have not been effective at solving the problems and may have caused—rather than resolved—some major distortions (Meloni and Swinnen, 2013).

³¹ Translation by the authors. *“Aucune boisson ne peut être détenue ou transportée en vue de la vente, mise en vente ou vendue sous le nom de vin que si elle provient exclusivement de la fermentation alcoolique du raisin frais ou du jus de raisin frais”* (Article 1, JORF, 1907b).

³² World’s top raisins producers are Turkey (with 380,000 tons) and the United States (with 340,000 tons) (FAO, 2016).

As we explained above, growing raisin imports with the recovery of French wine production caused political pressures on the French government to intervene and ultimately led to several wine regulations. The “adulterations” of French wine which were temporarily allowed in times of crises, i.e. the production of wine from raisins or the addition of water and sugar, were forbidden in the 1890s under new wine “quality” regulations. After the various regulations from 1889–1894 which effectively banned “raisin wines”, in 1897, also the production of “sugar wines” and “grape marc wines” was banned.³³ Finally, the 1889 French law (‘Loi Griffé’) was confirmed in 1907 and defined “wine” as a beverage exclusively made from the “*alcoholic fermentation of fresh grapes or of the juice of fresh grapes*” (JORF, 1907b; Lachiver, 1988, p. 476/7; Phillips, 2016, p. 189; Unwin, 1991, p. 313).

These French regulations ultimately became the cornerstone of the EU wine policy.³⁴ As we explain in Meloni and Swinnen (2013, 2014), economic integration in the European Economic Community (EEC) during the 1960s and 1970s required the integration of different policy regimes in one EEC wine policy (the Common Market Organization (CMO) for wine). The two main wine countries among the original EEC member states were France and Italy. While France’s wine market was highly regulated through government intervention, including strict rules on “quality wine” production (as the Appellations of Origin), Italy had more liberal wine policies. After long and difficult negotiations, the European Common Wine Policy (CWP) was agreed in 1970 and introduced restrictions on winemaking for the entire EEC.

One element of these policy negotiations was “the definition of wine” in the EEC. The outcome of this negotiation was written in Annex II of the Council Regulation (EEC) No. 816/70 where “wine” was defined as “*the product obtained exclusively from the total or partial alcoholic fermentation of fresh grapes, whether or not crushed, or of grape musts*”—thereby

³³ “*La fabrication et la circulation en vue de la vente des vins de marc et des vins de sucre sont interdites*” (Article 3, JORF, 1897). Before, their production was allowed but had to be declared to the tax department.

³⁴ See Table 5 for a chronology of the introduction of wine “quality” regulations in France and in the EU.

excluding the production of wine from raisins.³⁵ Hence, the French standards now became European standards. In the next decades, the EEC of 6 countries further integrated and expanded into the European Union (EU) 28 member states, many of which are important wine producers (including Austria, Bulgaria, Hungary, Romania, Spain, etc.). For all these wine producing countries, together representing 60% of the world's wine production, EU standards regulate production and marketing of wine. Although there have been major attempts to reform some of the EU wine regulations over the past decades (see e.g. Meloni and Swinnen, 2016b), the current EU wine regulations still define “wine” as “*the product obtained exclusively from the total or partial alcoholic fermentation of fresh grapes, whether or not crushed, or of grape must*” (EU Regulation No 1308, 2013, p. 809).

8. Conclusion

The rise and fall of the raisin trade between France and Greece in the course of 25 years at the end of the 19th century is a dramatic example of how major changes in trade can be caused by standards and tariffs in addition to comparative advantages and environmental shocks, and of its important implications for trade, economic growth and decline. Between 1875 and 1890 raisin exports from Greece and France grew from close to zero to very high levels. By the 1900 they had fallen back to almost zero. Tariffs and standards played an important role in this.

³⁵ There is a notable exception in the EU, the case of “partially” raisined wines (such as late harvest wines or dessert wines). These “partially” raisined wines (“*Passiti*” in Italian or “*Vin de Paille*” in French) are produced using the same techniques used for producing “raisin wines”, i.e. harvests are postponed and grapes are dried naturally by the sun (either directly on the vine or on straw mats) before fermentation. The main two differences are: a) the dried grapes retain some water, and the addition of extra water on the raisins to start the fermentation is not needed (as for the production of “raisin wines”); b) the entire winemaking process (and risks) is carried on by the wine producer (which is also a “wine grower” and not just a “raisin importer”). Therefore, due to the low yields and labor-intensive production method, the wines obtained are usually sweet, strong and expensive wines. The most famous European examples are the French Sauternes white wines (in Bordeaux), the Tokaj sweet white wines (in Hungary) and the Amarone dry red wine (in Italy) (Ribéreau-Gayon et al., 2006, p. 449).

The arrival of *Phylloxera* in the mid-19th century in France devastated French vineyards and caused a demand for substitutes, such as the production of “adulterated wines” including those made from fermenting imported raisins. Greece expanded its vine plantings in response to French demand for grapes and wine and Greek raisin exports tripled between 1870 and 1890.

However, when France found a way to deal with the infestation, its domestic grape production recovered, and, under pressure from its wine growers, the government introduced several radical measures that made it more difficult to use imported raisins. It forbade the use of Greek raisins to make French wine, it raised taxes on “adulterated wines”, it increased import tariffs on raisins, and defined wine as “*the alcoholic fermentation of fresh grapes*”. When these prove insufficient to protect domestic producer interests, it further tightened the standards by forbidding the addition of water to wine. The French regulations destroyed the raisin trade. Moreover, as raisins had become the main export revenue for Greece and an important tax source for the government budget, the contributed directly to the bankruptcy of the Greek government.

This dramatic historical case illustrates how product standards can be used to address consumer concerns or to protect producer interests, or both. While the wine regulations reduced information asymmetry for consumers by imposing labeling of “adulterated wine” (including wine produced from raisins), the regulations had a strong impact in protecting French grape and traditional wine producers against their competitors. The political analysis also clearly shows that they were the main lobby group demanding the introduction of the regulations.

Interestingly, the case also provides an illustration of the dynamic political economy aspects of standards (Swinnen, 2017). The trade and policy changes of more than a century ago still have a regulatory legacy in today’s EU wine regulations, which still define “wine” as the product obtained exclusively from the fermentation of fresh grapes (or grape musts), excluding the production of wine from raisins. This case illustrates how, once a standards is introduced,

it is difficult to remove it as regulations induce producers to adapt their investments and strategies and possibly affect consumer preferences and thus create more vested interests in maintaining it. The expansion of the EU has not caused a mitigation or removal of the regulation defining wine but, to the contrary, an expansion of the regulation across a much wider geographic region.

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Tables

Table 1
The Production of “Adulterated Wines” in France, 1878–1902

	<i>Total wine production (including “adulterated wines”)</i>	<i>Total production of “adulterated wines”*</i>		<i>Production of “raisin wines”</i>	
		<i>Million hl</i>	<i>% of total production</i>	<i>Million hl</i>	<i>% total production</i>
1878	49.6	0.9	1.8	0.9	1.8
1879	27.3	1.5	5.6	1.5	5.6
1880	31.5	1.9	5.9	1.9	5.9
1881	38.6	4.5	11.5	2.3	6.0
1882	35.1	4.2	12.0	2.5	7.1
1883	39.8	3.7	9.4	2.9	6.7
1884	37.7	2.9	7.7	1.6	4.3
1885	33.3	4.8	14.3	2.3	6.8
1886	32.9	7.8	23.8	2.8	8.5
1887	32.7	8.4	25.6	2.6	8.0
1888	38.3	8.2	21.5	2.2	5.8
1889	28.3	5.1	18.0	1.8	6.4
1890	36.5	9.1	24.9	4.3	11.8
1891	36.8	6.6	18.0	1.7	4.7
1892	33.7	5.6	16.6	1.1	3.1
1893	53.8	3.7	6.9	0.8	1.6
1894	42.7	3.6	8.4	0.5	1.2
1895	31.4	4.7	14.9	0.8	2.4
1896	50.7	5.9	11.8	0.9	1.8
1897	38.0	5.7	14.9	0.5	1.2
1898	39.4	7.2	18.1	0.1	0.3
1899	56.1	8.2	14.6	0.1	0.2
1900	71.6	4.3	6.0	0.09	0.1
1901	59.5	1.6	2.6	0.04	0.1
1902	42.6	2.8	6.4	0.01	0.0

* Note: “Adulterated wines” here 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). It does not include wines with unhealthy ingredients.

Source: Galet (1964, pp.30–31) and authors’ calculations.

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.

Table 3
Greek, Spanish and Turkish Raisin Exports by Major Importing Countries, 1871–1911

	<i>Britain</i>				<i>France</i>			
	<i>Greece</i>		<i>Spain and Turkey</i>		<i>Greece</i>		<i>Spain and Turkey</i>	
	<i>1000 tons</i>	<i>%</i>	<i>1000 tons</i>	<i>%</i>	<i>1000 tons</i>	<i>%</i>	<i>1000 tons</i>	<i>%</i>
1871-77	-	-	-	-	0.1	0.9	10.6	99.1
1878-82	62.2	72.2	23.9	27.8	22.0	37.6	36.5	62.4
1883-87	61.7	69.4	27.2	30.6	37.2	43.4	48.6	56.6
1888-92	63.9	59.6	27.9	30.4	44.5	60.1	29.6	39.9
1893	72.7	73.4	26.4	26.6	14.6	36.0	26.0	64.0
1911	67.1	66.6	33.6	33.4	-	-	-	-

Sources: Petmezas (1997) and Tsiovaridou (1980).

Table 4
The Importance of Raisin Exports in Total Exports in Greece, 1860–1902

	1860	1871	1881	1888	1902
Cultivated vine area (in thousand ha)	15	23	41	53	70
Raisin production (in thousand tons)	52	82	123	156	154
Value of raisin exports, deflated (in thousand drachmas)	23,1	33,9	59,7	69,2	23,8
Raisin exports over the value of total exports (in %)	52,5	48,7	68,8	55,7	28,9

Sources: Franghiadis (1990, p. 27); Petmezas (1997, p. 325); Pizánias (1988, pp. 128–133).

Table 5
Introduction of Wine “Quality” Regulations in France and in the EU

	<i>Introduced in France</i>	<i>Introduced in the EU</i>
Definition of wine*	1889 (Loi Griffé)/1907	1970
Ban on additives**	1891	1970
Ban on the addition of alcohol and water	1894	1970
Ban on “sugar wines” and “marc wines”	1897/1905/1907	1970***
Quality policy (GIs)****	1908/1919/1927/1935	1970

Notes:

* Wine has to be made from the “*fermentation of fresh grapes*”.

** Some harmful additives used during winemaking were banned, such as sulfuric, nitric, hydrochloric, salicylic, boric acids or sodium chloride.

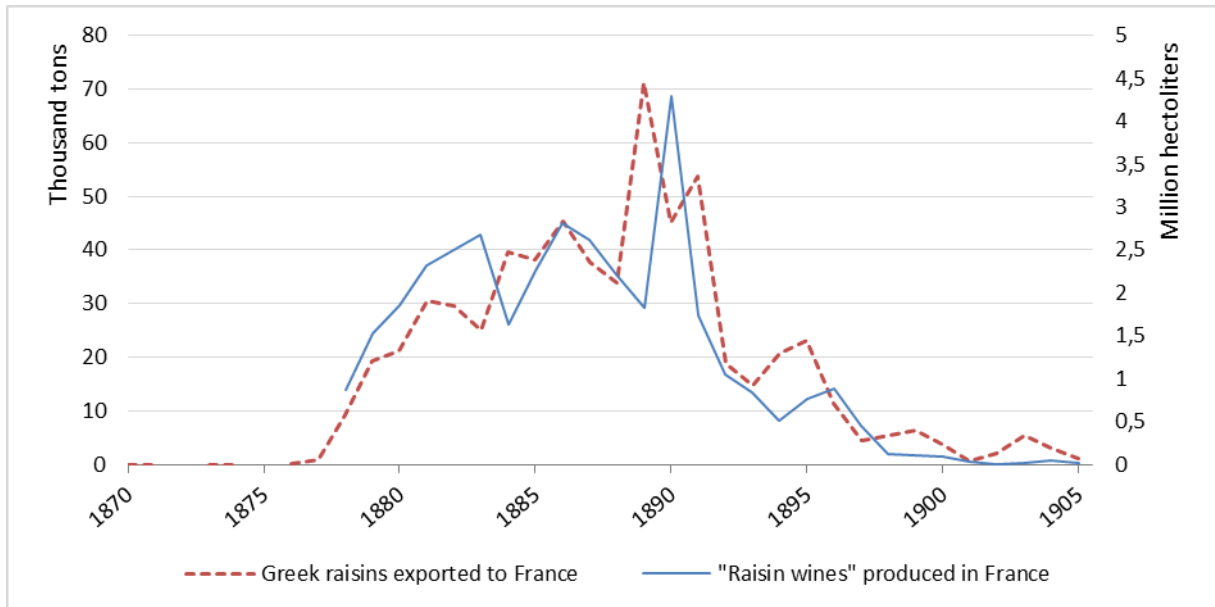
*** “Chaptalization” (the addition of sugar to wine must to increase the wine alcoholic strength) was (and is still) allowed under certain conditions and in certain regions.

**** The creation of a French wine “quality” policy was achieved in thirty years, through the implementation of successive (and stricter) laws. In 1935, the final law created the *Appellations d’Origine Contrôlées* (AOC)—which formed the basis for the later EU quality regimes.

Sources: Meloni and Swinnen (2013, 2014, 2016); JORF (1889, 1891, 1894, 1897, 1905, 1907a, 1907b); Council Regulation (EEC) No. 816/70.

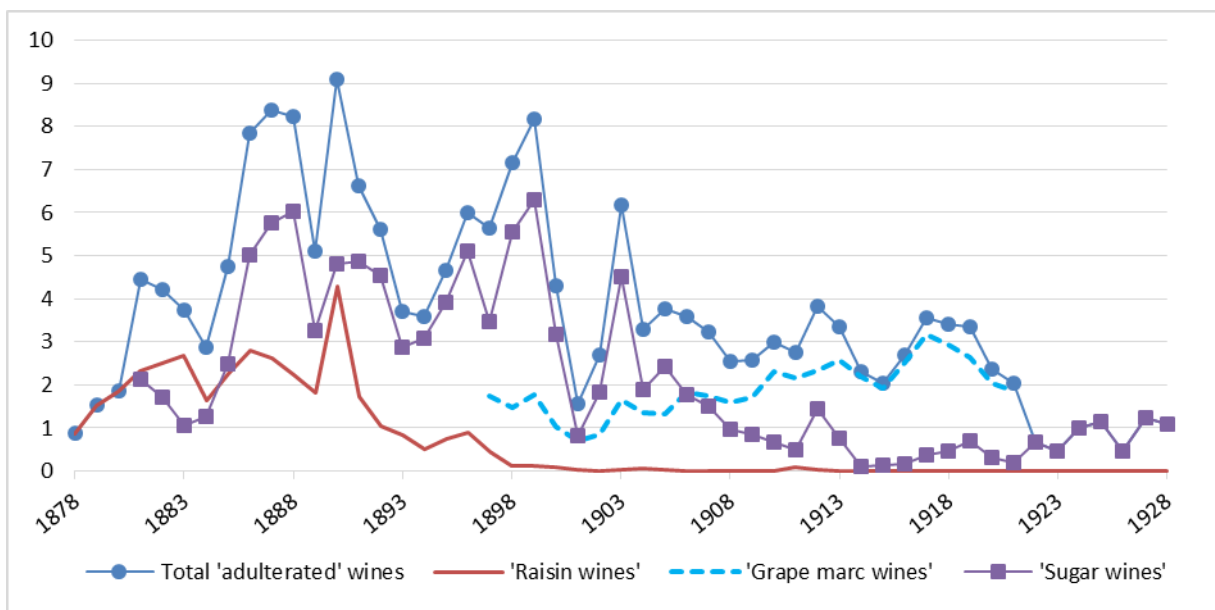
Figures

Figure 1
Greek Raisin Exports and French Production of “Raisin Wines”, 1870–1905
 (in thousand tons)



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

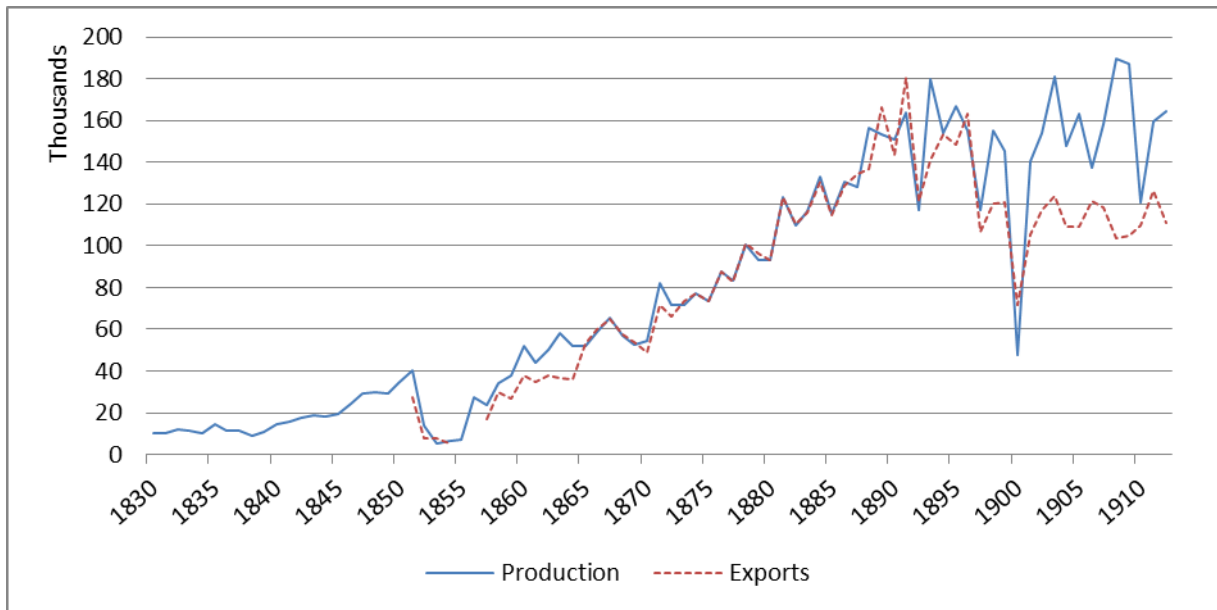
Figure 2
The Production of ‘Adulterated’ Wines in France, 1878–1928
 (in million hectoliters)



* 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).

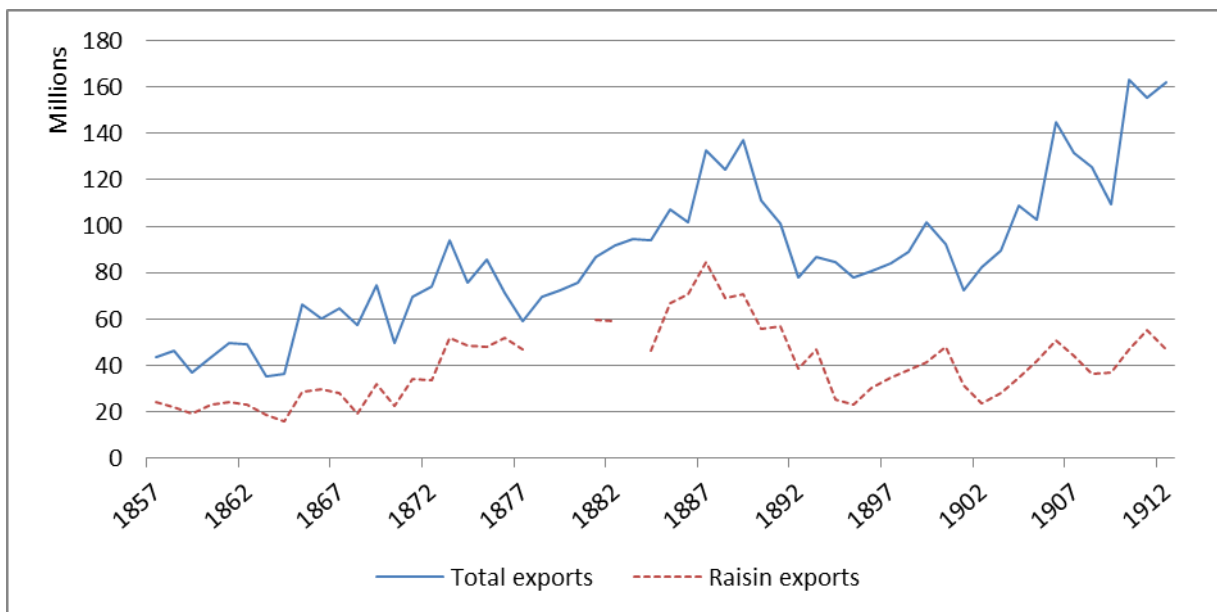
Source: Galet (1964, pp. 30–31).

Figure 3
Raisin Production and Exports in Greece, 1830–1912 (in thousand tons)



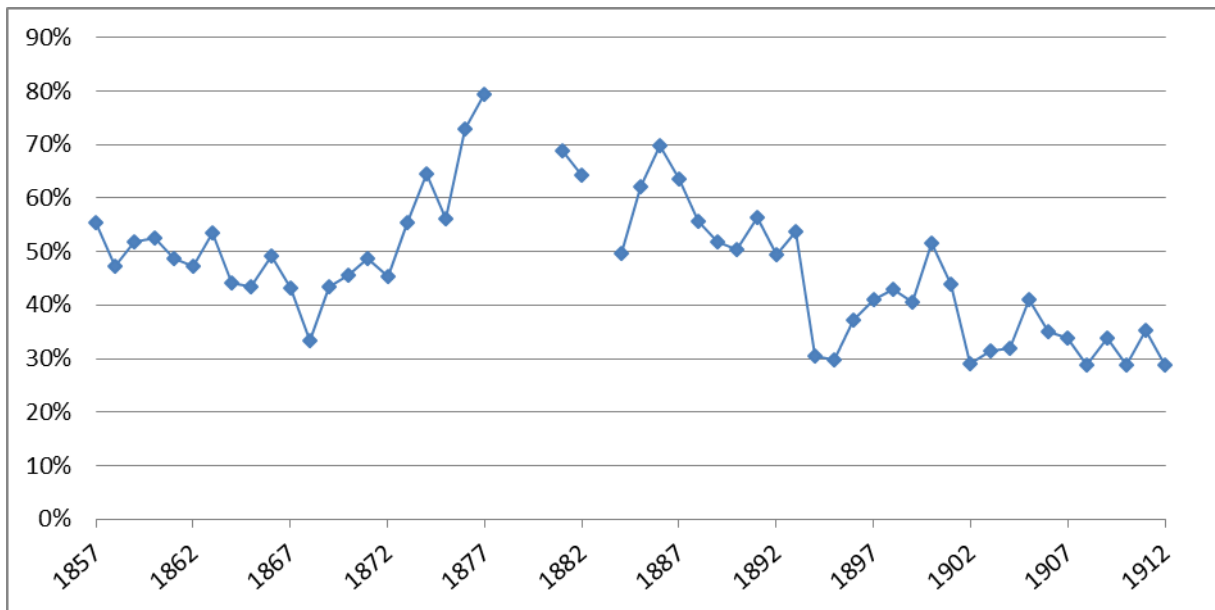
Source: Pizánias (1988, pp. 128–133).

Figure 4
GDP-Deflated Raisin and Total Value Exports in Greece, 1857–1912 (in million drachmas)



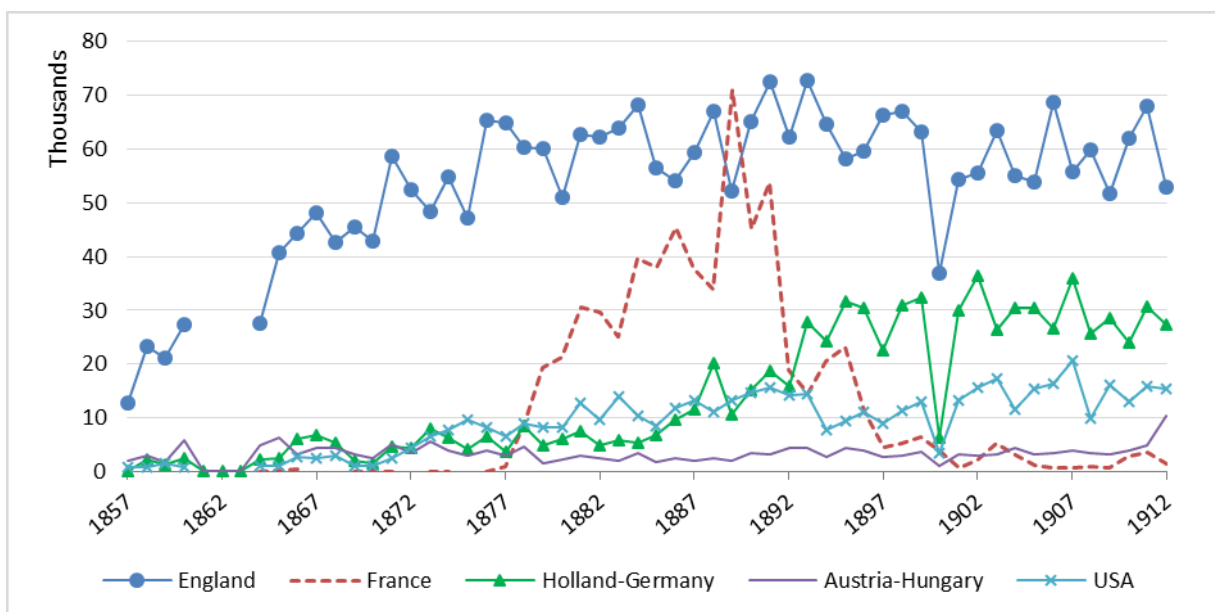
Sources: Pizánias (1988, pp. 128–133); GDP deflator (1914 = 100) from Lazaretou (2014).

Figure 5
Raisin Value Exports as Percentage of Total Value Exports in Greece, 1857–1912



Sources: Authors' calculations based on Pizánias (1988, pp. 128–133).

Figure 6
Greek Raisin Exports by Major Importing Countries, 1857–1912 (in thousand tons)



Source: Pizánias (1988, pp. 136–139).