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GLOBALIZATION AND POLITICAL ECONOMY OF FOOD POLICIES : INSIGHTS FROM PLANTING RESTRICTIONS IN COLONIAL WINE MARKETS

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Abstract

Globalization transforms not just the economics of production and exchange in the world, but also the political economy of public policies. We analyze how wine regulations, and more specifically planting rights restrictions, have been affected by globalization, in particular colonial expansions of wine producing empires. We study several historic cases and find that (a) planting right restrictions and compulsory uprooting of vineyards are introduced to deal with falling wine prices as colonial wine production takes off and expands; (b) that enforcement of the restrictions and uprooting was difficult and often imperfect; and (c) that there was a strong persistence of the policies: after their introduction the restrictions remain in place for a long time (often centuries) and they are only removed after major shocks to the political economy equilibrium.

Keywords: colonial expansions; globalization; planting restrictions; regulation; wine history.

JEL: F68; L66, N40; N50; Q15; Q18.

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Introduction

> "*Among the most curious facts of the history of the vine one must, in fact, put at the forefront all the measures taken to limit the growing of vines. ... [T]his struggle… goes back to Roman [Empire], and ... still lasts ... eternal between the gamet and the pinot, between the vine of the mountain or of the plain and that of the hill, between the good and the bad wine*."[1] (Lavalle, 1850, p. 36)

> "*The voyages of discovery were motivated by a desire for commodities that were scarce and therefore valuable. We know now that they were far more important economically than originally intended, precisely because they stumbled upon a resource so abundant that it was effectively free: New World land. The discoveries raised the endowment of land per European capita sixfold. (...) Such an increase in land endowments would inevitably spell disaster for European landowners.*" (O'Rourke, 1997, p. 775)

Globalization transforms not just the economics of production and exchange in the world, but also the political economy of public policies. Globalization can have several effects on political economy: it may change the comparative advantage of countries through changes in demand and supply of inputs and final products and through transfer of people (migration) and knowledge. There is plenty of evidence that changes in comparative advantage has an important impact on agricultural, food or trade policies (Anderson et al., 2013). Another factor is that with globalization the distinction between "domestic interests" and "foreign interests" may become less obvious (Antràs, 2015; Swinnen et al., 2021). For example, if companies are sourcing inputs from foreign subsidiaries or contracting with foreign farms or companies for their raw materials or intermediate inputs, the policy interests of these (domestic) companies may be aligned with their (foreign) input suppliers (Blanchard et al., 2016; Raimondi et al., 2021).[2]

A well-documented historical case in agricultural and food policies is how globalization, caused by a decline in transport costs following the industrial revolution, induced a massive trade flow of cheaper grains, and later meat, from the USA into Western Europe. This in turn, triggered widespread public policy interventions in Europe, including increased tariffs and farm subsidies, public support for R&D, etc. (Swinnen, 2009). Protectionist measures were taken to protect farms and landowners. Most studies on the political economy of agricultural and food policies have

[1] Translated by the authors. "*Parmi les faits les plus curieux de cette histoire de la vigne on doit, en effet, placer au premier rang tout ce qui est relatif aux mesures prises pour en limiter la culture. Nous essaierons donc de donner un aperçu fidèle de cette lutte, qui remonte à la Gaule romaine, et qui pourtant dure encore; de ce combat qui semble devoir être éternel entre le gamet et le pinot, entre la vigne de la montagne ou de la plaine et celle du coteau, entre le bon et le mauvais vin*." (Lavalle, 1850: 36).

[2] Blanchard et al (2016) find that trade protection is lower when the domestic content of foreign produced final goods is higher and (vice versa) for foreign content of domestically produced goods. In other words, the integration of economies and companies in global value chains tends to dampen the incentives for policies that hurt trade. Empirical results by Gawande et al. (2015) and Raimondi et al. (2021) support these arguments.

focused on trade policies and subsidies, both in general and specifically related to globalization issues. [3]

In this paper, we focus on different types of policy interventions, i.e. production restrictions, and more specifically planting rights restrictions in wine markets, and how they have been affected by globalization, in particular colonial expansions of wine producing empires. The wine industry is an interesting sector to study political economy since it has a long history with a wide variation of public regulations over time and among countries, and some of the regulations that have been introduced have persisted for a very long time and expanded across political systems (Meloni et al., 2019). This makes it a very interesting sector to study dynamic aspects of the political economy of public regulations in general and in food markets specifically (Swinnen, 2016).

Colonial expansions were important elements of globalization historically and affected the global wine industry in several ways: they increased the demand for wine by migration of consumers and by introducing wine to potential new markets. They also contributed to the transfer of knowledge of wine-making and changed the comparative advantage of wine by opening up new wine production regions (Anderson and Pinilla, 2018; 2021). As we will document, these changes had major political economy effects and triggered important policy interventions.

Planting rights restrictions strongly affect the world's largest wine production and consumption region, i.e. the EU, as well as some other wine producing countries (Meloni et al., 2019; Montaigne et al., 2012). Earlier research has shown that these regulations have their roots in colonialism. Meloni and Swinnen (2014; 2018a) document how today's EU planting rights regulations were introduced almost a century ago when France, the leading wine producer, introduced vineyard planting restrictions in response to falling prices, triggered by growing wine production in France's (North African) colonies.[4] With France's integration in the European Union (EU), and its wine policy being the dominating force of EU wine policy, planting rights (including mandatory uprooting of vineyards) have spread across Europe over the past 50 years, covering 65% of the world's wine market (Deconinck and Swinnen, 2015).

In this paper, we analyze whether the French colonial wine policy relationships were an exception or an example of a broader, more general, political economy pattern of globalization. We analyze several other historical cases of colonial expansions of wine producing empires and how this triggered important policy interventions. We study how colonial investments have triggered colonial wine growth, and consequently regulations in wine markets (especially planting rights restrictions), how these regulations have persisted over time, and how they were enforced. The cases we studied were colonizations by Italy/Rome, Spain, Portugal and France—each in times when the home countries were global empires.

We find in all cases that (a) planting right restrictions and compulsory uprooting of vineyards are introduced to deal with falling wine prices as colonial wine production takes off and expands; (b) that enforcement of the restrictions and uprooting is difficult and often imperfect; and (c) that

[3] Recently there has been a growing literature on the political economy of non-trade barriers and food standards (see Swinnen et al. 2015 for review).

[4] The planting rights were part of the *Statut Viticole* (1931-35), a policy package to restrict wine supply and stabilize wine prices. There was an earlier period of vineyard planting restrictions in France (1725 to 1789). These were abolished during the French Revolution (Meloni and Swinnen, 2016).

there is a strong persistence of the policies: after their introduction the restrictions remain in place for a long time (often centuries) and they are only removed after major shocks to the political economy equilibrium.

The paper is organized as follows. We start with the earliest case in Section 2: how the expansion of the Roman Empire triggered investments in wine production in Rome's colonies and a series of regulations to restrict vine planting. The next case (in Section 3) is the relationship between Spain and its American colonies in wine production, trade and its regulations. The third case (Section 4) is the Portuguese colonization of Brazil. We explain how Spain and Portugal have taken very different roads with respect to wine production and trade in their colonization of Latin America and how this is reflected in their wine regulations. In Section 5, we discuss how France introduced wine quantity restrictions both in its 18th century colonization of North America and its 19th century colonization of North Africa. The final section presents comparative insights and draws conclusions.

The Roman Empire and its European Colonies

> "*But we ourselves, the most equitable of all nations, who, in order to raise the value of our vines and olives, do not permit the races beyond the Alps to cultivate either vineyards or oliveyards, are said in this matter to act with prudence, but not with justice.*"[5] (Cicero, De Republica, III, 9, 16[6])

Wine was an important commodity in Rome when its Empire dominated the Western world. It was important as a commodity and as a source of wealth. Many of the politically powerful families in Rome had vested interests in the wine industry. The Senate was the centre of power for much of Rome's rule and many of the Roman senators owned rich vineyards around Rome (Purcell, 1985).

They saw the expansion of the Roman Empire not just as a geopolitical power strategy but also as a way to gain new markets for their wines. Sirago (1995) describes how some of Rome's conquering expeditions, including the well-known military expedition of Julius Caesar into Gallia, were financed by Roman senators with vested interest in the wine business.[7] The expeditions led to the expansion of the Roman Empire and were successful in increasing Rome's wine export opportunities. However, the success had an interesting dynamic effect. The profitability of the

[5] Translated by the authors. "*Nos vero iustissimi homines, qui Transalpinas gentis oleam et vitem serere non sinimus, quo pluris sint nostra oliveta nostraeque vineae; quod cum faciamus, prudenter facere dicimur, iuste non dicimur, ut intellegatis discrepare ab aequitate sapientiam.*" (Cicero, De Republica, III, 9, 16).

[6] Cicero refers to the one-off 129 BCE prohibition of planting vineyards imposed to the *Gallia Transalpina* (present-day France, Belgium and parts of the Netherlands, Germany and Switzerland, see footnote 9) (Carandini, 1989). Paterson (1978) argues that the (short-lived) prohibition would have been imposed here as well in the interest of the Roman settlers.

[7] Julius Caesar refers to wine trade several times in his book *De Bello Gallico* on the Gallic Wars that lasted from 58 BCE to 51 BCE (Caesar's Gallic War, Book II, Chap. 15 and Book IV, Chap. 2). In 58 BCE, at the end of Julius Caesar's consulship, the internal political situation was fragile with Roman senators trying to diminish Caesar's power (I Propilei, 1967). The Senate was a powerful institution with a strong influence on decisions over military conflicts and state finances. In exchange for his unconditional support to the consulship of Crassus and Pompey, Julius Caesar managed to extend his mandate over Gallia (until 50 BCE) and obtained adequate funding from the Senate (Agazzi, 2006: 56). See also the comments of Marcus Terentius Varro (116–27 BCE) (De Re Rustica, Book I, VII].

wine trade induced local production in the colonies which, over time, started to threaten the profits of the Roman wine industry. This process was most clearly in what is today's Spain and France.

Rome conquered *Hispania* (present-day Spain and Portugal) between 218–19 BCE[8] and *Gallia* (present-day France and regions further north and east) between 121–51 BCE.[9] With the expansion of the Roman Empire came trade of wine to supply the Roman legions and increasing local demand in Gallia and Hispania.

However, with trade and migration, also knowledge and skills arrived in the colonies. Roman war veterans settled in the provinces and set up large farm structures, similar to the Roman *villas*—large slave-based farm estates belonging to the upper class. Where they conquered, and got land rights, they started producing products such as grain, oil and wine if the climatic and soil conditions allowed it (Stephenson, 1891).[10] These Roman settlers introduced the technology and skills to grow vines and produce wine.[11] The new vineyards often adopted higher yielding vine varieties (as *Vitis Biturica* and *Basilica*), which stimulated local production.

From the 1st century BCE onwards, wine production grew significantly in the conquered provinces of Hispania and Gallia. Initially, the colonial wine was for home consumption and for local markets in the colonies where it started competing with imported wine from Rome (Tchernia, 1983). However, soon colonial wines found their way to Rome, competing with Roman wines in the home market (Carandini, 1989).[12]

Colonial wine was considered of lower quality than Roman wine, but it was also much cheaper. Different sources point at a price difference of 50% to 400%. In his book, *Naturalis Historiae*, Pliny the Elder (23–79 CE) divides wines into four classes and identifies Italian wines as "*the most praised at that time*", having surpassed the wines of Greece in terms of quality. According to this source, the best quality wines were the sweet Falernian wines produced near the region of Naples and they were priced up to four times more than low quality wines. According to Unwin (1991: 129), Italian wines were sold at retail prices of 12–54 *sestertii* per amphora, while

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[8] BCE: "Before the Common (or current) Era", which is now commonly used instead of "BC" (before Christ); CE: "Common (or current) Era", replacing AD ("Anno Domini" – Latin for "in the year of the Lord"), both of which were referring to the birth date of Jesus Christ in the Gregorian calendar of 1582 and Western Christian tradition.

[9] More specifically, Gallia was named *Gallia Transalpina* ("Gaul on the other side of the Alps") and covered present-day France, Switzerland, Belgium and parts of the Netherlands and Germany. Later, under the first Roman Emperor Augustus Caesar (63 BCE–14 CE), Gallia Transalpina was divided in "four Gauls" or provinces: *Narbonensis or Transalpina* (situated along the Mediterranean), *Celtica or Lugdunensis* (present-day northern and central France), *Aquitania* (present-day southwest France) and *Belgica* (including present-day Belgium and parts of Germany and the Netherlands) (Britannica, 2021a).

[10] Roman citizenship (*civitas* in latin) was the first requisite to the right of property as only Roman citizens could own land and vineyards. Roman citizenship was only granted by birth if both parents were Roman citizens and included many other rights, such as the eligibility for public office or military service. This changed only in 212 CE, when the Edict of Caracalla granted Roman citizenship to all free inhabitants (non-slaves) of the Empire, which triggered major consequences in the wine trade (Phillips, 2016: 18).

[11] Marquardt (1884:124) estimates that the wealthy upper class in Rome owned approximately 900,000 slaves.

[12] Casson (1959: 198) reports the immense fortunes made out of this maritime trade with Rome. For instance, Trimalchio, an ex-slave who became a multimillionaire reported that "*I built myself five ships, loaded them with wine which was worth its weight in gold at the time and sent them to Rome*." Another wealthy wine shipper was Marcus Porcius, who built a public theater that could fit 15,000 people (Casson, 1959: 198).

Spanish wines were sold at a much lower price of 8–12 *sestertii* per amphora in 79 CE. Panetta (2004: 231) writes about taverns with prices announced as: "*You can get a drink here for only one coin. You can drink better wine for two coins. You can drink Falernian for four coins*".

While data are limited, what is available suggests that there was clearly demand for the cheaper colonial wines, both in the colonies and in Rome home regions, and trade flows changed as a result. Several sources document that wine became Hispania's most important export product (Smith, 1966; Panella and Tchernia, 2002). According to Molina Vidal (1997), imports of Italian wine decreased from supplying 90% of wine consumption in Hispania in 50 CE to only 20% in 250 CE. Exports of colonial wine to Rome increased over this period, and the most dramatic changes seem to have occurred in the first century of this period. Historians and archeologists have estimated the share of wine imports in the Rome market by measuring the fragments of different amphorae found in the main trading ports, such as Ostia, the port city of ancient Rome (Molina Vidal, 1997; Panella, 1989).[13] Based on these estimates, the imports of provincial wine seem to have increased strongly, especially in the century between 50 BCE and 100 CE.

This increased competition obviously threatened the interests of Roman senators, who owned rich vineyards around Rome (Purcell, 1985). And with increasing colonial imports and falling exports the pressure on the ruler to intervene grew. Finally, in 92 CE, Roman Emperor Domitian (51–96 CE) intervened and introduced draconic measures. He issued an edict that half of the existing vineyards in the Roman provinces (Gallia and Hispania) had to be destroyed and also forbade the planting of any new vines in the Italic peninsula.[14]

It appears that the dramatic measure, and its timing, was caused by a combination of pressures. Since wine trade was very profitable for the provinces, the production of grain was increasingly disregarded which contributed to lower grain harvests in the Roman empire and rising food prices for the citizens of Rome and Roman soldiers (Unwin, 1991). In addition, the impact of increased competition from the Roman provinces for Roman vineyard owners was reinforced at the end of the first century CE by increasing wine production in the south of Italy. This resulted from new vineyard plantings in the aftermath of the eruption of Mount Vesuvius in 79 CE. This eruption destroyed all vineyards near Mount Vesuvius, in the vicinity of Naples. These vineyards were later replanted (Tchernia, 1984; 2011). In the following years, production increased strongly because not only did landowners replanted more vines than before but also because young vines were more productive than older ones. When these new harvests came to the market in the late 80s, they caused additional pressure.

Hence, the combination of increased competition from the provinces, increasing domestic wine production and poor grain harvests caused sufficient pressure on the Roman rulers to intervene forcefully at the end of the 1st century CE (Lavalle, 1855; Barbagallo, 1956; Unwin, 1991; Sallares, 2008). The legislation was intended to protect the interests of the Roman vineyard owners and to ensure that sufficient grain was produced to supply Rome and its legions (Aymard, 1948; Dion, 1959; Niederbacher, 1983).

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[13] Hispania and Gallia used their own type of amphorae (Martínez Ferreras, et al. 2013; Panella, 1981).

[14] "*On the occasion of a great abundance of wine, accompanied by a scarcity of corn (…) he published a proclamation forbidding the planting of any new vines in Italy, and ordered the vines in the provinces to be cut down, nowhere permitting more than one half of them to remain*." (Suetonius, Chap.7, 2)

Policy Implementation and Liberalization

From the beginning, there were major implementation and enforcement problems with Domitian's edict (Lequément, 1980; Leschi, 1957; Tchernia, 1989).[15] Part of the problem was that the emperor himself did not seem to be keen on enforcing the regulation, partly in fear of his own life after receiving threats from vineyard owners opposing uprooting of their vineyards. Suetonius (69–122 CE), the Roman historian, wrote that "*Domitian did not persist in the execution of this project*" (Chap. 7, 2).

While the implementation of the regulation may have been imperfect, it seems to have halted the growth of wine exports from the colonies. As estimated by Panella and Tchernia (2002), after 92 CE, wine exports from the provinces stabilized. In the next century (between 100 BCE and 200 BCE) imports of colonial wine remained relatively stable (around 40%) while that of Italian continued to decline.

The edict lasted for more than a century, and it was only removed after important economic and political changes in the Roman Empire. In the 3rd century CE, the relative decline of power of the center (Rome) and the need to secure the frontiers by keeping the Germanic tribes loyal to the Roman Empire led to important changes in wine policy (Toussaint-Samat, 1992).

The first step of more liberal rules was when Emperor Caracalla (188–217 CE) conferred Roman citizenship to all free inhabitants of the Empire in 212 CE (the *Constitutio Antoniniana*). This decision repealed the privilege of Roman citizens which, until then, were the only ones allowed to plant and grow vines (Dion, 1959; Phillips, 2016: 18).

The full liberalization of planting rights and removal of the Domitian restrictions came another sixty years later, in 281 CE—almost 200 years after they were introduced. Emperor Marcus Aurelius Probus (232–282 CE) decided that all free inhabitants of Gallia, Hispania and Britannia could plant vines as they liked.[16] After that liberalization, vineyards spread in the provinces and from the year 300 onwards, wine production and exports grew again in the provinces.

Spain and its American Colonies

> *"The king has ordered, on pain of death, that vineyards or olive groves shall not be cultivated, but rather [Peru] needs to continue to receive wine and oil from Spain,*

[15] Suetonius argues that Domitian was in constant fear of assassination and distrusted all around him. This is why, according to Suetonius, Domitian ultimately ignored his own edict about the destruction of the vines after the circulation of some threatening notes containing the following lines: "*To pour on Caesar's [Emperor Domitian] head in sacrifice*." (Suetonius, Chap.14, 2). His effort was not successful, as he was ultimately murdered a few years after the edict, in 96 CE.

[16] Emperor Probus "*allowed his Legions to replant vines*" [Translation by the authors. "(…) *occupa ses Légions à replanter les Vignes*"] (Villifranchi, 1773). Emperor Probus attempt to secure the support of the Germanic tribes with this and other rules only worked for a limited time. German tribes' invasions eventually led to the destruction of the Western Roman Empire in the 5th century CE (Phillips, 2016: 18).

since the land is so fertile here that the quantity collected in four years in [Peru] would only be collected in twenty years in Spain […]" (Baudot, 1981, p. 175)[17]

The American colonies of the Spanish Empire in the 16th century extended across a vast region: from northern territories (including present-day California), over central America (including today's Mexico, Guatemala, Venezuela, …) to the south (including present-day Argentina, Peru and Chile).[18]

Demand for wine in the Spanish colonies increased rapidly in the 16th century for two reasons. First, by 1550, 150,000 Spaniards had emigrated to America and these settlers represented new markets for wine (Lynch, 1981a: 110). Second, an additional factor in the growing demand for wine in the colonies was the demand of the Catholic Church for sacramental wine (i.e., wine needed for the celebration of the Mass). The Spanish Crown and the Catholic Church intended to spread the Catholic religion in the conquered lands by converting local populations to Catholicism. Sacramental wine was needed for this "spiritual conquest" (Cushner, 1980; Ulloa, 1977).

Initially, all wine was imported from Spain. The Spanish crown imposed a monopoly in trade with its American colonies. Trade was regulated and foreign participation was limited or prohibited. Only Spanish producers could sell their agricultural and manufacturing products, including wine, in the colonies (Márquez, 2006).

However, Spanish wine arrived irregularly and was of poor quality due to the long overseas journeys (Johnson, 1989: 195-98). This was especially the case in the south-western regions of Spanish America, such as today's Chile and Peru. To reach these regions, Spanish wines had to cross the Panama isthmus and then to travel further south by sea to Lima, the capital of the Viceroyalty, or Santiago. This was a much longer distance (both geographically and in terms of time) than to the colonies with ports on the Eastern side of the Americas. Yet, Spanish wine was of mixed quality and expensive when it arrived not just in the south-western regions but in all the colonies. This encouraged settlers to produce wine themselves (Dickenson and Unwin, 1992).

Interestingly, vines had already arrived with the first conquerors, but with little success. Records show that Christopher Columbus had brought vines in 1493 and planted these vines in the Antilles. But it was initially a failure since Spanish vine species, *Vitis Vinifera*, did not do well in the tropical conditions. After Hernán Cortés, the Spanish *conquistador*, brought vines with him into Mexico in the 1520s, Spanish settlers tried to graft European vines on American rootstocks in

[17] Baudot (1981) reports a quote from John Chilton, an English merchant who travelled in the New World during the second half of the sixteenth century.

[18] The Spanish crown established four viceroyalties to govern and administer its American colonies. In the 16th century, the first two viceroyalties of New Spain (present-day Mexico, Central America and California) and Peru (present-day Chile, Argentina, Bolivia, Peru, Ecuador, Colombia, Venezuela, and Panama) were created. Other two viceroyalties followed in the 18th century: New Granada (present-day Colombia, Ecuador, and Venezuela) and Río de la Plata (present-day Argentina, Uruguay, Paraguay, and Bolivia). From 1739 onwards, the area corresponding to Panama was detached from the Viceroyalty of Peru and was part of the Viceroyalty of New Granada (Britannica, 2021b).

Mexico with increasing success (Hyams, 1965). Other parts of Latin America soon followed (Hyams, 1965; Mishkin, 1975: 77).[19]

Wine production soon took off in Spain's American colonies, especially in the regions further away from Spain. It became a leading industry in colonial Peru and Chile, as longer travel distances there meant that Spanish wine was more costly and more likely to have deteriorated quality (del Pozo, 1998; Foste and Valdés, 2004: 210; Foster and Melo, 2018; Lacoste, 2004). By the end of the 16th century, Spanish wine exports to Peru and Chile had fallen and these regions had become the centers of viticulture in Spanish America.[20]

The markets that were still available for Spanish wines were in Central America (such as today's Mexico, Guatemala and Panama) for which transport costs and time were lower. However, soon Peru and Chile started to export their wines to Central American markets at lower prices, threatening Spanish exports there as well (Clayton, 1975).[21] Hence, after the initial gains from expanded market shares, Spain was confronted with increasing competition in colonial export markets due to domestic wine production and wine imports from other Spanish colonies (see the extensive Atlantic trade data collection by Chaunu and Chaunu, 1957, pp. 54-55).

This led to political pressure on the Spanish rulers ("the Crown") to intervene from Spanish landowners and wine merchants, who saw their profits from wine exports to Spanish America decline. Those who profited most from wine exports were powerful landowners and wine merchants from Andalucía, the main wine exporting area located in the southwest of present-day Spain, with Sevilla as its capital. Sevilla was the main trading center with the Americas and had a colonial trade monopoly (Hamilton, 1934; Hendricks, 2004). And within the region, benefits were concentrated in the upper class of the population: noble landowners.[22] In Andalucía, five families[23] owned large estates and the remainder of the land was owned by the archbishop of Toledo (Lynch, 1981a:13-14). This elite, owning the land and the vineyards, had close connections to the Spanish Crown.

During the first half of the 16th century, Spanish wine prices still increased more rapidly than the general price level. However, this changed in the second half of the 16th century when wine prices started falling (Hamilton, 1934). In Andalucía, wine prices reached their minimum level in 1569. This triggered intense political lobbying by the Andalusian elite and in response the Crown introduced policies to constrain production in the colonies.[24] In 1569, the Spanish king

[19] One year later, Nuño de Guzmán governor of Province of Pánuco (located in the Mexican gulf coast) obliged Indians to produce wine in his estate. After Francisco Pizarro's conquest of Peru in 1532 and the first vines planted around Lima, vineyards spread to Chile and Argentina (Hernández and Moreno, 2011; Unwin, 1991: 217; Rice, 1997).

[20] In Peru, the wine sector became the second most important sector after silver (Lynch, 1981a: 235). Peruvian viticulture developed mainly in the Arequipa and Moquegua valleys in southern coastal Peru during the 16th and 17th centuries (Huertas Vallejos, 2004).

[21] Chile started exporting wine from 1578 onwards (Johnson, 1989: 174).

[22] Spain in general was characterized by huge disparities in land ownership. The vast majority of the population (95%) were landless peasants. Land was owned only by the nobility and the clergy. The nobility, representing 2% of the population, owned 95-97% of the land (Lynch, 1981a:13-14).

[23] The Guzmán, the Cerda, the Ponce de León, the Fernández de Córdoba and the Mendoza families.

[24] Moreover, Spain had internal problems in 1569-71. First, the second Moorish revolt burst out in 1569 in Andalucía, in the southern part of Spain, following the forced conversion of Spanish Moslems to Catholicism. Second, the "Dutch

Philip II (1556–1598) issued an edict that forbade Spain's American colonies to plant vines without official (Spanish) authorization (Mishkin, 1975:87; Lynch,1981b). From then on, only those who had a royal license, or those who were producing wine for religious purposes, could plant vines (Davies, 1984: 93; Diffie, 1947: 317; Foste and Valdés, 2004: 210).

After the edict, wine prices increased and reduced incentives for the Crown to enforce the regulation. However, from the late 16th century onwards, wine prices started falling and with it vineyard owners lobbying for more protectionist policies intensified. Peruvian wines were abundant in export markets. Consequently, in 1614 and 1615, Philip III issued two royal decrees prohibiting the export of Peruvian wines to Central American regions such as Panama and Guatemala.[25] Only Spanish wines could supply these regions. Trade restrictions continued to be implemented during the 18th century.[26] Between 1714 and 1774, the Spanish crown prohibited wine trade between Peru and Central America (Cushner, 1980: 131).[27]

The prohibition of planting of vines (and replacing decayed vines) in Spanish colonies was confirmed several times in the "Compilation of the Laws" (*Recopilación*)[28] by King Philip II in 1595,[29] by Philip III in 1620, and by Philip IV in 1628 and 1631. However, these regulations simultaneously had legalized illegal plantings and stipulated that existent vineyards were tolerated upon the payment of a tax of two percent of annual production to the Spanish Crown. These different elements of the law reflected different objectives and constraints of the Spanish government.

Enforcement, Conflicting Interests, and Liberalization

For the Spanish government, the introduction of vineyard restrictions also came with a cost: it reduced their tax revenues from colonial wine production during periods when there was growing demand for tax revenue to finance Spanish wars elsewhere. The government had to balance the need to please the Spanish wine lobby (by limiting wine in the colonies) and the need to increase tax revenues (by promoting and taxing colonial wines).[30] These two conflicting

Revolt" (1568–1648) of the Protestant Provinces in the Low Countries against the Spanish Catholic Empire was starting to drain resources both in troops and money (Lynch, 1981a:239).

[25] "*The wines of Peru cannot enter or be sold in Panama*" [Authors' translation: "*En Panamá no entre ni se gaste vino del Perú*"] (*Recopilación,* 1841, Book 4, Title 1, Law 15). "*The wines of Peru cannot be contracted or introduced in the province of Guatemala*" [Authors' translation: "*En la Provincia de Guatemala no se contraten ni introduzcan vinos del Perú*"] (*Recopilación*, 1841, Book 4, Title 18, Law 18).

[26] In New Spain (present-day Mexico, Central America and California), wine edicts were issued in 1737, 1761, 1802 and 1814 (Foster and Melo, 2018; Mishkin, 1975; del Pozo, 1998).

[27] The 2% tax was only applied in Peru but had no effect in Pisco, Ica and Nazca (the main wine production centers), and was never applied in Chile (*Recopilación,* 1841, Book 4, Title 7, Law 18).

[28] The Compilation of the Laws of the Kingdoms of the Indies (*Recopilación de las leyes de los reinos de Indias*) was the body of law, governing Spain colonies, consisting of 9 books and 6,377 laws, published by royal authorization from the 17th to the 19th centuries (*Recopilación*, 1841). See Annex 1.

[29] The 1595 year was a very critical year, with extremely low silver remittances from America and the ongoing Anglo–Spanish War (1585–1604) (Drelichman and Voth, 2011).

[30] The Royal Treasury was present in Spanish America through its treasury officials (*oficiales reales*). Taxation was introduced since the beginning, such as the *alcabala* (sales tax), the *almojarifazgo* (custom duty) and the *10uinto real* (royal fifth). Wine was also taxed. For instance, since 1501, a tithe *(diezmo*, or tax of 10 percent) was paid on the

objectives alternated through the 16th and 17th centuries, depending on alternative tax revenues, budget demands from wars, and on wine prices which affected Spanish landowners' profits and lobby efforts.

Tax revenues from colonial wine production were increasingly important for the Spanish crown. In the second half of the 16th century, Spain incurred regular liquidity crises.[31] The remittances from American silver were volatile[32] and, in some periods, were not enough to finance imports of grain[33] and to support its wars in Europe.[34] Therefore, colonial production was never totally prohibited because the colonial governments and the Spanish crown benefited from taxation.

Besides the need for revenue from the crown, the enforcement of regulations was limited because royal officials in Spain and colonial landowners benefited from wine production in the colonies. The Council of the Indies (*Consejo de Indias*) was the Spanish institution governing Spain's colonies in America, composed by 6 to 10 councilors, belonging to the upper class of the population (Britannica, 2021c). These councilors were among the highest royal officials in Spain. They benefited from increased wine production in the colonies because part of the tax revenues from Spanish America was distributed to the councilors of the Council of the Indies (Ulloa, 1977). The councilors' interest was to increase taxation (rather than restrict colonial production) in order to increase their income.

Another group of increasingly powerful people that benefitted from the non-application of the vine prohibitions was the colonial landowners. The administration of justice of the cities was the competence of the *cabildo*[35] (town council headed by a regional magistrate, *alcalde mayor*) who had the power to enforce the laws dictated by the Spanish crown. However, since wealthy and influential citizens composed the *cabildo* (such as the *encomenderos* and later *hacendados*), these planting restrictions were not systematically enforced (Lockhart, 1969; Cushner, 1980). Colonial taxes financed the Spanish budget but also local expenses (administration, public works etc).

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grape. In Peru, wine production was taxed since 1551. In Mexico, an excise tax on wine (*sisa*) was introduced before 1575 (Davies, 1984: 93; Mishkin, 1975:97; Ulloa, 1977; Lara et al., 2006). As an example of *almojarifazgo*, García Hurtado de Mendoza, viceroy of Peru (1590-96), taxed 4 *reales* each *botija* (clay jar) that was transported from the winery to the final destination (Soldi, 2006). The *real de plata* (royal silver) was the Spanish currency, equivalent to 3.44 grams of silver (Ulloa, 1977:32).

[31] In fact, Philip II defaulted four times: in 1557, 1560, 1575 and 1596 (Drelichman and Voth, 2010).

[32] Precious metals, as silver, extracted from the mines of Spanish America were subject to the *quinto real* (royal fifth, a 20% royal tribute) (Ulloa, 1971). Drelichman and Voth (2011) calculate that in some years these remittances could reach 40% of the crown revenue and in others it was almost inexistent.

[33] At the beginning of the 16th century, Spain began to import wheat following a shortage in production. Lynch (1981) argues that this was probably due to the high prices of wine that stimulated planting of vineyards instead of wheat.

[34] During his reign, Philip II fought losing battles across Europe. For instance, the "Dutch Revolt" lasted for eighty years (1568–1648) and was a disaster for Spanish public finances. Deconinck et al. (2016) calculate that the cost of Dutch Revolt was 70% higher than silver revenues. Drelichman and Voth (2010) argue that 60% of the Spanish crown expenditures were employed to finance wars.

[35] Local governments (*cabildos*) governed a municipality—the smallest administrative unit of the Viceroyalty that included the city and the surrounding area (Britannica, 2021d).

Hence, both Spanish (councilors) and local administration (*cabildos*) and local land owners had few incentive to enforce Spanish vine prohibitions. The main justification the officials gave for this continued disregard of the law was that the Church needed wine, and they had to provide it to the religious orders when needed (MacLeod, 2007:272).[36]

Still, the restrictions stayed in place for hundreds of years, until the early 19th century. However, during this very long period (300 years) the implementation of the restrictions varied strongly by country. In some countries, as Peru and Chile, enforcement was weak and the edicts remained largely unobserved (Davies, 1984: 93). In other countries, like Argentina, the regulations were more effectively enforced and wine production was constrained (Robinson, 2006: 653).[37]

The restrictions were removed only after major political changes, as in the other cases. In this case, it was the colonies' independence from Spain, or the treat, that allowed the liberalization. The Spanish American wars of independence were fought between 1808 and 1829. Spain itself repealed the restrictions in 1811, "*allowing the natives and inhabitants of America to freely plant and grow vines*" (Unwin, 1991: 220; *Recopilación*, 1841: 132).[38]

Portugal and its American Colony (Brazil)

> "*In the last years of the fifteenth century, Vasco da Gama sailed to the East Indies around the Cape of Good Hope at the tip of Africa (…). On April 22, 1500, one of them, Pedro Alvares Cabral (…) sighted the coast of Brazil. Thus Portugal acquired her largest and most valuable colony, which she was to hold (…) for three hundred years.*" (Marchant, 1965, p. 9)

In 1500, Portugal annexed Brazil, a vast country. Parts of Brazil (the southernmost) are well fit for growing grapes and producing wine. As Spain—and the Romans earlier—Portugal saw the colonies as important export markets for its wine. In particular, the wine growers and merchants

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[36] The tax regime also affected the production structures. Religious orders, i.e., the Jesuits and Franciscans, were exempted from taxation. Their estates became the most important center of viticulture from 1600 to 1767 (when they were expelled) in Spanish America. Jesuit missionaries (*Compañía de Jesús*) became the main large-scale wine producers in Peru and Chile (Cushner, 1980). In (present day) Mexico and Argentina, Franciscans initially planted vines in order to have sacramental wine, but afterwards became the leading wine producers due to tax benefits (Hendricks, 2004; Foste and Valdés, 2004: 211; Rivera Medina, 2006).

[37] Other factors halted wine production in Peru and Mexico during, respectively, the 18th and 19th centuries. War with Chile, vine pests, earthquakes, the decreasing importance of the Potosí mining center, the 1767 expulsion of the Jesuits from Latin America, the rising importance of cotton production as a consequence of the Industrial Revolution, and the authorization to produce and trade sugar cane brandy were the main reasons of the decline of Peruvian viticulture that started in the 18th century (Davies, 1984: 95; Rice and Smith, 1989; Rice, 1997; Lacoste, 2004). In Mexico, the causes of the decline started at the end of the 19th century, where the increased salt content in the soil (due to the introduction of flood control works) and the population growth (Hendricks, 2004). Whereas in Argentina, vineyards developed after the arrival of Spanish and Italian immigrants between 1880 and 1910 and the 1885 construction of the railroad between Mendoza (the main wine production area) and Buenos Aires (its main consumer market) (Stein and Mateu 2018). While in Peru and Mexico wine production declined, and is almost inexistent today, Chile and Argentina are major producers and exporters of wine today.

[38] These restrictive laws were repealed by parliamentary decree of February 9, 1811, Article 2, (*Recopilación*, 1841, Vol. 2, p. 133).

from the Douro region (Porto producers) were active in exporting their wines to the colonies. Like Spain, Portugal imposed a trade monopoly between the colony and the home country: "*Everything that went from Brazil must go to Brazil and everything that came must come from Lisbon*" (Marchant 1965: 10). This implied that the colonies could only import wine coming from Portugal.

However, unlike Spain and the Romans in their colonies, Portugal never allowed vine growing and wine production in Brazil. From the moment the Portuguese arrived, the Kings (and Queens) of Portugal prohibited planting of vines in Brazil, a prohibition that would last until the early 19th century (Flores et al., 2014; Fielden; 2003; Valduga, 2011). As summarized by Marchant (1965: 10):

> "*The cultivation of grapes, ..., was prohibited, in order not to produce competition for Portuguese wines, though only the poorer quality of the home product was ever exported to Brazil.*"

There was strong political pressure from the Portuguese wine industry to protect their interests through monopolistic policies that prohibited Brazil to import wines from other countries (Boxer, 1969; Dickenson, 1995). Grape production and winemaking in Brazil was prohibited in 1590, following low wine price and wine overproduction in Portugal (Burns, 1980; Inglez de Sousa, 1969). The pressure continued later when, in the mid 18th century, lucrative wine exports from Portugal to Britain were under pressure and Portuguese wine exporters saw the Portuguese colonies of West Africa and South America as potential growth markets to compensate. Wine exports were dominated by Douro producers with strong links to Portuguese Prime Minister, the Marquis of Pombal (1699–1782). In 1789, Dona Maria I (1734–1816) Queen of Portugal continued to ban Brazilian wine production (Flores et al., 2014; Schneider, 1980: 188).[39] Schneider (1980) and Valduga (2011) argue that the lobbying was hugely profitable: with these prohibitions and monopolies, Douro producers charged very high prices for their wines in Brazil, often five times the price in Britain or Portugal.

While the Portuguese wine industry, and especially the Douro producers, was certainly politically well-connected and very influential in Portuguese wine regulations (see e.g., Meloni and Swinnen 2018b on the political economy of Port wine regulations), political connections of rich wine producers and pressure was also strong in other countries and did not lead to such extreme vine planting restrictions. It appears that several other factors have played a critical role in the political economy of these very strict Brazilian wine regulations.

First, the Portuguese settlers initially colonized lands in the coastal areas of Brazil, whose environmental conditions were less suitable for viticulture. It was only in the 17th and 18th centuries that the borders of colonial Brazil were expanded across the southeast, with the settlement of Rio de Janeiro and São Paulo in the early 1700s. There, the settlers found climatic conditions that were similar to those in Portugal and allowed to plant vines (Sechrist, 2017: 188).[40]

[39] Queen Maria I had a fundamental role in the enlargement of the Douro wine region where the famous Port wine is produced (Meloni and Swinnen, 2018b). In order to satisfy the increased demand coming from British soldiers fighting in the United States War of Independence (1775–1783), Queen Maria I ordered an enlargement of the Douro delimited region in Portugal (in 1788) and also forbade planting in wine in Brazil (in 1789) (Flores et al., 2014).

[40] Wine cultivation is best suited in the area between 30 and 50 degrees of latitude, encompassing Argentina, Australia, California, Chile, or South Africa. In contrast, Brazil lies almost entirely outside these limits; only the southernmost

Second, there were much fewer Portuguese settlers in Brazil than there were in the Spanish, Roman or French colonies. Portuguese settlers often just stayed a few years, with the intention to extract as much minerals as possible, and then they moved back to Portugal. The ones that stayed were very few and settled in the coastal area of Brazil.[41] This very small local elite[42] largely used slaves to work on sugar plantations (Adler and Pouwels, 2012: 308; Berg, 2010: 256).[43] There were few Portuguese investments in other types of farming, including vineyards, and no skill transfers. This difference is in line with the difference between "settler colonies" and "extraction colonies" in the analysis of Acemoglu et al. (2001) in their explanation of how the different nature of the colonies affected institutional developments and later growth and economic development.

Third, Brazil was on the eastern side of the American continent, making exports of Portuguese wine shorter and cheaper than the export of wine from Spain to Chili or Peru.[44] As we explained above, the wine industry emerged first in the Spanish colonies which were most distant.

Hence, it is likely that the combination of these factors led to the prohibition of grape plantings and wine production in Brazil. The restrictions lasted three centuries, from the 16th to the 19th century. and were only overturned by major political changes. The growth of a Brazilian wine industry took even longer to take off.

Liberalization and Growth of the Wine Industry

The removal of the planting and wine production restrictions only occurred after major political changes in Portugal and in Brazil. In the early 19th century Napoleon conquered Portugal. When Napoleon defeated the Portuguese army in 1807, the Portuguese royal family fled to Brazil. The emigrated Prince Regent of Portugal, Dom João VI (1799-1816), removed many regulations and trade was opened in Portugal and the colonies (Alvará, 1808). Brazil could now import wine from other countries (Sechrist, 2017: 188). A few years later, in 1822, Brazil became independent and no longer accepted regulations imposed on them from Portugal.

However, while the liberalization of the wine sector and vineyard planting and labour shortages were important preconditions for the Brazilian wine sector to take off, the growth was hampered by the absence of skills and technology. This changed when there was a large wave of Italian immigrants into Brazil (Flores et al., 2014). From 1870s onwards, many Italians migrated

of Brazil lies in the 30 degrees of latitude (Dickenson, 1995). However, there are exceptions to this "golden degrees of latitude rule", and the most striking one is Peru as we explained above.

[41] Unlike the Spanish, the majority of Portuguese did not stay at their overseas posts, they did not come with priests and lowborn (not noble) men, nor introduced the same institutions (as the viceroyalties) (Adler and Pouwels, 2012: 308). This implied that the settlers were only 100,000 in 1700 (Merrick and Graham, 1979).

[42] The Portuguese explorers (*donatários*) willing to go to Brazil were awarded land (*capitanias*) and, in exchange, the Portuguese Crown asked for a share or the revenue (Berg, 2010: 256).

[43] The indigenous populations were killed by European diseases (smallpox, measles, and flu) and violence. Diamond (1997: 78) estimates that 95% of the pre-Columbian Native American population was decimated by diseases.

[44] Portuguese wine arrived in Brazil after a travel of 2-3 months. Moreover, for some Portuguese wines the travel was shorter since they were produced in two islands, the Azores and Madeira, located in the North-East Atlantic Ocean. The travel conditions improved by the mid-18th century when the fortification (addition of spirits) was introduced in the production process, and both Porto and Madeira wines were able to withstand long overseas travels (Dickenson, 1995).

to South America, including to Brazil and settled there.[45] The difficult Italian unification (1815–1870) led to an economic crisis which encouraged many Italians to migrate. Italian migrants were recruited for agricultural activities both as a workforce for coffee plantations (in the south-east), and to grow crops as vines (in the south). They brought their viticultural knowledge and started producing and consuming wine (also for sacramental use during Mass).

Vines were mainly planted in Rio Grande do Sul, southernmost *estado* (state) of Brazil, which is now the main wine-growing region, responsible for 85% of the national wine production (Ibravin, 2003). Even if climatic conditions were sufficiently similar to the Italian ones, the Italian migrants had to adapt and plant the more resistant American vine varieties as *Vitis Labrusca* (Falcade, 2011; Trento, 1989). This happened around 1880s and this is when the Brazilian wine industry took off.

In Portugal, the loss of the Brazilian market contributed to a period of stagnation of the Portuguese wine industry, which was made worse later when the arrival of *Phylloxera* devastated many Portuguese vineyards later in the 19th century.

France and its American and African Colonies

> "*Phylloxera, which devastated our departments in the Midi, pushed a very large number of southern winegrowers to Algeria*."[46] (Leroy-Beaulieu, 1887, p. 367)

Planting Restrictions in 18th Century North America

There are two French colonial periods (and regions) that are of interest for our analysis. The first concerns the North American colonies of France—so-called "*New France*" (located in the east of present-day Canada and USA)—from the 16th to the 18th century. Soon after their arrival in the first half of the 16th century, French colonists started planting vineyards where the natural conditions and climate allowed it. New France had five administrative districts and four of them (Canada, Acadia, Hudson Bay, Newfoundland (Plaisance)) were located too far north and it was too cold in these regions to plant vines. Conditions for vineyards were much better in the southern district of Louisiana and wine production grew rapidly there.

However, winegrowers in France feared competition of colonial wines and wanted to assure their access to this new market for French wines. They pressured the French government to prohibit new plantings in New France.[47] Vine planting restrictions were imposed in New France by the French government in the beginning of the 18th century. The vine cultivation prohibition was introduced in Louisiana in 1721 (Mishkin, 1975). From the beginning, there were major

[45] Brazil has about 25 million Italian descendants and is considered one of the most important center of Italian population abroad (Ministero degli Affari Esteri, 2008).

[46] Translated by the authors. "*Le phylloxera, qui a dévasté nos départements du Midi, a précipité vers l'Algérie un très grand nombre de vignerons méridionaux.*" (Leroy-Beaulieu, 1887: 367).

[47] Note that England (a wine importing and consuming country) did the opposite in North America: it tried to develop (and not to restrict) a wine industry in its American colonies, in order to reduce its dependence on European wine imports (Mishkin, 1975: 151–156).

enforcement problems. These were documented in government reports as: "*this decree has been followed (…) only by very few inhabitants*" (Secrétariat d'État à la Marine, 1721).[48]

Despite these enforcement problems, the restrictions lasted under French rule. The regulations were removed only 40 years later, after the French were defeated by the British in 1763 after the Seven Years' War (1756-1763) and France had to cede its territory in North America (east of the Mississippi river) to Britain.

Planting Restrictions in 20th Century North Africa and France[49]

There was very little wine production in North Africa until late in the 19th century as the countries were Islamic and alcohol consumption was prohibited. Even under French colonial rule, wine production was very limited in the North African colonies. This changed when the spread of *Phylloxera* in the second half of the 19th century caused massive destructions of French vineyards. French wine production declined by about 70% in the 1870s and 1880s (Unwin, 1991). French winegrowers migrated to the French colonies in North Africa, taking with them know-how, technology and capital (Leroy-Beaulieu, 1887; Isnard, 1947). The French colonial administration stimulated investments in vineyards to export wine to France to compensate for the fall in French production.

From the 1880s onwards, the colonial wine industry in North Africa grew rapidly, especially in Algeria and Tunisia. In Tunisia, vine areas grew from around 6,000 hectares in 1890 to 28,000 hectares by 1925; wine production increased over the same period from 9.5 million litres to around 100 million litres (Tiengou des Royeries 1959). The most dramatic effect was in Algeria, where the area under vines increased from 20,000 to 150,000 hectares between 1880 and 1900; wine production grew from 20 million litres in 1872 to 500 million litres by 1990 and 2 billion litres by 1935. A large share of this production was exported to France, making Algeria the largest wine exporter in the world.

However, as French wine production recovered late in the 19th and early 20th century, the growing wine production in North Africa and their exports to France increasingly competed with French wine and undermined profits and recovery of the French wine sector. This resulted in major pressure on the French government to intervene. A series of policies were introduced to restrict the imports of wine in France and to restrict production of wine in the colonies.

The colonies had different relationships with France: Tunisia was a French Protectorate while Algeria was a "full" colony and part of a French custom union with zero internal trade restrictions. Imports of Tunisian wine were reduced through increased tariffs and import quotas—as were wine imports from other Mediterranean countries such as Italy and Spain. However, imports could not be imposed on Algerian wine imports. The fall in Tunisian and Spanish wine imports, and vineyard destructions during World War I brought temporary relief by raising French wine prices. However, in the 1920s, the pressure on the French wine market grew with expanding

[48] Translation by the authors: "*(…) cependant la culture deffendue par cette ordonnance n'a été suivie (…) que par très peu d'habitants (…)*" (Secrétariat d'État à la Marine, January 9, 1721).

[49] This section draws on Meloni and Swinnen (2013, 2014, 2016, 2018a).

internal production, growing imports from Algeria, and a fall in demand because of the Great Depression. Between 1927 and 1935, real wine prices declined by 50% in France.

The wine crisis induced widespread protests from French winegrowers, and the French government introduced a package of regulations in the early 1930s (the *Statut Viticole*) including restrictions on planting of vines. These applied to producers in both France and Algeria, but the regulations constrained Algerian producers harder than French producers. For instance, new planting of vines was forbidden for producers who owned vineyards of more than 10 hectares; with the average French vineyard of just 1 hectare whereas in Algeria it was 22 hectares. These laws did not immediately reduce total wine production but stopped the increase in vineyard area. The total vineyard area in Algeria never expanded beyond the level reached in the mid-1930s (400,000 hectares).

The planting rights restrictions lasted until Algerian independence in 1962. After Algerian independence, France immediately imposed high import tariffs on wine imports from Algeria. The combination of these high French import tariffs, and poor domestic management of the wine sector after its nationalization caused a dramatic fall in the Algerian wine industry after independence.

In France, the planting rights restrictions remained. As we explained elsewhere in more detail (Meloni and Swinnen 2013), the French planting rights restrictions, including forced grubbing-up (uprooting) policies, which have their roots in the colonial area of the 1930s, have a long lasting institutional legacy. Economic integration in the EEC (now the EU) during the 1960s and 1970s required the integration of different policy regimes in one EU wine policy. French wine regulations, including planting restrictions, have become an important element of today's EU wine policy and thus spread over a large part of Europe.

Conclusion

The historical cases in this paper show that colonial expansions of countries with strong wine sectors has induced growth in colonial wine production and in a later stadium triggered regulations to restrict colonial wine production, including planting rights restrictions. Such restrictions have been introduced in the course of 2,000 years of history, from the Roman Empires' expansion into Gallia and Hispania in the first century CE, during Spain and Portugal's 16th century colonization of Latin America and Brazil, and in France's 18th century colonization of North America and its 19th century colonization of North Africa.

There are several common stages of political economy. First, these wine-producing Empires looked for new markets for theirs wines and started to export to their colonies. Second, colonial land institutions were introduced and (vine-making) technologies and human capital arrived in the colonies with home country migrants (except for Brazil). Third, the colonies started to successfully produce their own wines and to compete with wines from the center. Fourth, under pressure from influential lobbies (home country wine producers), the political elites in power tried to halt the production in the colonies by restricting the planting of vines.

The Portugal-Brazil colonial experience was somewhat different in that Portugal never allowed wine production and vineyard plantings in Brazil—hence strict planting restrictions were imposed before a colonial wine industry could take off. A comparison of Spanish colonization of

Latin America and Portuguese colonization of Brazil illustrates some key structural differences that affected colonial wine production and trade and how this is reflected in their wine regulations. There were much fewer Portuguese settlers in Brazil than there were in the Spanish colonies—or in the Roman or French colonies—and the parts of Brazil that they colonized were less fit for wine production. Moreover, the majority of Portuguese settlers often just stayed a few years, with the intention to extract as much minerals as possible, and then they moved back to Portugal. The result was that there were less interests in settler investments in vineyards in Brazil, and consequently less pressure from the colony to allow a colonial wine industry to develop, and to counter political pressure from Portuguese wine producers in favor of colonial vineyard planting restrictions.

Another interesting conclusion and common observation is that colonial planting restrictions had important problems of implementation and enforcement. Planting rights restrictions from the Roman provinces in the first century to today's restrictions in the EU have been characterized by significant enforcement problems. In the colonies, these enforcement problems were even more important because of mixed incentives of local representatives of the colonial empire.

Yet, despite these enforcement problems, the planting rights restrictions, once introduced, lasted very long. Where they have been liberalized it only occurred after major political changes. As discussed in Meloni and Swinnen (2016)'s analysis of planting rights in France and the EU, old and recent history suggests that planting rights liberalization is possible but only under exceptional political and economic conditions. The analysis in this paper supports this conclusion. Only existential political threats or revolutionary changes, such as the decline of central power in the Roman Empire, the French Revolution (18^{th} century), or the loss of the colonial overseas territories, either through wars (for New France in the 18^{th} century; and Portugal in the 19^{th} century) or through the colonies' independence (for Argentina, Chile, Peru and Brazil in the 19^{th} century, and Algeria in the 20^{th} century), led to a fundamental liberalization of planting rights (after being in place for many years and, in certain cases, centuries).

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ANNEXES

Annex 1: Extract from the wine edict issued in 1595 by Philip II king of Spain – Book 4, Title 7, Law 18

« Por las instrucciones de vireyes, y otras cédula, y provisiones nuestras está prohibido plantar viñas en las Indias Occidentales, y ordenado á los vireyes, que no dén licencias para que de nuevo se planten, ni reparen las que se fueren acabando: y sin embargo de que contraviniendo á lo susodicho los vecinos, y moradores del Perú han plantado muchas, y pudiéramos proceder contra los dueños de ellas por el delito de haber contravenido á nuestras órdenes, y haber usurpado las tierras donde las han puesto: todavía por usar de benignidad y clemencia, ordenamos y mandamos, que todos los dueños, y poseedores de viñas nos dén, y paguen cada año a razón de dos por ciento de todo el fruto, que sacaren de ellas (...) queden en su fuerza y vigor las órdenes, cédulas, é instrucciones antiguas, que lo prohiben, y defienden. » (5) [Authors' translation: "Based on the instructions to viceroys, other decrees, and our decision, it is prohibited to plant vines in the West Indies and the viceroys cannot issue licenses to plant or replant the vines: And yet that in contravention to the aforesaid, the neighbors and inhabitants of Peru have planted many, and we could proceed against the owners for the offense of having contravened to our orders, and have usurped the lands where they have planted the vines: Nevertheless, using kindness and mercy, we order and command that all vine owners give and pay to us each year two per cent of the fruit that they take from them (…) the previous orders, decrees, and instructions which prohibit it (vine planting) remain in force."]

Source: Recopilación de las leyes de los reinos de Indias (1841, Vol. 2, p. 133).