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THE POLITICAL ECONOMY OF EUROPEAN WINE REGULATIONS

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Abstract

The EU wine market is heavily regulated. Despite the many distortions in the wine market as a consequence, reforming the regulations has proven difficult. This paper analyses the political economy mechanism that created the existing set of wine regulations. We document the historical origins of the regulations and relate these to political pressures that resulted from international integration, technological innovations and economic developments.

Keywords: European agriculture, wine history, regulation, appellations, institutions.

JEL classification codes: K23, L51, N44, N54, Q13.

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Introduction

"The 'protection of the public' theory of regulation must say that the choice of import quotas is dictated by the concern of the federal government for an adequate domestic supply of petroleum in the event of war – a remark calculated to elicit uproarious laughter at the Petroleum Club."

George Stigler
The Theory of Economic Regulation, 1971, p. 4

Almost half of the world's vineyards are in the European Union (EU) and the EU produces and consumes around 60% of the world's wine.[1] The EU is not only the largest global wine producing region, the main importer and exporter in global wine markets, it is also the global champion of regulation and government intervention in wine markets.

Government interventions have taken many forms in the EU wine markets. Regulations determine where certain wines can be produced and where not, the minimum distances of vines, the type of vines that can be planted in certain regions, yield restrictions, etc. In addition public regulations determine subsidies to EU producers and wine distillation schemes.[2] The EU also determines public subsidies to finance grubbing-up (i.e. uprooting) schemes to remove existing vineyards, and imposes a limit on the planting of new vineyards (see further in this paper for more details). The extent of the regulatory interventions – and the associated market interventions – is possibly best illustrated by the observation that in the past three decades every

[1] Worldwide production increased from of 213 million hectoliters in 1961 to 244 million hectoliters in 2011. France, Italy and Spain together produced 122 million hectoliters of wine in 1961 and about the same production in 2011. Wine production in New World wine countries (Argentina, Australia, Chile, China, New Zealand, South Africa and USA) increased from 30 million hectoliters in 1961 to 81 million hectoliters in 2011 (OIV, 2007; OIV, 2012b; FAO, 2012).

[2] Wine distillation is the process by which wine is transformed either into raw alcohol and spirits which are sold as potable alcohol, or into industrial alcohol for later use in chemical or carburation processes (European Commission, 2006a). The second transformation (the so-called "crisis distillation") is used by the European Union as a market intervention system.

year on average 20 to 40 million hectoliters of wine have been destroyed (through distillation) – representing 12% to 22% of EU wine production or, in other words, the equivalent of 3 to 6 billion bottles (European Commission, 2006a and 2009).

There are several remarkable features to wine regulations in the EU. One of the most striking conclusions of economic studies on the EU's wine markets is that the policies have caused – rather than resolved – some major distortions in the wine sector.[3] This, of course, raises some intriguing questions about why these policies have been introduced.

The objective of our paper is to explain why these regulations have been introduced. We will analyze the historical origins of these regulations and relate these to political pressures that resulted from economic developments. Analyzing the historical roots and political motivations of regulations in the EU, how they were introduced and how they have (not) continued to affect current regulations provides interesting insights in the current EU policy regime.

Our paper will also yield some general insights on the political economy of government regulations.[4] The EU wine sector is a fascinating case study because the wine regulations are so pervasive. More than two thousands regulations, directives and decisions on wine have been published since 1962 in the EU. As we will document in the next sections, the main wine framework law of 1962 was reformed five times (Petit, 2000; Council Regulation No 479/2008).

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[3] See various studies on the wine sector by the European Commission in 2004, 2006 and 2007. In particular, the 2004 EU report asserts that: "*Distillation of wine measures are neither effective nor efficient in eliminating structural surpluses. Distillation measures involve fairly high EU expenditure. The short-term income support through buying-in of wines for distillation stabilises surplus production in the long-term (…). Additionally, continuous implementation of distillation measures producing industrial alcohol out of wine might be an incentive for higher yields (…).*"

[4] There is an extensive literature on the political economy of government regulations and public policy. Early contributions are Downs (1957), Olson (1965), Stigler (1971) and Becker (1983). For a review of recent contributions, see Rausser et al. (2011); and for applications to food policy and EU agricultural policy see Swinnen (2008, 2009, 2010).

As we will argue, some of the regulations were introduced to protect existing rents when these were threatened by innovations or surging imports. Other regulations, however, appear to both enhance welfare (efficiency) and redistribute rents, which makes their analysis both more complex and rich. The case is also particularly insightful because of its long history in regulation. As parts of Europe were the main wine producing region about two millennia ago, it provides a fascinating case of how increased production and innovations have induced regulatory changes.

Conceptual Framework

"That the vineyard, when properly planted and brought to perfection, was the most valuable part of the farm, seems to have been an undoubted maxim in the ancient agriculture, as it is in the modern through all the wine countries."

Adam Smith, 1776, Book 1 Chap XI: Of the Rent of Land. pp 216

As we will document in the next section, European policies have tried to regulate both the quantities, prices and qualities of wines. As with many government interventions in other food and agricultural markets, the quantity and price regulations can only be understood from a political perspective, i.e. by analyzing how the political pressures induced by the rents created by the regulation influenced government decision-making.[5] Their primary purpose is to redistribute rents between different groups in society, in particular from (potential) new producers of wine and from consumers of wine to the existing producers. These interventions typically reduce overall welfare and efficiency.

[5] There is an extensive literature on the political economy of agricultural and food policies (see de Gorter and Swinnen (2002) and Swinnen (2010) for surveys) but there have been no applications to wine policies.

In contrast, regulations to guarantee a certain quality of wine, as many products and process standards in general, may increase efficiency and overall welfare. In an environment with asymmetric information between producers and consumers where consumers have imperfect information and high ex-ante monitoring costs about the quality of a certain product, such as wine, government regulations that guarantee a certain quality or safety level, or that reduce information costs, can enhance overall welfare. Similarly, regulations that forbid the use of unhealthy ingredients may increase consumer welfare by reducing/eliminating problems of asymmetric information. For example, some of the early regulations target the dilution of wine with water which hurts consumer interests and producer reputations.[6]

However, quality regulations also affect income distribution. Depending on their implementation, they may create rents for certain groups of producers who face fewer costs in implementing certain quality standards of for those who have access to key assets or skills that are required by the regulations.[7] For example, regulations that restrict the production of certain types of (expensive) wines to a certain region will benefit the owners of the fixed factors (such as land and vineyard) in that region and will harm the owners of land and vineyards in neighboring regions.

It is clear that some of the EU wine quality regulations have strong income distributional effects as they require access to very specific assets, such as plots of land in specific regions. In fact, the official EU regulations explicitly specify that "*the concept of quality wines in the*

[6] More recent regulations specify that the use of certain ingredients must be indicated on the label. Since 2006, sulfites (added to preserve wine) must be disclosed on the labelling since these additives may cause allergic reactions (Article 51 of Council Regulation No 607/2009).

[7] There is an emerging literature on the political economy of food standards which focuses on the interaction between rent distribution and welfare enhancement (see e.g. Anderson et al., 2004; Fulton and Giannakas, 2004; Moschini et al., 2008; Swinnen and Vandemoortele 2008, 2009) but none of these insights have been applied to wine policies.

Community is based … on the specific characteristics attributable to the wine's geographical origin. Such wines are identified for consumers via protected designations of origin and geographical indications." (OJ 6.6.2008: Council Regulation No 479/2008 of 29 April 2008 Article 28). Other examples of so-called quality regulations with clear rent distributional effects are cases where regulations do (not) allow certain new techniques, such as the use of hybrid vines, the mixing of different wines (e.g. in rosé wine production), the use of new vine varieties, etc.

In historical perspective, this approach to quality regulation in the EU is not an exception, but the rule. In fact, throughout history, quality regulations for wine have been motivated both by efficiency considerations and in order to restrict the production of wines to certain regions (which created rents for land- and vineyard-owners in those regions) or certain technologies (again creating rents).[8] Moreover, even when regulations were primarily introduced for efficiency reasons they have invariably created rents and induced lobbying to keep these regulations in place after their efficiency effects had been mitigated (Meloni and Swinnen, 2012).

In summary, to understand the existing set of quantity and quality regulations, it is crucial to look at the interactions of political and economic aspects of the regulations.

[8] Throughout history, owners of vineyards and wine producers have been among the rich and powerful. Not surprisingly the profits and power of existing wine producers and vineyard owners attracted others to invest in wine production and induced innovations. These new investments and innovations threatened the rents and power of the established vineyard owners and caused protectionist reactions. There are many examples of such political economy processes which resulted in significant regulations in wine markets during Roman times, the Middle Ages, the Renaissance period and in the past few centuries. Whenever changes threatened to reduce their rents, established producers have sought to constrain or outright remove the threat of new developments through political means. They lobbied governments to constrain threats to their rents through regulatory initiatives. Because of their wealth and power they were often successful (see Meloni and Swinnen, 2012).

EU Regulations and the Wine Lake[9]

The EU has, since the 1960s, introduced a vast set of regulations in the wine sector, the so-called Common Market Organization (CMO) for wine.[10] Tables 1-3 provide a detailed list of the regulations. Here we summarize some key elements. We first focus on quality regulations, later on quantity and price regulations.

Quality Regulations in the EU

> *"Poured from the bottle, the ruby-colored liquid looks like wine. Swirled around a glass, it smells like wine. Sure enough, it tastes like wine, too. But, at least within the confines of the European Union, the closest it may come to be being called wine is "fruit-based alcoholic beverage."*[11]
>
> *Stephen Castle, May 29, 2012, The New York Times*

The EU has introduced a series of regulations with the official intention to affect the quality and location of the wine supplies. So-called "quality regulations" include a variety of policy instruments, such as the geographical delimitation of a certain wine area, winegrowing and production rules (as regulations on grape variety, minimum and maximum alcohol content

[9] For a detailed review of EU wine policies, see Council Regulations of 1962, 1970, 1979, 1987, 1999 and 2008; Europa (2008) and European Commission (2008a). In 2009, the wine regulation of 2008 merged into the Single CMO Regulation (EC) No 1234/2007, that formally integrates in one document all the CMOs of agricultural products (Council Regulation (EC) No 491/2009).

[10] "*A common market organisation is a set of measures that enables the European Union firstly to manage (…) markets for agricultural products and secondly to support the incomes of farmers.*" (European Commission, 2008b). These common rules for agricultural markets include, for instance, public interventions and production standards.

[11] Wine produced in the EU from grapes which are not produced within the EU cannot be named "wine". This principle was already adopted in 1962 where "*imported fresh grapes (…) shall not be turned into wine*" (see Articles 28 of the Council Regulation No 816/70). In April 2012, English winery Chapel Down could not sell its "wine" made from grapes shipped from Argentina and had to name the beverage a "fruit-based alcoholic beverage" (Castle, 2012).

and maximum vineyards yields, the amount of sugar or the additives that can be used – i.e. so-called "oenological practices") and rules on labelling.

Quality regulations were part of the initial wine policy in 1962[12] and have been strengthened since.[13] They apply to both "low quality" (so-called "wines without a Geographical Indication (GI)", previously called "table wines") and "high quality" wines (so-called "wines with a Geographical Indication (GI)", previously called "quality wines").[14]

The EU heavily regulates "wines without a GI" and their quality requirements by defining the oenological practices (indicating the recommended/authorized varieties or the maximum enrichment/alcohol per volume allowed), by requiring particular methods of analysis[15] and by restructuring and converting vines.[16] For "wines with a GI" it only sets the minimum legal framework. It is up to each member state to determine its own system of classification and

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[12] *"(…) whereas the common organization must aim at stabilizing markets and prices by adjusting supplies to requirements, such adjustment being directed in particular towards quality production*" (Council Regulation (EEC) No 24/1962, Preambles at (3)).

[13] Regulations of 1970, 1979, 1987, 1999 and 2008 included provisions that strengthen the requirements in order to increase quality.

[14] In the pre-2008 system, EU wines were classified into two categories: "quality wines produced in specified regions" (abbreviated to "quality wines") and "table wines" (separated into table wines protected by geographic indications and those not protected by geographic indications). The 2008 regulation transformed the EU wine classification: wines are now divided into "wines with a GI" and "wines without a GI". Within the first category, there are two subcategories: Protected Designation of Origin (PDO) wines and Protected Geographical Indication (PGI) wines, with PDO as the highest quality level. With the 2008 regulation, certain table wines (as French VdP or Italian IGT) were elevated to the rank of wines with a GI (PGI). Even if the new classification harmonized the wine market with other EU food products that already adopted the PDO/PGI system, member states still have the possibility to use these national classifications on the labels. So far only Romania adopted the PDO/PGI system, casting doubts on the 'simplicity' of the system (Cagliero and Sardone, 2009).

[15] Grapes and musts analysis regards three components, sugar, acid and pH. For instance, for wines without GI, the alcoholic strength ranges between 8.5 and 15 per cent by volume and total acidity content of not less than 3,5 grams per litre. In addition, wine analysis involves alcoholic strength, total acidity, pH, density, residual sugar, and mineral elements, such as iron, copper, sodium and potassium (Robinson, 2006: 22; Council Regulation No 479/2008).

[16] Support for restructuring and conversion of vineyards includes: varietal conversion, relocation of vineyards and improvements to vineyard management techniques. It involves, for instance, uprooting existing old vines and planting new vines but also, among others, terracing, stone picking, soil disinfection and land leveling, with the aim of improving vineyard's quality (Council Regulation No 479/2008, Article 11).

control.[17] For this reason, within the EU, "wines with a GI" and "wines without a GI" can have different meanings between member states (Robinson, 2006:678).

The EU further regulates "high quality" wines based on a system of Geographical Indications (GIs), based on the French concept of *Appellation d'Origine*. Appellation of Origin is "*the name of the country, region or the place used in the designation of a product originating from this country, region, place or area as defined to this end, under this name and recognised by the competent authorities of the country concerned.*" (OIV, 2012a). A name place is thus used to identify the wine and its characteristics, which are thus defined by the delimited geographic area and specific production criteria (so-called "*cahier des charges*" in France or "*disciplinare di produzione*" in Italy).[18] These governing rules delimit the geographic area of production, but also determine the type of grape varieties that can be used, the specific wine-making methods, the maximum yield per hectare and the analysis of wines (assessment of organoleptic characteristics –as appearance, color, bouquet and flavor– and a chemical analysis that determines the levels of acidity and alcohol). This implies that the wine's denomination can only be attributed if the grapes are grown and pressed in the delimited region and the wine production process fulfills certain criteria. For instance in the case of "Chianti Classico", specific varieties of grapes have to be grown in one of only nine villages in Italy.[19]

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[17] For instance, wines with a GI in Italy are regulated by the Governmental Legislation 164/92 and by the Ministerial Decree 256/97 and three categories are defined: Controlled and Guaranteed Denomination of Origin (DOCG) and Controlled Denomination of Origin (DOC) and Typical Geographical Indication (TGI). The DOCG are subject to stricter requirements compared to DOC (Federdoc, 2012).

[18] See annex 1 for an example of such "*cahier des charges*" regulation applied to Bordeaux wines.

[19] The area includes the villages of Barberino Val d'Elsa, Castellina in Chianti, Castelnuovo Berardenga, Gaiole in Chianti, Greve in Chianti, Poggibonsi, Radda in Chianti, San Casciano Val di Pesa and Tavarnelle Val di Pesa In order to produce a Chianti Classico DOCG, the varieties of grapes used in the preparation of the wine are fixed: 80% of Sangiovese, plus 20% of either native varieties like Canaiolo or "foreign" types like Merlot Cabernet and Sauvignon (Consorzio Vino Chianti Classico, 2012).

As part of these "quality regulations" the EU also specifies the type of labels that can and should be used. Until 2008, labels listed only the geographical areas but not the wine's grape composition. For instance, the indication of "Burgundy" was mentioned but not that of Pinot noir (the name of the grape).[20] The 2008 wine reform introduced changes in labelling for wines without a GI. The label now allows to mention grape variety and harvest year, thus facilitating the identification of the product's characteristics.[21] This aligns European producers with new world wine producers (like Australia and California) who document on their labels the brand and the grape variety rather than the area of origin where the wine is produced (Maher, 2001).

Quantity and Price Regulations in the EU

"The market mechanism measures have often proved mediocre in terms of cost effectiveness to the extent that they have encouraged structural surpluses without requiring structural improvements. Moreover, some of the existing regulatory measures have unduly constrained the activities of competitive producers."

The Council Regulation (EC) No 479/2008, Preamble at (3).

In addition to the so-called "quality regulations", the EU has a series of policies that influence the amount and price of wine produced in Europe. Since the start of the EU Common Wine Policy, the EU has imposed minimum prices for wine and organized public intervention in wine markets to deal with surpluses. Surpluses were either stored or distilled into other products with heavy government financing. In addition to distillation and market intervention, the EU

[20] Germany is an exception. The classification system is based on grapes' sugar levels, ripeness of the grapes and regional classification rather than only on geography (Maher, 2001).

[21] Article 50 of the Council Regulation (EC) No 479/2008.

wine policy included measures to restrict productions such as restricted planting rights[22] and vineyard grubbing-up schemes.[23]

Despite these regulations, for decades, the wine market in the EU has been characterized by what is typically referred to, in EU Commission documents, as "structural imbalances", meaning – in layman's terms – the production of vast surpluses of "low quality" wine that nobody wants to buy.

In fact, experts argue that the EU's wine policies, instead of contributing to a solution, have exacerbated the problem. Wyn Grant's (1997) review of the EU's wine policy distortions summarized the problems well under the heading 'The Wine Lake' (p 137-138): *"The EU tries to cope with the situation by siphoning wine out of the lake for distillation (for example, into vinegar) and by grubbing up vines from the vineyards on the hills around the lake. [However,] the problem is that EU-financed distillation is a positive stimulant of over-production of largely undrinkable wine, since it maintains less efficient growers of poor quality wine which would have given up long since if it were not for the EU support system. … The EU is losing ground in the expanding middle sector of the market [to New World wines]… The EU thus finds itself running a wine support policy that costs around 1.5 billion [euro] a year, involving the annual destruction of an average of 2-3 billion litres of substandard and undrinkable wine."* The situation did not improve much over the next decade: in the mid-2000s, an average around 20 million hectoliters of wine was being distilled every year (see Table 5).

[22] Planting rights is a system to control European wine grape production. A wine-grower can only plant a vineyard on his land if he has a permission, i.e. a "planting right", to plant vines for the production of any category of wine.

[23] Grubbing-up premium are given by the EU to winegrowers who permanently (and voluntarily) abandon vineyards.

Over the years, the EU Commission has launched several attempts to reform its wine policy but has faced stiff resistance from wine producers and political opposition from the member state governments.[24]

In 2006, the EU Commission proposed a set of bold reforms which included the immediate elimination of traditional market intervention measures (such as distillation, aid for private storage[25], export refunds[26] and planting rights), the consolidation of previously adopted measures (such as restructuring and conversion of vineyards), the parallel introduction of new measures (such as green harvesting[27], investment[28], promotion in third countries[29], mutual funds[30] and harvest insurance[31]), and simplified labelling rules with the intention to make EU wines more competitive with New World wines (European Commission, 2006c, 2006d, 2007a, 2007b, 2007c; Cagliero and Sardone, 2009). Surpluses would then be eliminated through ex-ante

[24] In 1994, the EU Commission attempted to reform the wine market but failed (Maillard, 2002). The 1994 Uruguay Round agreement resulted in lower tariffs and increased global competition from New World wines coming from South America, Australia and South Africa. In 1999, a new wine CMO was finally adopted, as part of Agenda 2000. The reform confirmed the ban on new vineyard plantings until 2010, changed the distillation policy from compulsory to voluntary distillation (i.e. "crisis" distillation in case of serious and exceptional structural surplus) and introduced restructuring and conversion measures for vineyards (Conforti and Sardone, 2003). However many problems continued, and the surplus problems were reinforced with decreasing wine consumption in the EU and growing competition (and imports) from New World wines.

[25] In years of overproduction, aid for private storage was a support given to winegrowers to store their wine surplus.

[26] Export refunds covered the difference between world and EU market prices (European Commission, 2004).

[27] Green harvesting is the destruction of the grapes before harvest (Council Regulation No 479/2008, Article 12).

[28] Support may be granted for "*investments in processing facilities, winery infrastructure and marketing of wine*" (Council Regulation No 479/2008, Article 15).

[29] The measures include, among others: public relations, promotional or advertisement measures; participation at events, fairs or exhibitions; and information campaigns (Council Regulation No 479/2008, Article 10).

[30] This measure was foreseen to "*provide assistance to producers seeking to insure themselves against market fluctuations*" (Council Regulation No 479/2008, Article 13).

[31] Support may be granted to "*safeguarding producers' incomes where these are affected by natural disasters, adverse climatic events, diseases or pest infestations*" (Council Regulation No 479/2008, Article 14).

measures (green harvesting) and not through ex-post measures (aid for private storage or distillation[32]).

Moreover, the available budget[33] would be allocated in national support programmes or envelopes (see Table 2), according to national priorities, thereby strengthening the power of the regions. Producers could be compensated through decoupled farm payments (under the so-called Single Farm Payment scheme which has been implemented in reforms of other commodity market regimes since 2003).[34]

The reform was approved in 2007, albeit after significant modifications. Because of strong opposition, some reforms were dropped (e.g. banning enrichment through the addition of sugar), diluted (e.g. grubbing-up was reduced from 400.000 to 200.000 to 175.000 hectares[35]) or their implementation delayed (e.g. crisis and potable alcohol distillation[36] and use of concentrate grape must will be phased out by 2012) (Gaeta and Corsinovi, 2009).

Also on another key element the implementation of the reform was delayed. The Commission proposed that planting rights restrictions should be removed by 2013 allowing producers to freely decide where to plant. However, the Council decided that current regime on

[32] For instance, distillation removed wine surpluses ex-post, thereby creating an artificial demand for wine, with winegrowers producing wine intended for the more rentable distillation market.

[33] The total available wine budget is 5.3 billion euro (2009-2013). In 2011, the restructuring and conversion measure accounted for 41% of the member states' national support programmes, reaching 97% of EU's subsidies in Romania. Distillation has now a minor role, only accounting for about 12% of the national support programmes. A complete policy reversal since, in the last 20 years, the measure accounted for 50% of the CMO budget (European Commission, 2004; European Commission, 2012).

[34] Member states that have implemented this measure in their national support programmes are: Greece, Luxembourg, Malta, Spain and UK (European Commission, 2012).

[35] Because of over-subscription, the Commission initial proposal proved to be right. The total EU demand for grubbing-up was equal to 351.223 ha of vines, a number extremely close to the initial EU Commission proposal (400.000 ha). Only 50,4% of the areas claimed could be accepted (European Court of Auditors, 2012).

[36] From August 2012, the EU put an end to two distillation schemes (crisis and potable alcohol), maintaining the option for Member States to require by-product distillation.

planting new vines will not be lifted until 2018 for the member states wishing to continue the restrictions. However, opponents of the liberalization have since organized themselves to overturn the liberalization decision. The first countries to express their wish to do so were Germany and France in 2010. Since then all EU member states which produce wine have joined in asking for a continuation of plating rights. The countries votes are now close to reaching a qualified majority (EFOW, 2012).

The difficulties to reform in the face of strong opposition by EU producers is an interesting – yet hardly innovative – insight. It is well known that regulations breed their own interest groups which attract rents from the regulations and oppose their removal. Moreover, the particularities of the EU decision-making process tend to contribute to a preservation of the status quo[37] (Pokrivcak et al., 2006).

What is particularly interesting in this case is to look into the historical origins of the EU wine regulations, to see when they were introduced, and why, and how they have persisted or changed since their introduction. A large part of the current EU wine regulations have their roots in French and Italian national regulations prior to the integration in the European Economic Community (EEC) – the predecessor of the EU. In the next sections, we will therefore present a historical perspective on the political economic origins of some of the key regulatory interventions in Europe. Since, as we will argue in detail further, it is particularly the French regulations which played a crucial role in shaping EU wine policies, we start by analyzing the roots and causes of the key French wine regulations.

[37] Swinnen (2008) documents how radical reforms in EU agricultural policy were possible only when several external changes (both economic, political and institutional) occurred simultaneously – a "perfect storm".

The Political Economy of French Wine Regulations in the 19th and 20th centuries[38]

The creation of the *Appellations d'Origine Contrôlées (AOC)* [39]

By the mid-nineteenth century, viticulture played a major role in France's economic development. It created income, wealth and employment for many citizens.[40] However, a dramatic invasion of vine disease *Phylloxera* in the following decades had dramatic consequences and destroyed many vineyards. *Phylloxera* came accidentally from North America in 1863. Contrary to American native vine species (such as *Vitis riparia* or *Vitis rupestris*), European vine species (*Vitis vinifera*) were not resistant to it.[41] One-third of the total vine area was destroyed[42] with wine production dropping from 85 million hectoliters in 1875 to 23 million hectoliters in 1889 – a 73% decrease (Augé-Laribé, 1950; Lachiver, 1988). While potential cures for *Phylloxera* were tested[43], France became a wine importing country. Since the French government wanted to prevent consumers to turn to other alcoholic beverages, table wines were imported from Spain, Italy and Algeria (which was French territory from 1830 to 1962).[44] The Algerian vine area increased from 96.000 hectares in 1890 to 145.000 hectares in 1900, with

[38] Some key French regulations precede the 19th century. For example, during the 14th century, Philip the Bold laid the first stone for Burgundy's delimitation. The 1395 edict can be perceived as a precursor of the modern *Appellation d'Origine Contrôlée* system. See Meloni and Swinnen (2012) for details.

[39] Many authors analyzed in detail the state intervention in the French wine market and the creation of 20th century French regional Appellations. See e.g. Warner (1960), Lachiver (1988), Loubère (1978 and 1990), Ulin (1996) and Simpson (2011).

[40] Wine employed one and a half million family winegrowers, contributed to about one-sixth of France's revenues and was the second export after textiles (Paul, 1996:9).

[41] Ordish (1987), Paul (1996) and Gale (2003, 2011) extensively analyzed the causes and cures for *Phylloxera*.

[42] Before *Phylloxera*, about 2.3 million hectares were planted with vines. By 1900, vineyard surface dropped to about 1.6 million hectares, with replanted vines reaching 1.2 million hectares (Lachiver, 1988).

[43] The remedies included flooding vineyards, chemical treatments (as carbon disulfide) or natural brews made, for instance, with tobacco or sea salt (Tyman, 1879; Paul, 1996).

[44] Greece also witnessed a large extension of vineyards, with dried grapes used by French wine producers instead of fresh grapes (Critz, Olmstead and Rhode, 1999).

exports to France reaching 3.5 million hectoliters in 1897. French imports of wine rose from 0.1 million hectoliters in 1870 to 12 million hectoliters in 1888 (Isnard, 1947; Augé-Laribé, 1950).

However, by the beginning of the 20th century, French vineyards were gradually reconstructed and production recovered thanks to hybrid grape varieties and grafting.[45] The first solution – hybrids – was found by crossing two or more varieties of different vine species. Hybrids were either the result of genetic crosses between American vine species (so-called "American direct-production hybrids"[46]) or between European and American vine species (so-called "French hybrids"). The second solution – grafting[47] – consisted in inserting European vines on to the roots of the *Phylloxera* resistant American vine species (Paul, 1996; Gale, 2011).

The solutions to *Phylloxera* led to two new problems. First, French domestic production recovered and cheap foreign wines now competed with French wines, thus leading to lower prices. Second, as a reaction to low prices two types of quality problems became common: imitations of brand-name wines to capture higher value markets and adulterations to compete with cheap wine imports. Examples of imitations were the production of false "Burgundy wines" or "Bordeaux wines", labeled and sold as Burgundy or Bordeaux but produced in other parts of France. Examples of wine adulteration were that producers used wine by-products at the maximum capacity (for instance by adding water and sugar to grape skins, the *piquettes*), or

[45] The initial search focused on chemical treatments. Carbon disulfide managed to temporally halt the vines' destruction, but it was expensive. Scientists continued to search for cheaper and long-lasting solutions (Loubère, 1978 and 1990).

[46] These "American hybrids", as Clinton, Isabelle and Noah, were developed in the US at the beginning of the 19th century. They were directly planted into the French soil as a first solution to the vine diseases. However, by 1890-1900, due to their low resistance to *Phylloxera*, they were replaced by either grafting or Euro-American hybrids (Couderc, 2005).

[47] An earlier example of grafting is from 16th century Spanish Mexico, where in 1524 Hernán Cortés, Spanish *conquistador*, ordered to graft European vines on American rootstocks in Mexico (Hyams, 1965).

produced wines from dried grapes instead of fresh grapes[48] or mixed Spanish or Algerian wines with French table wines in order to increase the alcoholic content, or added plaster or coloring additives (as sulfuric or muriatic acids) in order to correct flawed wines (Augé-Laribé, 1950; Stanziani, 2004).

The French government introduced a series of laws aimed at restricting supply and regulating the quality of the wines. A 1889 law first defined wine as a beverage made of the fermented juice of grapes, thereby excluding wines made from dried grapes (Milhau, 1953). A 1905 law aimed at eliminating frauds on wine characteristics and on their origins.[49] This law and a series of other laws also tried to regulate "quality" by introducing an explicit link between the "quality" of the wine, its production region (the *terroir*) and the traditional way of producing wine. In this way, the regional boundaries of Bordeaux, Cognac, Armagnac and Champagne wines were established between 1908 and 1912.[50] These regional boundaries were referred to as *Appellations*.

A few years later, in 1919, a new law specified that if an *Appellation* was used by unauthorized producers, legal proceedings could be initiated against its use. Later, the restrictions grew further: a 1927 law placed restrictions on grape varieties and methods of viticulture used for the *Appellations* wine (Loubère, 1990). Not surprisingly these regulations

[48] In 1887, sugar wines and dried grapes wines accounted for 11% of total wine production (Insee, 1935 and 1966).

[49] A 1907 law forbade *mouillage* (addition of water) and *sucrage* (addition of sugar) of wines (Legifrance, 2011).

[50] These laws were also the result of the winegrower's revolt in the South of France and in the Champagne region. Their collective political activities consisted of pressuring politicians through through street protests and even violence. For example, in the early 20th century, during their "revolutionary phase", winegrowers imposed their opinions with so-called *actions directes*, which included mutinies, pillages, burning down of city halls with deaths and injuries as a consequence (Bonal, 1984; Martin, 1998; Bagnol, 2007; Jacquet, 2009; Wolikow, 2009).

were heavily supported by representatives of the *Appellations* regions who held key positions in parliament.[51]

Finally, in 1935, a law created the *Appellations d'Origine Contrôlées* (AOC) – which formed the basis for the later EU quality regimes. The law combined several of the earlier regulations: it restricted production not only to regional specific origins (through areas' delimitation) but also to specific production criteria as grape variety, minimum alcohol content and maximum vineyards yields (adding the "Controlled" adjective to the "Appellation of Origin" concept). Moreover, the *Comité National des Appellations d'Origine* (National Committee for Appellations of Origin), a government branch established to administer the AOC process for "high quality" wines, was established (Stanziani, 2004; Simpson, 2011).[52]

Somewhat paradoxically, instead of reducing the number of *Appellations*, the 1935 system encouraged the creation of AOC wines in France. In 1931, the *Statut Viticole* tightly regulated French table wines while the Appellations of Origin wines were exempted from it. This induced many table wines producers to ask for an upgrading to the higher wine category. The share of *Appellation* wines production increased from 17% in 1931 to 30% in 1980s and to 50% in 2010 (Eurostat, 2012).

The battle over hybrid vines

Underlying these increasingly tight "quality" regulations in France was a major battle over the regulation of hybrids, one of the two practices used to cure vines from *Phylloxera*. This

[51] In 1919, Joseph Capus was elected deputy of the Gironde (the Bordeaux wines production area) and he was also the president of the Parliamentary committee called «*des grands crus*» (great vintages).

[52] In 1947, the institution was renamed *Institut National des Appellations d'Origine,* INAO (National Institute for Appellations of Origin) and, in 2007, *Institut National de l'Origine et de la Qualité* (National Institute for Origin and Quality), keeping its acronym INAO.

battle continued through most of the 20th century.[53] A strong division of interests existed between the *Appellation d'Origine* producers, located in Bordeaux, Champagne or Burgundy, and producers from other regions. Grafting was the preferred solution for the *Appellations* regions since it allowed to keep European *Vitis vinifera* characteristics, with the same productivity and quality. On the other hand, wine producers from other regions used hybrids since the new vines were more productive, easier to grow and more resistant to diseases. They required less winegrowing experience, less pesticides and less capital (Paul, 1996).

However, these diverging interests were not equally represented. The *Appellations* producers and winegrowers were grouped in associations that had much influence with the authorities.[54] Wine producers from other regions were not as well organized. For instance, in the Champagne AOC region, three powerful and unified lobbying groups existed: the *Fédération des Syndicats de la Champagne* that represented winegrowers; the *Syndicat du Commerce des Vins de Champagne* that promoted exports of the *Maisons de Champagne*[55]; and the *Association Viticole Champenoise* that stood for the interests of both winegrowers and *Maisons de Champagne* (Comité Interprofessionnel du Vin de Champagne, 2003; Wolikow, 2009). The elevated political power of the *Appellations* wine regions was therefore determined by commerce

[53] Interestingly, diverging views were also present in the research community. Two schools of agriculture were opposing: the University of Montpellier in southern France (promoted grafting) and the University of Bordeaux (promoted hybrids). Montpellier searched the best way to physically bond American roots to French scions, while Bordeaux breeders genetically crossed vine varieties. By the end of the 19th century, the government (Ministry of Agriculture and local politicians) allied with the school of Montpellier and promoted grafting (Paul, 1996:100).

[54] The creation of these associations was promoted by the 1884 French law that legalized labor unions (Simpson, 2011).

[55] Champagne houses (the *Grandes Marques* as Veuve Clicquot or Moët&Chandon) were producers (*négotiants*) that acquired grapes and established long-term contracts with winegrowers throughout the Champagne region, thereby undertaking the high costs and risks of elaborating *cuvées*. Even nowadays, two third of the sales and 90 per cent of the exports is done by around 100 Champagne houses owning 4 000 ha, or 12.5% of the land (Union des Maisons de Champagnes, 2012).

–with brand-names, strong reputations and large economic benefits[56]– and protected by political organizations, i.e. these active and well organized unions.

Under pressure from the *Appellations*, the French government then decided to restrict the use of the cost-decreasing technology (hybrid vines). The first "quality law" that limited the use of hybrids was introduced in 1919 and modified in 1927 restricting *Appellations* wines to non-hybrid grapes.[57] In addition, three other laws against hybrids were approved in less than ten years. First, the 1929 law forbade chaptalization for hybrids, a technique allowed for European vine varieties (*Vitis vinifera*). Second, the 1934 law stated that uprooted *Vitis vinifera* could only be replanted with vines registered by local authorities. Third, the 1935 law prohibited six vine varieties deriving from hybrids (Noah, Othello, Isabelle, Jacquez, Clinton and Herbemont). The invoked argument to support the 1935 prohibition was safety, since wines produced with American varieties were argued to contain a significant amount of methyl alcohol harmful for human consumption.[58]

Yet, despite these regulations, the planting of hybrids spread as many wine producers disobeyed the laws. Since hybrids could survive in more humid and cooler climate, regions that

[56] In 1910, in the Champagne region, in Hérault and Aude, wine was sold at 25-30 francs per hectoliter with production costs of about 12-15 francs per hectoliter (Augé-Laribé, 1950).

[57] The 1927 law regulated the varieties of grape allowed for specific Appellation of Origin (for instance Champagne wine producers could only use Pinot Noir, Pinot Meunier or Chardonnay) and required that wines coming from hybrids could not in any case receive an Appellation: «*Les vins provenant des hybrides producteurs directs n'ont en aucun cas droit à une appellation d'origine*.» (Capus, 1947).

[58] Methyl alcohol was supposed to drive people mad; nowadays it's an obsolete argument. Moreover, the fact that the first experimental French hybrids gave undrinkable wines certainly influenced the mind of winegrowers and consumers, thereby inducing suspicious reactions to the new technology. Indeed, it took almost 30 years to German researchers, at the Geilweilerhof Institute for Grape Breeding, to breed the new cultivar *Regent*. This non-*vinifera* variety is part of a new generation of hybrids (called "disease-resistant varieties") that can compete with "high quality" wines, with the advantage of being more resistant to diseases and less pollutant since agrochemicals are not used. Furthermore, researchers have not found essential differences in characteristics between *vinifera* and non-*vinifera* varieties (European Commission, 2003; Federal Centre for Breeding Research on Cultivated Plants, 2009).

never had a strong wine tradition took advantage of it (Milhau, 1953). By the end of the 1950s, hybrids occupied one third of France's total vine area and represented 42 per cent of table wines (see Figure 1; Paul, 1996).

The *Statut Viticole*

Other factors also played a role in inducing more regulations. While import restrictions had reduced imports from Spain, Italy and Greece,[59] vineyards continued to expand in Algeria and to put pressure on the French market. Algerian wine production doubled from 7 million hectoliters in 1920 to 14 million hectoliters in 1930 (Milhau, 1953). French demand was not able to absorb the extra wine and the market faced persistent wine surplus. This resulted in new regulations in the 1930s.

Regulations on the supply of wine were introduced between 1931 and 1935 – called the *Statut Viticole*[60] (Munholland, 2006; Sagnes, 2009). The *Statut Viticole* was a combination of several policies to reduce the wine supply. It included an obligation to store part of the excess production (so-called '*blocage*')[61], obligatory distillation[62], the establishment of a levy on large crops and yields,[63] a ban on planting new vines and grubbing-up over-productive vines[64]

[59] In the late 1880s, France imposed high tariffs on Italy and, in 1892, on Spain and Greece (Critz, Olmstead and Rhode, 1999; Pinilla and Ayuda, 2002; Pinilla and Serrano, 2008).

[60] As the *Appellation* producers were represented by Joseph Capus in the French Parliament, the growers of "table wines" had Édouard Barthe, a pharmacist who became a powerful deputy of Hérault in the Languedoc region (from 1910 to 1942). He played an important role in the adoption of the *Statut Viticole*.

[61] Producers could allocate their product in the market through successive quotas.

[62] Between 1934 and 1935, 24 million hectoliters were distilled (Lachiver, 1988)

[63] The policy was biased towards supporting smaller French winegrowers and hurting larger Algerian winegrowers. It introduced taxation on high yields declaring more than 400 hectoliters, new planting of vines were forbidden for ten years for vineyards of more than 10 hectares and distillation was obligatory for winegrowers producing more than 80 hectoliters per hectare (Lachiver, 1988; Birebent, 2007; Simpson, 2011).

(Gavignaud, 1988; Loubère, 1990). The grubbing-up measure proved to be inefficient despite its substantive premium (up to 7000 francs per hectare) because mostly old and unproductive vines were uprooted with little effect on total production (Milhau, 1953).

During War World II there was a reversal of policies because of wine shortages. French production stagnated during the decade of the 1940s due to massive vineyard destructions and in 1942, under the German-occupied France, the *Statut Viticole* was repealed.

After the war, wine demand grew rapidly and supply was still lower. This resulted in high prices which encouraged major vineyards' replanting. In the following years, wine production increased strongly, also because young vines were more productive than older ones. The increase in wine production reduced prices again and soon resulted in new pressure for political interventions. The *Statut Viticole* was reintroduced in 1953, under the name *Code du Vin*. The law reestablished subsidies to uproot vines,[65] as well as surplus storage, compulsory distillation, and penalties for high yields. It also created the viticultural land register (Milhau, 1953; Malassis, 1959; Munsie, 2002). Again, it turned out that the grubbing-up measure was not very effective since it apparently only worked in the French departments that already witnessed a decrease of the vineyard area[66] (Bartoli, 1986).

Finally, the pressure of the AOC producers was ultimately successful in removing the hybrid grapes from France through government regulations. However, this took another few decades and, importantly, the extension of heavy regulation under the EEC (later EU). Through a

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[64] The unpopularity of the last measure forced the French government to introduce in 1934 a grubbing-up premium (Gavignaud, 1988).

[65] The French decree 53/977 of 1953 established -on average- a premium of 2700 francs per hectare (Bartoli, 1986). Between 1953 and 1957, 5 per cent (54.000 hectares) of the total vine area benefited from this measure.

[66] The grubbing-up measure was temporary removed in 1957, following grape losses due to frosts (Bartoli, 1986).

combination of subsidized grubbing-up and specific planting rights, the amount of "hybrid" vines in the country was dramatically reduced. AOC pressure groups continued to lobby the French government, and later the EU Council, in order to obtain the removal of hybrid grapes. Between the 1960s and the 1980s, the uprooting of "undesirable vines" was subsidized. Authorized hybrids were possible but planting rights were reduced by 30 per cent[67] (Crowley, 1993). Moreover, with the EEC Directives 627/78 and 458/80 this trend increased. Ultimately, these policies were successful in largely removing hybrid wines. By subsiding the replanting of allowed varieties, 100.000 hectares of hybrids were removed in the 1960s and 225.000 hectares in the 1970s. This made that, by the end of the 1980s, less than 3 per cent of French vines were hybrids (Crowley, 1993). In the next section, we explain how French regulations were taken over by the EU.

European Integration and the Creation of the EU Wine Policy[68]

Among the initial six members of the EEC, four countries produced wine (Luxembourg, West Germany, Italy and France). Especially for Italy and France, wine was an important commodity. Both were also major wine exporters. With Italy producing 49% and France 47%, together they produced 96% of the total EEC wine supply. Germany produced only 4% (Newsletter on the Common Agricultural Policy, 1969).

[67] For instance Council Regulation No 1163/76 (article 2), granted a conversion premium in the wine sector, including for the conversion of areas planted with varieties "*obtained from direct-producer hybrids*."

[68] See Table 4 for a chronology of the introduction of key French and EU wine policy measures.

The pre-EEC domestic policies of France and Italy vis-à-vis their wine sectors both included regulations but differed. As we explained before, France's wine market was highly regulated by government interventions, including prohibitions on new vineyards, wine classification systems, price supports, compulsory distillation, chaptalization, etc. (Niederbacher, 1983; Kortteinen, 1984). Italy had a more liberal policy regime: there were no price interventions or plantation restrictions, but the Italian government did provide tax advantages to distill wine surpluses and imposed restrictions on imports from non-EEC countries[69] (Newsletter on the Common Agricultural Policy, 1969; Smith, de Maillard and Costa, 2007:80).

Economic integration required the integration of both policy regimes in one EU wine policy (the CMO for wine). An initial EEC regulatory step towards such common market was taken in 1962.[70] It required that each member state establish a viticultural land register;[71] the notification of annual production levels to central authority (harvest and stock declarations); the annual compilation of future estimates of resources and requirements;[72] and stricter rules on "quality wines" (defined as wines with a GI).

Initially, the CMO refrained from stronger regulations.[73] However, there was strong pressure from France for a more interventionist approach. In the 1960s, French wine producers

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[69] Germany claimed control of new planting and a liberal approach to imports from non-EEC countries (Newsletter on the Common Agricultural Policy, 1970).

[70] Source: Council Regulation No 24/62.

[71] The viticultural land register contained minimum information, as the total area under vines (Article 1, Council Regulation No 24/1962).

[72] A forward estimate was established at the end of each year in order to establish the Community's resources and estimating its needs, including foreseeable imports from and exports to third countries (Article 3, Council Regulation No 24/62).

[73] The EU's policies focused strongly on "table wines" as these represented the vast majority of the wines, and most problems were in that segment of the market. During the 1960s, table wines accounted for 95% of the total EU production, while now they account for approximately 50% (Smith, de Maillard and Costa, 2007:81; Eurostat, 2012).

had to deal with their internal surpluses and large inflows of Algerian wine on the French market due to a French-Algerian treaty. After the Algerian independence in 1962, France guaranteed to purchase considerable quantities of Algerian wine, i.e. 39 million hectoliters in five years (Isnard, 1966). France was afraid that cheaper Italian wine would swamp the French market and cause a collapse in prices.

The final version of the EEC's Common Wine Policy, agreed in 1970,[74] was a compromise between the positions of Italy and France (Regulations 816/70 and 817/70; Arnaud, 1991). An intervention system to support a minimum price in the wine market was introduced in the form of aid for private storage and distillation of table wines.[75] Moreover, new regulations established guidelines for enrichment[76] and alcohol strength, introduced a quality classification of vine varieties[77] and common rules on labelling and "oenological practices" (Petit, 2000; European Commission, 2006b).

These set of regulations were in response to French demands. However, due to pressure from the more liberal Italian side, the EEC wine policy did not restrict planting rights and did not impose grubbing-up –although anyone wishing to plant/replant vines had to notify it to the

[74] Also in other agricultural commodities, such as grains, dairy and oilseeds, there was a transition period of approximately ten years after the signing of the Treaty of Rome (in 1957) before a common market organization was fully implemented.

[75] Private storage aid was granted if the average price remained less than the government-set "threshold price" for two consecutive weeks. Distillation of table wines was enacted if the aid to private storage proved to be insufficient in stabilizing market. In addition, the new wine policy provided government subsidies to distillers to compensate them for minimum prices paid to wine producers (which were above market prices), and subsidies for the private storage of this alcohol. Trade with third countries was also regulated through government-set minimum import prices and tariffs.

[76] Robinson (2006) defines enrichment as a "wine-making operation whereby the fermentable sugars of grape juice or must are supplemented in order to increase the alcoholic strength of the resultant wine". "Chaptalization" refers to the addition of sugar, whereas enrichment also encloses other additives.

[77] Vines were classified into "recommended", "authorized" and "provisionally authorized" varieties; with "recommended" as the highest quality level.

competent authority[78] (Council Regulation No 816/70). The latter requirement closely followed pre-EEC policies of France, Germany and Luxembourg where growers had to acquire official permission in order to plant vines (Newsletter on the Common Agricultural Policy, 1970).

Hence, the final version of the EEC Common Wine Policy, agreed in 1970, was considerably more interventionist than the Italian wine regime, but still less regulated than the old French wine policies. However, it turned out to be only a matter of time until the EEC Wine Policy was adjusted and the French interventionist approach totally dominated.

As could be foreseen, the 1970 Wine Policy, with its minimum prices and intervention buying of wine, did not solve the problems. In several ways it made the problems of oversupply of French wine worse. Cheaper Italian wine production grew rapidly and increasingly substituted French wine.[79] In addition, with minimum prices, total wine production increased in the EEC and surpassed EEC consumption, causing growing surpluses (see Table 6). Under pressure from French wine producers,[80] the EEC distilled 6.9 million hectoliters of wine between 1970/71 and 1971/72 (Niederbacher, 1983). Increasing grape harvests in 1973 and 1974[81] and a devaluation of the Italian lira further lowered prices of exported Italian wines. A full-blown "wine war" exploded in 1974 when French growers blocked Italian wine imports. In order to settle the crisis

[78] In addition, national aids for new planting and replanting (which increase wine production) were prohibited and only "recommended" or "authorized" vine varieties could be used for planting or replanting (Articles 15, Council Regulation No 816/70).

[79] French wine prices were on average 25% higher compared to the Italian ones. In the 1969/70 wine year, Italy exported 4 million hectoliters of table wine to France, which represented 90% of French's wine imports in volume terms (Arnaud, 1991).

[80] Especially "table wine" growers of the Midi region in Southern France.

[81] 171 and 161 million hectolitres were produced respectively in the 1973 and 1974 harvests instead of the normal 135-140 million hectolitres (Niederbacher, 1983).

a French tax was levied on imported Italian wine and the EEC again intervened in the wine markets by distilling 19.6 million hectoliters of wine in four years (from 1973/74 to 1975/76).

Under pressure from French producers and faced with the increasing budgetary costs of its recently installed wine policy, the EEC Council of Ministers in 1976 decided to reform the Common Wine Policy (Council Regulation No 1162/76 and No 1163/76). However, instead of liberalizing the regime, the Council decided to introduce even more regulations in order to control the supply of wine. New regulations introduced planting rights restrictions[82] and subsidies for grubbing-up existing vineyards.[83] In addition, three years later, new regulations now made distillation of table wine surpluses obligatory and provided subsidies for concentrated grape must used for enrichment (Council Regulation No 337/79; Smith, de Maillard and Costa, 2007:85).

In short, by 1979, just a few years after the introduction of a common wine market in the EEC, the French wine policy with its extensive regulations and heavy government interventions in markets had become the official European wine policy.

The EEC's initial system of quality regulations explicitly referred to (and integrated) the French system of *Appellation d'Origine Contrôlée* (AOC) – which existed in France since 1935.[84] In 1963, Italy followed the French model and introduced the "*Denominazione di Origine*

[82] The planting limitation was at the beginning only foreseen for a limited period in time (until 30 November 1978) and for a certain type of wines (table wines). However, this permanent regime was repeatedly prolonged and was extended to wines with a GI.

[83] EC Regulation 1163/76 introduced a system of subsidies for producers to either abandon vineyards for 6 years or to grub-up vineyards and replace them with other crops.

[84] The French system of Appellations of Origin had already influenced other countries policies through earlier international agreements. For instance Italy and Spain integrated the notion of Appellation of Origins respectively in 1930 and 1932. However, also here the Italian and Spanish regulations were less interventionist than the French, only guaranteeing the origin of the product and not the production practices, as in the French system (Estatuto del Vino, 1932; Federdoc, 2012).

Controllata" (DOC) and the "*Denominazione di Origine Controllata e Garantita*" (DOCG). With the integration of other wine-producing nations in the EU such as Greece in 1980, Spain and Portugal in 1986, Austria in 1995 and Slovakia, Hungary, Bulgaria, and Romania in 2006 and 2007, these regulations expanded to a vast wine producing region. All these countries had to adjust their national policies to access to the EU. For example, Portugal introduced its "*Denominação de Origem Controlada*" (DOC) in 1986 and Spain its "*Denominación de Origen*" (DO) in 1996.

Not only did the French regulations heavily influence the wine European classification but they have also influenced the definition of "quality vines". As they were initially in France, hybrids are now outlawed from the PDO category (the highest quality level) throughout the EU.[85] This had important implications for some countries. For example, upon its accession to the EU, Romania had to agree to uproot hybrid varieties,[86] which accounted for half of Romania's total vineyard surface[87] (Treaty of Accession of Bulgaria and Romania, 2005).

Conclusion

The EU is the largest global wine producing region and the main importer and exporter in global wine markets. It is also the global champion of regulation and government intervention in

[85] The EU wine regulation states that "'*designation of origin' means the name of a region, a specific place (…) that it is obtained from vine varieties belonging to Vitis vinifera*" (Article 34 of Council Regulation No 479/2008).

[86] Romania obtained subsidies by the EU for restructuring and conversion, negotiating replanting rights for 30.000 ha: "*These replanting rights may only be used (…) exclusively for planting with Vitis vinifera*." (Treaty of Accession of Bulgaria and Romania, 2005).

[87] In 2003, out of a total 233.300 hectares of vines, 117.500 were planted with hybrids (Manole, Ion and Ladaru, 2008).

wine markets. Government interventions have taken many forms in the EU wine markets. Regulations determine where certain wines can be produced and where not, the minimum distances of vines, the type of vines that can be planted in certain regions, yield restrictions, etc. In addition, public regulations determine subsidies to EU producers and wine distillation schemes. The EU also determines public subsidies to finance grubbing-up (i.e. uprooting) schemes to remove existing vineyards, and imposes a limit on the planting of new vineyards.

In this paper we have documented these regulations and analyzed the historical origins of these regulations. The introduction of many regulations followed the integration of markets and forces of globalization, technological changes and resulting political pressures.

Many of the current EU regulations can be traced back to French regulations in the late 19th century and early 20th century. "Quality" regulations, as the AOC system, were introduced to protect producers of "quality wines", such as wealthy landowners of Bordeaux, from imitations and adulterations. Quantity regulations, as planting restrictions, were introduced to protect French producers from cheap wines imports.

With the integration of France into the EU some of the policies were initially liberalized. However, surplus crises in the 1970s caused strong pressures from French producers to reinstall the regulations and extend them to the EU as a whole. As in 1931, when wine producers of the Midi (which were threatened by the import of Algerian wines) managed to pressure the French government to introduce the *Statut Viticole*, regulating the production of wines, French producers in 1976 (threatened this time by the import of Italian wines) managed to pressure their government and EU leaders to introduce more regulations for wines.

As a consequence, what were initially mainly French and to a lesser extent Italian national regulations now apply to approximately 60% of the world's wine production. This

conclusion is of major importance not just in this specific case but also more generally. It demonstrates how inefficient institutions and regulations can grow because of a combination of economic, political and institutional integration and the associated political pressures and influence.[88]

[88] There is a literature on the persistence and growth of inefficient institutions (see e.g. Paul David's 1985 famous article). Our argument, however, is not related to scale economies of transaction costs, but to the political and institutional integration. In Meloni and Swinnen (2012) we also analyze other pre-EEC regulations in great detail.

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TABLES

Table 1: Chronology of European Wine Regulations

1962	- establishment of a viticultural land register - notification of annual production levels (harvest and stock declarations) - annual compilation of future estimates of resources and requirements - stricter rules on "quality wines psr"*
1970	- rules on viticulture: vines were classified into "recommended", "authorized" and "provisionally authorized" varieties - definition of different types of wine: "table wine" that had to contain an alcoholic strength of between 8.5º and 15º and "quality wines psr"* that included French AOC and VDQS wines**, Italian DOC wines, German *Qualitatsweine* and *Qualitatsweine mit Pradikat* and Luxembourg *Marque Nationale* wines. - rules on wine production (as the maximum amount for enrichment and alcohol strength) - introduction of common rules on labelling and oenological practices - rules for determining guide prices activating the intervention system - introduction of distillation of excess production in times of crises and obligatory distillation of the by-products of wine-making - aid for short-term and long-term storage - monitoring of trade with non-member countries was established - declaration of *free movement of wine* within the Community
1979	- introduction of subsidies for concentrated must used for enrichment - compulsory distillation of wines obtained for table grapes - definition of oenological practices
1987	- for table wines, the measures maintained price supports, prohibition of new planting and temporary storage of surpluses - widening of compulsory distillation (see Table 3) - introduction of further subsidies for the conversion of vineyards - new rules for the production of quality wines
1999	- prohibition until 2010 on the planting of vines - market mechanisms are maintained: private storage, obligatory by-products distillation, distillation of table wines and voluntary crisis-distillation - introduction of restructuring and conversion measures for vineyards - wine-making processes and practices are laid down - trade with countries outside the EU is brought in line with the Uruguay Round agreement

* Quality wines psr stands for 'Quality Wines Produced in a Specified Region'

** VDQS wines stands for 'Delimited Wine of Superior Quality'

Sources: Niederbacher (1983), Unwin (1991), Munsie (2002), Europa (2008) and Council Regulations of 1962, 1970, 1979, 1987, 1999.

Table 2: The 2008 Reform of the European Wine Policy

Support measures	▪ National financial envelopes: each country will be entitled with a funding budget adapted to their particular situation. Support programmes contain one or more of the following measures: (a) Single Payment Scheme support (Article 9); (b) promotion (Article 10); (c) restructuring and conversion of vineyards (Article 11); (d) green harvesting (Article 12); (e) mutual funds (Article 13); (f) harvest insurance (Article 14); (g) investments (Article 15); (h) by-product distillation (Article 16); (i) potable alcohol distillation (Article 17); (j) crisis distillation (Article 18); (k) use of concentrated grape must (Article 19). ▪ Chaptalization: lower limits for added sugar and must ▪ Introduction of Single Farm Payment ▪ Rural Development and environmental protection
Trade with third countries	The reform took into account WTO policies, i.e. the phasing-out of market intervention measures (as distillation and public storage)
Regulatory measures	▪ Oenological practices: the Commission now approves or changes winemaking practices ▪ New classification: wines are now divided into "wines with a Geographical Indication" and "wines without a Geographical Indication". Within the first category, there are two subcategories: Protected Designation of Origin (PDO) wines and Protected Geographical Indication (PGI) wines, with PDO as the highest quality level. ▪ Labelling: national quality-labelling schemes are kept for PDO wines, while wines without an Geographical Indication can now be labelled with grape variety and vintage
Production potential	▪ The planting rights regime will end at EU level from 1 January 2016 (Member States can decide to extend the limit until 2018) ▪ A voluntary grubbing-up scheme was enacted (175.000 ha were uprooted)

Sources: Council Regulation (EC) No 479/2008; European Commission, 2008a.

Table 3: Distillation schemes in the EU

1962	▪ No distillation scheme provided
1970	▪ Distillation of excess production in times of crises
	▪ Distillation of the by-products of wine making (compulsory)
1979	▪ Preventive distillation (voluntary)
	▪ Distillation with special price maintenance for long-term storage contracts
	▪ Distillation of wines obtained for table grapes (compulsory)
1987	▪ Support distillation
	▪ Preventive distillation (voluntary)
	▪ Distillation of table wines (compulsory)
	▪ Distillation of wines other than table wines (compulsory)
	▪ Distillation of by-products (compulsory)
1999	▪ Distillation for potable alcohol (voluntary)
	▪ Crisis distillation (voluntary, all wines)
	▪ Distillation of wine from dual-purpose grapes (compulsory)
	▪ Distillation of by-products (compulsory)
2008	▪ Phasing-out of crisis distillation and potable alcohol distillation (support granted until 31 July 2012)
	▪ Support for (voluntary or compulsory) distillation of by-products of wine-making maintained

Sources: Council Regulation (EC) No 817/70, No 822/87, No 1493/1999, No 479/2008 and European Commission (2006a).

Table 4: Introduction of Wine Regulations in France and in the EU

	Introduced in France	*Introduced in the EU*
Quality policy (GIs)	1935 (AOC)	1970
Oenological practices	1889	1970
Rules on labelling	1905	1970
Private storage	1931	1970
Distillation	1931	1970
Planting rights	1931	1976
Grubbing-up premium	1935	1976

Source: Author's calculations

Table 5: Average annual distillation by Member States (1000 hectoliters)

	Wine production				Volume distilled				% of annual production			
	1986/87-1992/93	**1993/94-1999/00**	**2000/01-2004/05**	**2005/06-2008/09**	**1986/87-1992/93**	**1993/94-1999/00**	**2000/01-2004/05**	**2005/06-2008/09**	**1986/87-1992/93**	**1993/94-1999/00**	**2000/01-2004/05**	**2005/06-2008/09**
Germany	11 253	9 819	9 442	9 652	238	79	357	397	2%	1%	4%	4%
Greece	4 183	3 699	3 643	3 771	413	305	218	183	10%	8%	6%	5%
Spain	33 301	28 211	38 66	36 742	10 027	4 014	9 179	7 876	28%	13%	24%	21%
France	61 052	54 885	53 005	48 333	14 264	10 672	4 057	4 091	23%	19%	8%	8%
Italy	64 723	56 949	49 641	50 016	14 809	5 462	5 566	5 061	22%	9%	11%	10%
Austria	-	2 329	2 520	2 512	-	69	48	105	-	3%	2%	4%
Portugal	8 575	6 585	7 185	6 616	1 096	493	999	631	11%	7%	14%	10%
TOTAL*	**183 273**	**161 978**	**165 270**	**166 918**	**40 847**	**21 094**	**20 451**	**18 426**	**22%**	**13%**	**12%**	**11%**

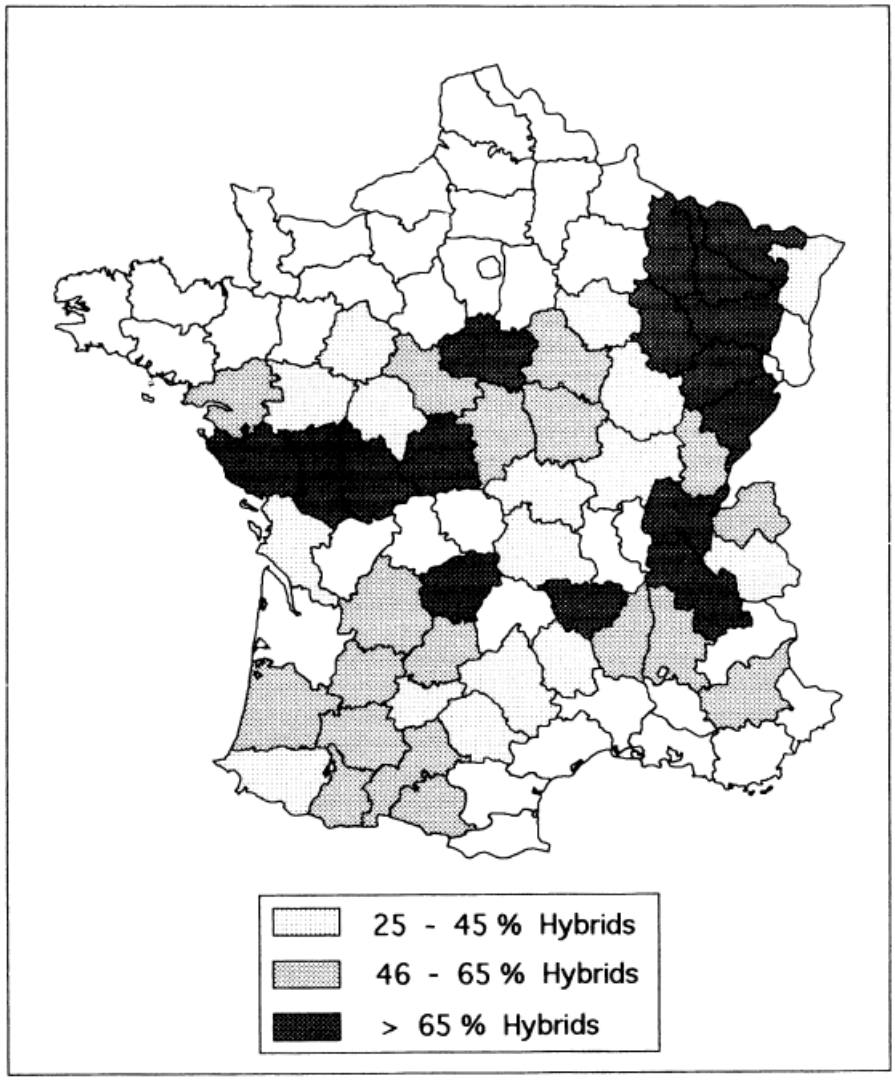
* including all EU Member States
Sources: European Commission (DG AGRI), 2006a and 2009.

Table 6: EEC average annual production and consumption (in million hectoliters)

Year	Production*	Consumption
1953/54-1955/56	116	119
1956/58	78	114
1958/59	118	123
1967/68	142	125
1968/69	137	126
1972/73-1978/79	145	128

* excluding Algeria (then a territory of France)
Sources: Niederbacher, 1983; Commission of the European Communities, 1980.

Figure 1: Percentage of hybrids in France, 1958



Source: Crowley, 1993.

ANNEXES

Annex 1: An example of an *Appellation d'Origine Contrôlée* regulation, applied to Bordeaux Wines

The *Cahier des charges de l'Appellation d'Origine Contrôlée "Bordeaux Supérieur"* is a document of 51 pages settling out the governing rules of production, vinification and bottling of the AOC. The document is available online at http://agriculture.gouv.fr/IMG/pdf/AOC_DGPAAT_SOMM42-2.pdf

The main rules that local winegrowers have to restrict themselves to regard:

a) Territory: the specific area is defined in which the harvest/vinification/bottling has to be carried out. A list of approximately 500 *communes* are specified in the Gironde territory;
b) Authorized grape varieties: grapes have to grow within the specified geographical region. For example, for the red Bordeaux wines, only 6 varieties are permitted, namely Cabernet Sauvignon - Cabernet Franc- Merlot - Cot (or Malbec) - Carmenère - Petit Verdot;
c) Growing and winemaking methods, as:
    - maximum number of vines per hectare (4500 plant per hectare);
    - distance between rows (not more than 2.20 meters) and between vines (not less than 0.85 meter);
    - pruning methods. For instance for the Merlot variety, the number of fruiting branches per plant cannot exceed 11 shoots per vine;
    - the fence height must be at least equal to 0.55 times the spacing between rows.
d) the minimum natural alcoholic strength (in % of volume) must be 11% for red wines;
e) the maximum yield allowed (50 hectoliters per hectare);
f) the bottling and labelling: wines must age for at least 12 months before they can be sold; and the label must indicate *Bordeaux Supérieur* together with the *Appellation Contrôlée* reference.