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Commercial Structures and the Globalisation of Viticulture in Catalonia: From Brandy to Wine and Cava (Eighteenth–Twentieth Centuries)

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COMMERCIAL STRUCTURES AND THE GLOBALISATION OF VITICULTURE IN CATALONIA: FROM BRANDY TO WINE AND CAVA (EIGHTEENTH–TWENTIETH CENTURIES)

Llorenç Ferrer-Alos

Abstract: This paper analyses the evolution of viticulture in Catalonia since the eighteenth century, when the industry entered the international market, with massive exports of brandy to northern Europe and the Spanish colonial market. In the nineteenth century, Catalan viticultural produce was exported mainly to Latin America in exchange for the importation of cotton. After the phylloxera crisis, viticulture experienced difficulty in internationalisation until the specialisation in cava, a sparkling wine made in the same way as champagne, kept the wine production going. In the twenty-first century, the specialisation in quality wines is also related to the export to international markets.

In memory of Francesc Valls Junyent, who left us too early, when he was contributing his best work as a historian.

Catalonia forms part of the Mediterranean basin and, as such, has produced and exported wine since ancient times. The Roman amphorae found at numerous sites indicate the existence of local production and trade with the entire empire. However, it was not until the late seventeenth century when Catalonia began to participate in the European wine trade circuits thorough the massive production of liqueur. Thenceforth its participation in the globalisation of vineyard products continued to increase. First, by means of the massive export of wine to the American continent, then to the European continent during the phylloxera crisis and, in more recent years, through the export of cava, a sparkling wine made in the same way as champagne. Not an isolated case, the industry was part of the globalisation process developed in the nineteenth century when the phylloxera crisis, having destabilised the traditional markets, forced a deep restructuring of the sector.[1]

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[1] In recent years, an extensive bibliography has emerged that points to the phenomenon of the globalisation of viticulture, especially after the arrival of phylloxera in France. It is

The expansion of vineyards that began in the seventeenth century culminated in the late nineteenth century. The cooling of the climate drove vineyards down from higher altitudes and promoted agricultural specialisation, meaning that particular areas began to devote themselves to certain crops. Finally, the growth of the population, and of certain urban centres such as Barcelona, stimulated demand and helped create the commercial channels capable of meeting this demand.[2] Vineyards were thus developed in the Alto Ampurdán region of Girona, in the regions close to Barcelona (Maresme, Garraf and surrounding areas),[3] in the Bages area, which supplied part of the non-wine-growing

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often a very statistical literature, so we prefer to make a historical analysis in this work: Kym Anderson, Signe Nelgen and Vicente Pinilla Navarro, *Global Wine Markets, 1860 to 2016: A Statistical Compendium* (Adelaide: University of Adelaide Press, 2017); Gema Aparicio, María Isabel Ayuda and Vicente Pinilla Navarro, "World Consumption of Wine, 1850–1938: An Obstacle to the Growth of its Production and Trade?," in *Actas del I Simposio de la Asociación Internacional de Historia y Civilización de la Vid y el Vino*, ed. Javier Maldonado Rosso (El Puerto de Santa Maria: Asociación Internacional de Historia y Civilización de la Vid y el Vino, 2002), 679–93; Antoni Estevadeordal, Brian Frantz and Alan M. Taylor, "The Rise and Fall of World Trade, 1870–1939," *Quarterly Journal of Economics* 118, no. 2 (2003): 359–407; Elisa Giuliani, Andrea Morrison and Roberta Rabellotti, *Innovation and Technological Catch-up: The Changing Geography of Wine Production* (Cheltenham: Edward Elgar, 2011); Marcel Lachiver, *Vins, vignes et vignerons: histoire du vignoble français* (Paris: Fayard 1988); Juan Pan-Montojo, *La bodega del mundo: la vid y el vino en España (1800–1936)* (Madrid: Alianza, 1994); Vicente Pinilla Navarro and Maria-Isabel Ayuda, "The Political Economy of the Wine Trade: Spanish Exports and the International Market, 1890–1935," *European Review of Economic History* 6, no. 1 (2002): 51–85; Vicente Pinilla Navarro, "Wine Historical Statistics: A Quantitative Approach to its Consumption, Production and Trade, 1840–1938" (working paper, no. 1409, Spanish Agricultural History Society, 2014); Vicente Pinilla Navarro and Maria-Isabel Ayuda, "The International Wine Market, 1850–1938: An Opportunity for Export Growth in Southern Europe?," in *The Golden Grape. Wine, Society and Globalization: Multidisciplinary Perspectives on the Wine Industry*, ed. Gwyn Campbell and Nathalie Gibert (New York: Palgrave Macmillan, 2007), 179–99; James Simpson, *Creating Wine: The Emergence of a World Industry, 1840–1914* (Princeton: Princeton University Press, 2011); Pierre Spahni, *The International Wine Trade* (Cambridge: Elsevier, 2000); Tim Unwin, *Wine and the Vine: An Historical Geography of Viticulture and the Wine Trade* (London: Routledge, 1991).

[2] Albert Garcia Espuche, *Un siglo decisivo: Barcelona y Cataluña, 1550–1640* (Madrid: Alianza, 1998).

[3] Joan Giménez Blasco, "Continuïtat i canvi a les estructures econòmiques de la Catalunya del segle XVII: Mataró, 1580–1710" (PhD diss., Universitat de Barcelona, 1998); Albert Virella Bloda, *Quan Vilanova i la Geltrú era un empori del vi* (Vilafranca del Penedès: Museu del vi, 1979.

mountain regions,[4] the Conca de Tremp, which supplied the Pyrenees region,[5] and the broader Camp de Tarragona area.[6]

When, however, in the second half of the seventeenth century the demand for brandy arose in northern Europe, it was the result of political rather than economic reasons. Dutch sailors made the consumption of brandy fashionable on their sea crossings. The long journeys ruined their water supply and brandy solved the problem; it could even be mixed with water. This beverage ended up becoming popular among the coastal populations, thus increasing demand. The Dutch also popularised white wine with a high alcohol content, which they obtained precisely by adding brandy to it. The main producer of this spirit were the regions of northern France, which were perfectly situated to supply commercial channels in this part of Europe.

The political crisis between Holland and France concerning commercial issues ended in a war between them from 1672 to 1678, which forced Dutch traders to seek alternatives to French brandy. It was at that time that English and Dutch traders set up in the Camp de Tarragona area, especially in the town of Reus, in order to purchase brandy and export it to northern Europe.[7] This demand led to vineyards being planted to produce wine to be distilled, to the development of a local distilling industry and to the emergence of a network of brokers and traders who took the local product, improved it through blending and sent it to the European markets. The international markets were the main destination for this output.[8]

The commercial channel developed around the mass export of brandy to the northern European countries, in particular Holland (the main receiving port was Amsterdam). Brandy had two advantages over wine: it had more added value

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[4] Llorenç Ferrer Alòs, "Plantar a mitges: L'expansió de la vinya i els orígens de la rabassa morta a la Catalunya Central en el segle XVII," *Recerques*, no. 67 (2013): 33–60.

[5] Laureà Pagarolas and Xavier Tarraubella, *La Conca de Tremp, celler del Pirineu: Dos mil anys de vinya i vi* (Barcelona: Bresca, 2017).

[6] Jordi Andreu Sugranyes, "Aproximació al conreu de la vinya al Camp de Tarragona a través dels llibres de protocols: segles XVII, XVIII i XIX," in *Jornades sobre la viticultura de la conca mediterrània: 1986* (Tarragona: Universitat Rovira i Virgili, 1995), 299–307.

[7] Joan Fàbregas Roig, "Joan Kies, un comerciant en el trànsit dels segles XVII al XVIII," *Estudis d'Història Agrària*, no. 26 (2014): 35–52.

[8] Agustí Segarra Blasco, *L'economia de Reus al segle XVIII: el comerç d'aiguardent* (Reus: Centre de Lectura de Reus, 1988); Jaume Torras Elias, "Productes vitícoles i integració mercantil a Europa, ss. XVI–XVIII," in *Jornades sobre la viticultura*, 529; Torras Elias, "Productes vitícoles i integració mercantil a Europa, siglos XVI–XVIII: Una panoràmica," *Estudis d'Història Econòmica*, no. 15 (1997): 23–33; Francesc Valls Junyent, *La Catalunya atlàntica: Aiguardent i teixits a l'arrencada industrial catalana* (Vic: Eumo, 2004).

(each cargo of brandy was equivalent to four and a half of wine)[9] and it did not spoil during transportation, as often occurred with wine. Despite this, it had more volume than the two return products par excellence: salted fish (cod) and quality fabrics. Thus, brandy exports gradually increased.

From 1760, brandy exports began to experience spectacular growth. The port of Amsterdam, which probably reexported to other ports in the region, declined in influence, with the ports from the Seine to the Belgian coast and beyond (Rouen, Le Havre, Calais, Dunkirk, Ostend and Hamburg) becoming considerably more important. The Third Family Compact in 1761 helped in this respect and partly refocused Catalan trade. The brandy that arrived in France, practically without any duties being paid on it, was exchanged for linen fabric, which the Catalan factories producing indianas (printed and dyed canvases) partly exported to America. Some poor French harvests likewise reduced the quantity of wine destined for distilling, Catalan brandies thus meeting this demand. Catalan brandies enjoyed success in this area of northern France because of their lower price, which was a result of the greater productivity of the vine, a higher alcohol content and, probably, improvements in the quality of the resulting product.[10]

The Geography of Brandy and its Productive and Commercial Structure

A particular part of Catalonia specialised in producing wine for distilling and producing brandy. An 1824 map of brandy *fassines* (distilleries) shows that most of them were concentrated in the area of Tarragona, Alt Camp and Conca de Barberà, areas that produced brandy on a large scale.[11] *Fassines* appeared to a lesser extent in other areas, basically because they worked for a few months a year to distil poor-quality wine or wine which became sour during the year. In these areas, the wine was produced for drinking.[12]

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[9] We used this equivalence to transform the units of brandy into units of wine, although we acknowledge that it depended on other factors such the alcohol content of the wine, and on the type of brandy that they wanted to obtain. According to José Roura, 3.75 units were necessary to produce "Dutch proof" brandy, 4 units for "refined Dutch", 4.5 units for "common oil proof" and 5.04 units for "refined oil proof". See *Memoria sobre los vinos y su destilación y sobre los aceites* (Barcelona: J. Oliveres y Gavarró, 1839), 49.

[10] Agustí Segarra Blasco, "L'economia de l'aiguardent a la Catalunya del segle XVIII" (PhD diss., Universitat de Barcelona, 1993); Valls Junyent, *La Catalunya atlàntica*.

[11] Based on the data contained in Vicente de Frigola, *Relación de los pueblos de que consta el Principado de Cataluña* (Barcelona: Brusi, 1824).

[12] Llorenç Ferrer Alòs, "Vi per cremar, vi per beure. Dues vitivinicultures a Catalunya (segles XVII–XIX)," in *Vinyes, vins i cooperativisme vitivinícola a Catalunya*, ed. Josep

There are thus two different areas in relation to the production structure and ways of preparing wine. In the Barcelona region, access to the land was through a *rabassa morta* contract (a long-term lease to plant vines which lasted for as long as the vines did, in exchange for payment of a quarter of the crop to the landowner), which gave rise to numerous small wine-growing enterprises that not only produced grapes but also prepared modest quantities of wine. The output was marketed through a network of muleteers and small merchants who went to the villages, purchased small quantities and sold them in their places of origin or transported them to towns and cities. There were no large merchants or big traders in this environment.[13]

In the Tarragona area the specialisation of brandy generated a completely different production and marketing structure. Although less information on them exists, it appears that small farmers not only produced grapes, but also almonds, hazelnuts or locust beans, which formed part of the products that they marketed. These grapes were taken to the house of the owner or of another producer, who bought them. The latter also distilled the wine and produced the first brandy. This brandy was, however, destined for international markets and could not be sold or marketed in small quantities. This, therefore, gave rise to agents and brokers who went around the villages to acquire brandy, or to secure future crops in order to guarantee the production, and sold the brandy to the big factories in Reus, Valls and El Vendrell, which blended and redistilled it to the taste of the European consumers. They were sometimes also the exporters, although it was often big trading companies formed by Catalans, Dutch and French who had set up in the production areas who bought and took the brandy to the ports of the Tarragona coast in order to be shipped to the destination points.[14] The differences between

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Colomé, Jordi Planas Maresma and Francesc Valls Junyent (Barcelona: Publicacions de l'Abadia de Montserrat, 2015), 147–76.

[13] Josep Colomé Ferrer, "Les formes d'accés a la terra a la comarca de l'Alt Penedès durant el segle XIX: el contracte de rabassa morta i l'expansió vitivinícola," *Estudis d'Història Agrària*, no. 8 (1990): 123–44; Llorenç Ferrer Alòs, *Pagesos, rabassaires i industrials a la Catalunya Central (segles XVIII–XIX)* (Barcelona: Publicacions de l'Abadia de Montserrat, 1987); Jaume Galobardes, *El llibre de Jaume Galobardes (1776–1863): crònica del seu temps* (Santa Coloma de Gramanet: Ajuntament de Santa Coloma de Gramanet, 1992); Francesc Valls Junyent, "Contractació a rabassa morta i conjuntura vitícola a Catalunya 1720–1850," *Estudis històrics i documents dels arxius de protocols*, no. 15 (1997): 299–334.

[14] Almost all the brandy was sent from the natural ports of the coasts of Tarragona. In 1803, 65.93 percent of a special tax on brandy was raised in Salou; 11.44 percent in Tarragona, 9.93 percent in Vilanova and 6.36 percent in Torredembarra. The port of Barcelona collected only 5.18 percent and the rest of the Catalan ports collected less than 1 percent. See Segarra Blasco, "L'economia de l'aiguardent," 172. For more information on this topic, see Jordi

the two ways of producing, preparing and marketing determined the future of Catalan viticulture.

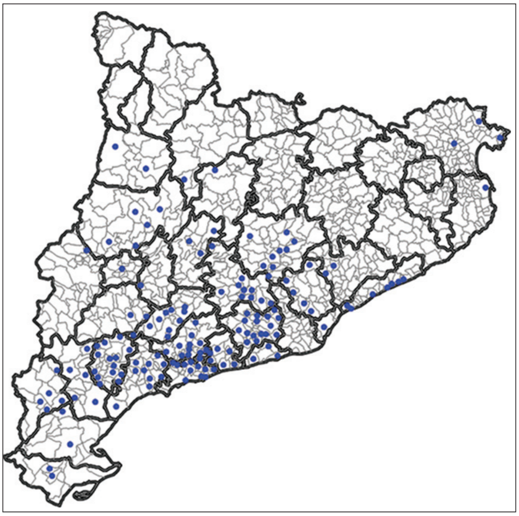

Fig 1. Brandy distilleries in Catalonia, 1824. Based on Vicente de Frigola, *Relación de los pueblos de que consta el Principado de Cataluña* (Barcelona: Brusi, 1824).

The American Colonial Market

Although without quantifying it, the qualitative data allows us to state that most brandy exports went to northern Europe. Spain, however, had a large empire with which it sold and bought products, basically from the port of Cádiz. Until 1778, when free trade was promoted, Catalan exports to America had to pass through the privileged port of Cádiz. Some authors who analysed this trade have observed the presence of brandy and wine, but all indications suggest this was in small quantities,[15] which began to increase starting from the free trade decree. Estimates for 1747

Andreu Sugranyes, *Economia i societat a Reus durant la crisi de l'Antic Règim* (Reus: Associació d'Estudis Reusencs, 1986); Josep M. Grau Pujol and Francesc Valls Junyent, "Entorn la geografia de l'aiguardent a la Catalunya del segle XVIII: Els Sunyer de Reus i els seus agents a la Conca de Barberà," in Colomé, Planas Maresma and Valls Junyent, *Vinyes, vins i cooperativisme*, 83–122; Rafael Muñoz Melgar, "L'aiguardenteria dels Sr. Cortadellas i Satorras de Calaf a finals del segle XVIII (1784–1793)," in *Jornades sobre la viticultura*, 765–72; Salvador Rovira Gómez, "L'anticipació de diners a productors d'aiguardent per part dels comerciants de Reus (1750–1799)," in *Jornades sobre la viticultura*, 795–810; Salvador J. Rovira Gómez, "Els aiguardents del Camp de Tarragona a la segona meitat del segle XVIII," in *Primer Congrés d'Història Moderna de Catalunya* (Barcelona: Universitat de Barcelona, 1984), 1:305–20; Segarra Blasco, *L'economia de Reus*.

[15] Carlos Martínez Shaw, *Cataluña en la carrera de Indias: 1680–1756* (Barcelona: Crítica, 1981).

indicate that 18.3 percent of the total brandy produced was exported to America[16] and that from 1782 to 1787 this figure grew to 37 percent.[17] It is possible that this was the trend. In 1793, a balance of trade for the port of Barcelona shows that 17.9 percent of the brandy leaving it was destined for America.[18]

Figure 2 contains details on Catalan wine and brandy shipped to America, starting from the introduction of free trade, and the total equivalent in wine. Since details of trade to other areas are not available, we cannot assess its weight. It can, however, be stated that brandy exports grew until 1804, albeit with fluctuations, when wine began to take over. We can also say that exports to America in this period exceeded 200,000 hectolitres (hl), not a negligible quantity. Later, we will discuss the changes which occurred in the nineteenth century when common wine replaced brandy.

It would thus appear that Catalan brandy began to open up to the American colonies and grew until the end of the century, when it represented a third of exports, although the most important market remained northern Europe.

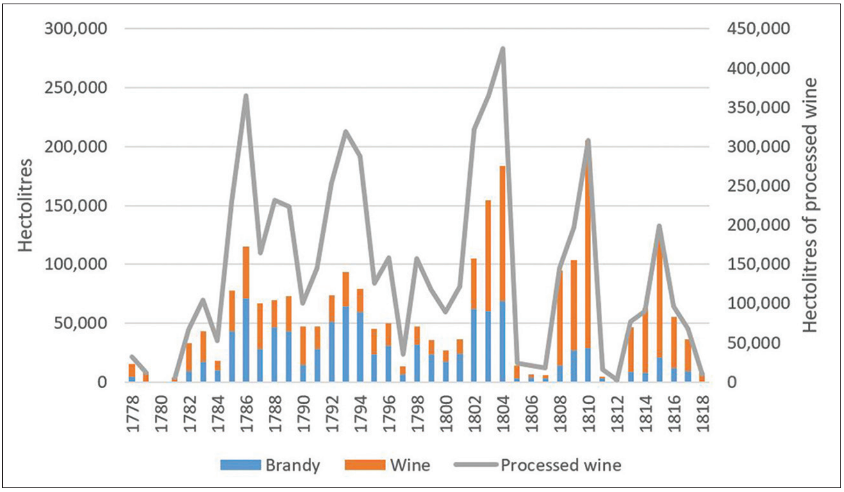

Fig. 2. Wine and brandy exports to America, 1778–1818. Based on Josep M. Delgado Ribas, "Catalunya y el sistema de libre comercio (1718–1818): una reflexión sobre las raíces del reformismo económico" (PhD diss., Universitat de Barcelona, 1981), 1:340–45.

[16] Valls Junyent, *La Catalunya atlàntica*, 202.

[17] Segarra Blasco, "L'economia de l'aiguardent," 166.

[18] Pierre Vilar, *Catalunya dins l'Espanya moderna: Recerques sobre els fonaments econòmics de les estructures nacionals* (Barcelona: 62, 1964–1968), 4:135.

The Role of Wine

Catalan historiography has focused on brandy as the driving force of wine-growing exports and as the mechanism that transformed agriculture in a part of Catalonia and relegated wine to a lesser role. The scarce data that we have shows that there was not that much difference in the volumes of wine and brandy exported, although it is true that much more wine was needed to produce it. It may also be necessary to emphasise the role of the wine exports. We will offer some data in this regard.

Laurent Lipp's commercial guide, published in 1793, provides estimates for the volumes of wine and brandy leaving the different Catalan ports. It first calculates that 202,300 hl of brandy and 258,900 hl of wine were exported, that is to say a higher quantity of wine than brandy, although 910,400 hl of wine was used to produce the brandy. However, what had changed, and this leads to the conclusion that too much interest has been placed on brandy, is the ports of despatch (see figs. 3 and 4). Vilanova and Salou (just south of Barcelona and Tarragona, respectively) exported 93.8 percent of the brandy (61.2 percent from Salou and 16.7 percent from Vilanova). Except for a small quantity from Barcelona (4.8 percent), brandy was not shipped from anywhere else. On the contrary, wine was better distributed. The south of Barcelona exported 71 percent (Salou 37.4 percent and Vilanova 16.6 percent) and, in relation to the rest, 6 percent was exported from ports north of Barcelona and 23 percent from the coast of Girona, where there was another important wine-growing area.[19]

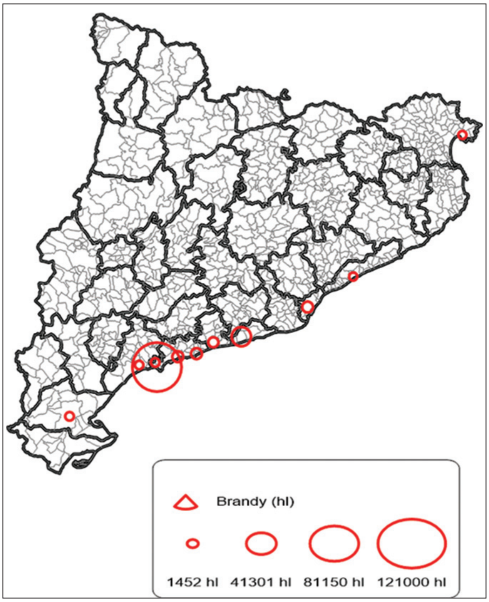

Fig. 3. Brandy exports from Catalonian ports, 1793. Based on Laurent Lipp, *Guide des negociants dans toutes les entreprises mercantiles* (Montpellier: Joseph-François Tournell, 1793).

[19] Rosa Congost and Enric Saguer, "De contractes de rabassa morta a emfiteusis perpètues: una negociació des de baix? La regió de Girona, 1700–1900," in Colomé, Planas Maresma and Valls Junyent, *Vinyes, vins i cooperativisme*, 177–208; Jordi Curbet Hereu, *Les llibretes de*

The second source is the balance of trade for 1793 for the port of Barcelona,[20] which shows that 408,400 hl left this port (60.01 percent of which was wine and 39.9 percent brandy). Finally, there is data on the shipments of wine and brandy from the ports of Tarragona from 1800[21] to 1835[22] and, from 1767, from two of its ports. Although it does not comprise all of the exports of these products from Catalonia, they were mostly exported from there.

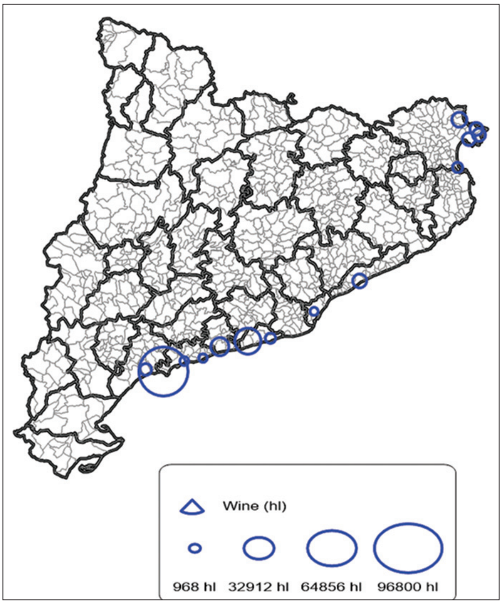

Fig. 4. Wine exports from Catalan ports, 1793. Based on Laurent Lipp, *Guide des negociants dans toutes les entreprises mercantiles* (Montpellier: Joseph-François Tournell, 1793).

If we consider only the total volume, wine exports were more substantial throughout the period. However, until the end of the eighteenth century, the volumes of wine and brandy were practically the same, while in the nineteenth century brandy became less significant and the importance of wine increased. We will analyse this issue later. If we continue to consider the volume, the highpoint reached from 1800 to 1806 began to decline in the early part of the century, with levels peaking again in the 1830s. The loss of Spanish colonial markets and the disappearance of the northern European markets for brandy exports had a small consequence in terms of volume, but not in the composition of the exports. Put simply, wine supplanted brandy.

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memòries de Joan Serinyana (1818–1903), vinyater llançanenc (Girona: Associació d'História Rural de les Comarques Gironines, 2007); *Una mar de vinyes. El conreu de la vinya i el vi a Empúries, l'Escala i Torroella de Montgrí* (Girona: Museu de l'Escala, 2016).

[20] Vilar, *Catalunya dins l'Espanya moderna*.

[21] This data does not concern exports abroad, but rather shipments of wine from these ports, which could leave as cabotage for other Spanish ports, such as Barcelona, to be reexported or for direct export. This does, however, give us an idea of the importance of the production from the Tarragona region for foreign trade.

[22] Francesc Valls Junyent, "El paper de les exportacions vitícoles en la configuració de les relacions exteriors de l'economia catalana, 1672–1869" (PhD diss., Universitat de Barcelona, 2001).

The analysis of volume provides us with another perspective. The huge volume of brandy that was exported accounts for many thousands of litres of distilled wine. Between 870,000 and 950,000 hl were needed for the volume of wine and brandy exported. To this maximum figure it would be necessary to add the wine which left the ports north of Barcelona and the coast of Girona. Calculating the exports in this way, the shift from brandy to wine in total exports had a significant effect on the volume of wine processed. The crisis of the first decades of the nineteenth century was much deeper.

What did these wine exports represent in relation to the wine produced in Catalonia? There is no statistical data on wine production or on the extension of vineyards until the second half of the nineteenth century. We, therefore, propose an exercise with many assumptions which allows us to tackle the question.[23]

[23] We do not want to over-rely on calculations that we made in table 1 because there are too many suppositions. We start from certain studies which calculate the *rabassa morta* contracts signed in some regions or towns by decade: Jaume Plans Maestra, "Els establiments a rabassa morta probable causa de la construcció de tines al Bages al segle XVIII i XIX," *Coordinadora Entitats de Pedra Seca: Butlletí Digital*, no. 3 (2010): 15–19; Francesc Valls Junyent, *La dinàmica del canvi agrari a la Catalunya interior: L'Anoia, 1720–1860* (Barcelona: Publicacions de l'Abadia de Montserrat, 1996); Ramon Garrabou and Enric Tello, "Constructors de paisatges: Amos de masies, masovers i rabassaires al territori del Vallès (1716–1860)," in *Josep Fontana: Història i projecte social: Reconeixement a una trajectòria* (Barcelona: Crítica, 2004), 83–104; Belen Moreno Claverias, *La contractació agrària a l'Alt Penedès Durant el segle XVIII: El contracte de rabassa morta i l'expansió de la vinya* (Barcelona: Fundació Noguera, 1995); Sebastián Pares, "Contratación notarial agraria en el Alto Penedés durante el siglo XIX," *La Notaria*, no. 4 (1944): 366–87; Josep Colomé and Francesc Valls Junyent, "La viticultura catalana durant la primera meitat del segle XIX: Notes per a un reflexió," *Recerques*, no. 30 (1995): 47–68. The number of contracts provides indications on the extension of the vineyards, which is useful to extrapolate to more reliable data from the mid-nineteenth century. We know that, in 1860, the acreage of vineyards expanded by 311,000 ha. Starting from the scenario outlined in the contracts, we can recalculate the extension of new vines per decade. We can thus deduce how many hectares were planted at the end of the eighteenth century. If we use certain data on yields available for this era (17.7 hl/ha), we can estimate the wine production in the different decades. See Emili Giralt, "L'elaboració del vi," in *Història agrària dels Països Catalans*, vol. 3, *Edat Moderna*, ed. Emili Giralt i Raventós (Barcelona: Fundació Catalana per a la Recerca, 2008), 395–460; Ramon Roig Armengol, *Memoria acompañatoria al mapa regional vinícola de la provincia de Barcelona* (Barcelona: Montaner, 1890). If, at the same time, we suppose a consumption of 80–100 litres per person and year (data from the second half of the nineteenth century with a wide dispersion of the information) – see Andreu Mayayo, *La Destrucció del món rural català 1880–1980: de pagesos a obrers i ciutadans* (Barcelona: Universitat de Barcelona, 1991); Pere Pascual Domènech, "El tràfic de vins i derivats a Catalunya (1855–1935): El rol dels ferrocarrils en competència amb carros i barques," in

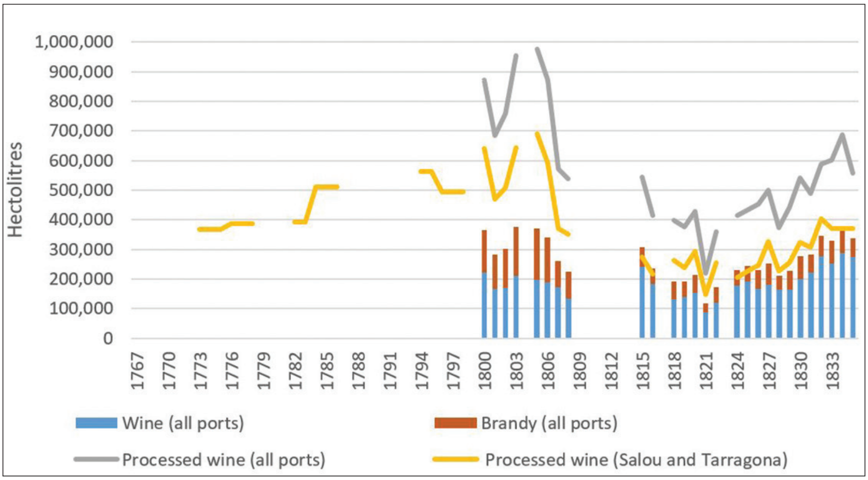

Fig. 5. Wine, brandy and processed wine exported from the ports of the Tarragona coast, 1767–1835. Based on Francesc Valls Junyent, "El paper de les exportacions vitícoles en la configuració de les relacions exteriors de l'economia catalana, 1672–1869" (PhD diss., Universitat de Barcelona, 2001) and Agustí Segarra Blasco, *Aiguardent i mercat a la Catalunya del segle XVIII* (Vic: Eumo, 1994).

According to the evolution of *rabassa morta* contracts, the acreage devoted to vineyards tripled between 1780 and 1860, with production also tripling, from 1.6 million hl from 1780 to 1789 to 5.3 million from 1840 to 1849. On the other hand, the population increased by 1.6 times in the same period. Therefore, supposing that consumption per capita remained stable during this time, the domestic consumption of wine went from representing 57.3 percent of the total produced to 28 percent in 1850. In other words, Catalan viticulture went from producing 0.68 million hl for export in 1780–1789 to 3.8 million hl in 1840–1849, whether as wine or as brandy.

Colomé, Planas Maresma and Valls Junyent, *Vinyes, vins i cooperativisme*, 279–336; Pinilla, "Wine Historical Statistics," 8; Jordi Planas Maresma, "La vinya al Vallès: una perspectiva històrica," *Notes* 22 (2007): 83–103 – and we use the population data for Catalonia (Llorenç Ferrer Alòs, "Una revisió del creixement demogràfic de Catalunya en el segle XVIII a partir de sèries parroquials," *Estudis d'Història Agrària*, no. 20 (2007): 17–68), we can estimate how many hectolitres the population consumed. It would still be necessary to estimate the internal consumption of brandy for drinking or for fortifying wines in order to define consumption precisely. Finally, the difference between estimated production and internal consumption would provide us with the hectolitres that were available to be transformed into brandy or sold as wine outside the territory.

Table 1.
Expansion of vineyards, production, consumption and exports in Catalonia based on the growth of *rabassa morta* contracts in different regions, eighteenth–nineteenth centuries

	Rabassa morta contracts	Theoretical acreage of vineyards (hl)	Theoretical yield (17.7 hl/ha)	Wine consumption (90 l/person)	Consumption by population (%)	Exports as wine or brandy (hl)	Estimated population of Catalonia
1780–1789	2,902	90,246	1,597,348	712,405	44.6	884,943	1,017,722
1790–1799	3,663	113,911	2,016,226	779,765	38.7	1,236,461	1,113,950
1800–1809	4,158	129,304	2,288,689	855,133	37.4	1,433,556	1,221,618
1810–1819	5,440	169,172	2,994,340	930,500	31.1	2,063,840	1,329,286
1820–1829	6,969	216,720	3,835,948	1,005,868	26.2	2,830,080	1,436,955
1830–1839	8,043	250,119	4,427,110	1,081,236	24.4	3,345,874	1,544,623
1840–1849	9,647	300,000	5,310,000	1,156,604	21.8	4,153,396	1,652,291

Source: See note 23.

If these estimations were correct, the ports of Tarragona (and it would be necessary to add the rest) exported an average of 777,882 hl of wine annually between 1800 and 1808, which represented 34 percent of Catalonia's total production and 65.4 percent of its exportable production. To that can be added the brandy and wine of the same quantity exported by other ports, although we have already seen that they were not very significant.

Despite the lack of precise data, we can conclude that Catalan viticulture in the eighteenth century had specialised in the production of wine and brandy, which was exported on a mass scale to northern Europe first and to the colonial market second. Thus, the industry was completely globalised.

Changes in Wine and Brandy Exports in the First Half of the Nineteenth Century

At the end of the eighteenth century, this model entered a deep crisis. The French Revolution provoked an international crisis, which altered the way in which the continental markets operated. The protectionist policy concerning French spirits, which became more acute at the time, and the loss of privileges by the port of Dunkirk, which ceased exports intended for the English market that were smuggled through it, did the rest. As happened on other occasions, the exports of Catalan brandy sought new markets in the north of Germany and northern Europe which opened up due to the problems with France. Valls demonstrated how the ports of Bremen and Hamburg received a large part of the former exports to France.[24]

In the 1790s the colonial market also experienced problems. The two wars confronting Spain and Britain starting from 1796 caused the collapse of trade with America. The series shown in figure 1 clearly shows the extent of this collapse from 1795 to 1801, the worst year being 1797. It would be necessary to add to this the international crisis caused by the liberalisation of the trade in sugar cane liqueur, which was the main competitor of Catalan brandy on the continent. However, for the time being the northern European market avoided the effects of this collapse.

The signing of the Treaty of Amiens in 1802 ending the French Revolutionary Wars led to a short period of calm, which ended in 1805, when the War of the Third Coalition against France caused the collapse of international trade. Figures 1 and 2 convey the seriousness of this situation. The occupation of Hamburg and Bremen by Napoleon and the occupation of Spain in subsequent years put an end to the exports of brandy to northern Europe. These exports never recovered and led to a reorganisation of the industry.

Changes in consumption patterns. In the first decades of the nineteenth century, the brandies with a low alcohol content, such as the Catalan ones (Dutch proof), which had experienced mass consumption in northern Europe, began to be replaced by grain spirits and by overseas imports of sugar cane liqueur. The consumption of whisky grew in popularity in England, as did vodka in Russia, gin in Holland, with autochthonous spirits ultimately replacing brandy, including the Catalan variety.[25] These changes also took place in relation to fortified wines such as port, Málaga wine or sherry, which shows how demand evolved towards lighter wines. Moreover, in the mid-nineteenth century, demand began to emerge for table or common wines, which explains part of the expansion in wine production.[26] We are interested in another fact, which is that wines went from being fortified with arrope in the eighteenth century to being fortified with brandy in the nineteenth century. Andalusian wines needed brandy for fortification and their producers were not interested in distilling their own wines, which they preferred to leave on the market.

Replacement of brandy by wine. There is scarce overall data for the evolution of the foreign trade in Catalan viticulture in the first half of the nineteenth century, and what does exist generally refers to the port of Barcelona. Figure 2

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[24] Valls Junyent, *La Catalunya atlàntica*, 270–80.

[25] Ibid., 330.

[26] José Morilla Critz, "Los vinos de Málaga enfrentados a las tendencias del consumo y al desarrollo de las viticulturas de Europa: Siglo XIX y principios del XX," *Revista de Estudios Regionales*, no. 57 (2000): 15–36.

and appendix 1 show the evolution of exports to the American market. With considerable variations between years (a decline from 1805 to 1807, 1811 to 1812 and in 1818), the general trend saw a reduction in the volume of wine exported, but the most significant factor was the decline in exports of brandy and the increase in exports of common wine.

The trend is the same in the other available series on shipments from the ports of the coast of Tarragona (fig. 5, appendix 2), with an increase in the exports of wine compared to brandy and a continuous reduction from 1807 to at least 1821. From then on, there was a recovery, which is a detail worth retaining. This replacement of brandy with wine was fully consolidated in the first available statistics from the port of Barcelona, which date to the 1840s.

Spanish brandy market. The export series from the coasts of Tarragona shows the destination of the spirits and wines and the interesting changes in this regard over the years.[27] In table 2, the exports of brandy and wine are differentiated. The following phenomena can be indicated in relation to the former: a) from 1803 to 1806, 66.2 percent of brandy went to northern Europe, and from then on that figure fell to less than 10 percent, with this market practically disappearing; b) the Spanish, especially Andalusian, market took over, since Andalusian wine replaced arrope with brandy for the fortification of wine and this substitution was also found in the Catalan market; significant demand also appeared in Galicia and Santander; c) exports to the colonial market were very modest, among others due to political conflicts, although they were re-exported through other ports, and d) from 1824 to 1829, exports to Portugal and Gibraltar increased, mainly to the latter, which re-exported wine and brandy to Argentina in order to circumvent the privateering against ships from the former metropolis.

In relation to wine exports, the shipments from the coast of Tarragona were more diverse in origin. Some changes should also be indicated: a) the decline in the exports of wine to Atlantic Europe and its almost complete disappearance as a destination market; b) the progressive increase in the shipment of wine to America (from 3.4 to 28.5 percent); c) the increase in the exports of wine from the port of Barcelona (from 11.1 to 35 percent), this being the point of departure for ships loaded with wine for America, complementing the direct shipments from the same coast of Tarragona (both together amount to 63.5 percent), and d) the peak in exports to Gibraltar, a destination which also re-exported to Argentina. The conclusion is important: the increasing wine exports were destined for the American market and were gradually concentrated entirely in the port of Barcelona.

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[27] Valls Junyent, *La Catalunya atlàntica*.

Table 2.
Destination of wine and brandy exports from the coast of Tarragona, 1803–1832 (in percentages)

	Brandy							
	Port of Barcelona	**Rest of Catalonia**	**Rest of Spain**	**America**	**Mediterranean ports**	**Northern Europe**	**Portugal and Gibraltar**	**Other**
1803–1806	7.8	0.6	9.5	9.5	2.9	66.2	3.5	0
1815–1820	9.1	2.3	60.1	1.1	1.7	13.2	7.9	4.5
1824–1826	2.8	1.4	70.1	7.1	2	3.5	12.9	0.2
1827–1829	8.1	1.7	57.6	4.6	2	4.5	21.3	0.3
1830–1832	6.8	1	57.5	13.9	3.6	11.4	5.6	0.2
	Wine							
1803–1806	11.1	2.1	28.5	3.4	11.5	37.6	5.5	0.4
1815–1820	17	6.5	48.2	6.6	5.8	4.6	7.1	4.2
1824–1826	17.1	1.7	23.5	17.7	2.6	6.8	28.9	1.7
1827–1829	26.4	5.5	30	22.2	3.1	3.9	8.1	0.8
1830–1832	35	0.4	28.5	28.6	1.8	2.6	3	0

Source: Francesc Valls Junyent, *La Catalunya atlàntica: Aiguardent i teixits a l'arrencada industrial catalana* (Vic: Eumo, 2004).

The northern Europe market thus disappeared for Catalan wines and brandies in the first decade of the nineteenth century. Brandy found a new market in Andalusia and Cantabria, although production tended to decline. The volume of wine exported began to clearly overtake that of brandy and, through the port of Barcelona, the Catalan wine market gradually focused on the former American colonies and the Antilles.

Technical changes and improvements in production. Certain technical changes occurred in this context which helped these changes to take place. First, the shift from low to high alcohol-content brandies – demanded by Andalusia and by oenology in general for the fortification of wine or to give them more alcohol content for export – was possible thanks to the introduction in Catalonia in 1801 of the Adam's still, which allowed high alcohol-content brandy to be obtained from a single distillation.[28] Likewise, if the alternative involved common wine, Catalan viticulture first had to guarantee that the long-distance transport would not damage the wines and, second, to adapt to the new consumer patterns. In

[28] Agustí Nieto-Galán, "La tecnologia del vi i la destil.lació a la Catalunya de 1800," *Quaderns d'Història de l'Enginyeria* 2 (1997): 9–39.

this respect, it could choose to promote natural wines or to imitate wines which were already recognised on the market. Manuals appeared which explained in detail how to guarantee the quality of wine, how to improve it or how to imitate already recognised wine.[29] Blending and adding brandy were the most common practices carried out by the warehouse owners and explain the success of Catalan wine exports in the nineteenth century.

The colonial market as an alternative for wine exports. Little statistical data exists for the first half of the nineteenth century. In the previous century, the data for the port of Barcelona shows that wines were mainly exported to the European markets. Relatively complete data is not available until 1843–1844, when a radical change occurred. The exports to Europe were practically non-existent and almost all the exports were to American ports. Tarragona, on the other hand, focused its exports on Europe, although it was less important.

This change of model developed gradually in the first third of the nineteenth century, possibly between 1825 and 1830. From 1828 to 1833, the ships departing from Barcelona to America increased from an indexed level of 55 in the previous five-year period to 159, clearly exceeding the departures of 1784–1795, the reference decade.[30] It is not clear how these changes altered the network of trading companies devoted to overseas trade. It does, however, seem obvious that there was an adaptation and that wine exports continued to be an option for overseas trade.

Various authors have related this orientation towards South America with Catalan industrialisation,[31] which required raw cotton for its factories which was produced in the southern United States and in Brazil. It is not surprising that the bulk of Catalan wine went to Cuba and Puerto Rico, since ships could return with cotton and staves for cooperage. It is true that Cuba and Puerto Rico were still Spanish colonies and this could generate privileged trade; however, the emigration of Catalans to the Antilles and the generation of businesses linked to the families of origin located in Vilanova, Sitges, Torredembarra and Sant Feliu de Guíxols went back a long way. The wine business was also a natural evolution of this network.[32]

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[29] Francisco Carbonell Bravo, *Arte de hacer y conservar el vino: con una noticia acerca la fabricación del vinagre* (Barcelona: Antonio Brusi, 1820); Roura, *Memoria sobre los vinos y su destilación y sobre los aceites*.

[30] Valls Junyent, *La Catalunya atlàntica*, 403.

[31] Ibid.; Josep M. Fradera, *Indústria i mercat: Les bases comercials de la indústria catalana moderna (1814–1845)* (Barcelona: Crítica, 1987); Pere Pascual Domènech, *Agricultura i industrialització a la Catalunya del segle XIX: Formació i desestructuració d'un sistema econòmic* (Barcelona: Crítica, 1990).

[32] Cesar Yáñez Gallardo, *Sortir de casa per anar a casa: Comerç, navegació i estratègies familiars en l'emigració de Sant Feliu de Guixols a América, en el segle XIX* (Sant Feliu de

Table 3.
Wine and brandy exports from Barcelona and Tarragona, 1787–1857

Year	Port of Barcelona				Port of Tarragona	
	Europe		America		America	
	Wine	Brandy	Wine	Brandy	Wine	Brandy
1787			31,144	11,207		
1792			16,261	44,169		
1793	227,091	133,753	17,875	29,236		
1795			17,557	16,819		
1843	2,139	2,139	173,704	16,541		
1844	820	1,502	169,562	11,380		
1848	1,899	512	175,797	31,882		
1857			343,081	4,858	21,116	393
1858			309,108	10,031	45,307	433

Note: empty cells means no data exists for those years.

Sources: Pascual Madoz, *Diccionario geográfico-estadístico-histórico de España y sus posesiones en Ultramar* (Madrid: Madoz, 1845); Pierre Vilar, *Catalunya dins l'Espanya moderna: Recerques sobre els fonaments econòmics de les estructures nacionals* (Barcelona: 62, 1964–1968), vol. 4; Laureà Figuerola, *Estadística de Barcelona en 1849* (Barcelona: Tomas Gorchs, 1849); Spanish foreign trade statistics (cited at the end of appendix 3).

Pere Pascual has described three major commercial channels in which wine and brandy played a fundamental role:[33] a) the Antilles route, the one most frequently used, in which the Catalan ships, loaded with wine, brandy and other products, went to the ports of Cuba and Puerto Rico, unloaded and returned with colonial products, or went to the ports of the southern United States to load cotton; b) the Argentina, Antilles and US route, with which they went to Buenos Aires and Montevideo loaded with wine, brandy and salt and returned with hides; or continued to Brazil, where they loaded cotton; or to Venezuela to load cocoa or to take jerked beef – dried and salted meat for

Guixols: Ajuntament de Sant Feliu de Guixols, 1992); Yáñez, *Emigración ultramarina y familia catalana en el siglo XIX* (Mataró: Gràfiques Tria, 1995); Yáñez Gallardo, *Saltar con red: La temprana emigración catalana a América, 1830–1870* (Madrid: Alianza, 1996); Raimon Solre Becerro, *Emigrar per negociar: L'emigració a América des de la comarca del Garraf. El cas de Gregori Ferrer i Soler (1791–1853)* (Vilanova i la Geltrú: El Cep i La Nansa, 2003).

[33] Pascual Domènech, *Agricultura i industrialització*, 196–98.

slaves – to Cuba and return loaded with cotton; c) the Mexico and Central American route, in which they took wine, brandy, bricks and ceramics from La Bisbal and returned loaded with exotic wood from the port of Veracruz and the surrounding area. This model was developed and maintained throughout the nineteenth century.

The Impact of Oidium and Phylloxera on the Catalan Export Model

The expansion of vines in the first half of the nineteenth century accompanied the development of an export model for wine (and, to a lesser extent, brandy) that targeted the American market, especially the Antilles, Argentina and Brazil, in exchange for colonial products and cotton. Continuous data exists from 1857 onwards, but it gradually loses its quality over time.

Figure 6 shows the exports of Catalan wine and brandy for the period when statistics for the whole of Spain are available. Between 1860 and 1875, Catalan wines represented more than 60 percent of Spanish exports. The subsequent reduction was due to the extraordinary French demand, which stimulated plantations and exports from across Spain. In the first third of the twentieth century, it stabilised at around 40 percent of the total. Brandy (including liqueurs and spirits) represented around 50 percent, with frequent fluctuations, although its volume was much lower.

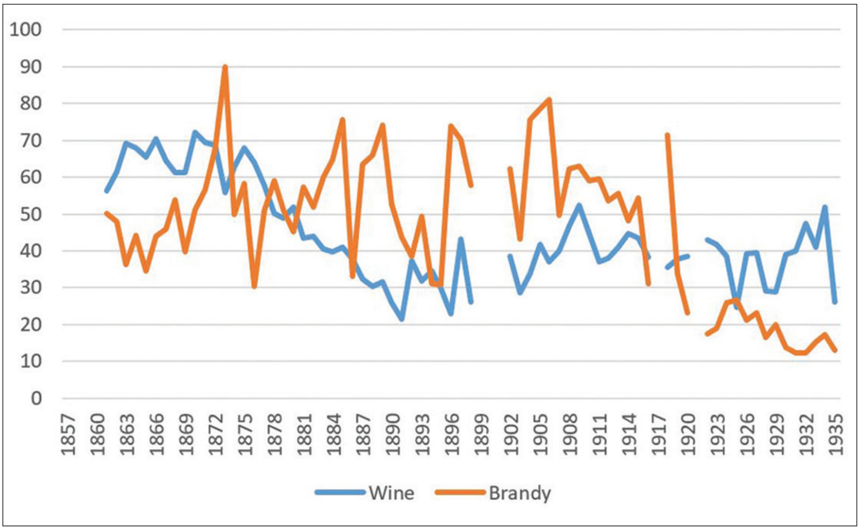

Fig. 6. Catalan common wine and brandy exports as a percentage of total Spanish exports, 1857–1935 (based on appendix 3 and author's elaboration of data from *Estadísticas del comercio Exterior de España*).

Thus, wine exports in Spain in the mid-nineteenth century basically meant wine from Catalonia if we exclude fortified and liqueur wines from Málaga and Jérez, which are not considered here.

The official statistics distinguish between exports to Europe and Africa, America and Asia. Figures 7 to 10 show the weight of the exports of wine and brandy to the different destinations based on data from the different customs offices. It can be deduced that: a) Catalan exports of common wine to America accounted for over 80 percent of the total exported there from Spain; almost all of it departed from Barcelona (Tarragona represented a minimal share) and the percentage did not change throughout the period for which we have data (fig. 7); b) exports to Europe hardly amounted to 20 percent; almost all exports in this direction departed from Tarragona, with a clear upward trend after phylloxera infected French vineyards and and were increasingly brought by rail to the French border, starting when Portbou railway station came into operation (fig. 8);[34] c) exports of brandy to America represented around 60 percent of the total Spanish exports and departed entirely from Barcelona (fig. 9), and d) the exports of brandy to Europe were much lower than the shipments to America, with considerable fluctuations due to the alteration of the market caused by French demand, and with a clear increase in the significance of Tarragona in the shipment of brandy in the 1880s (fig. 10). The customs offices of Tarragona (especially the port) processed 20 percent of Catalan exports in the mid-nineteenth century, a situation which gradually changed in the following century.

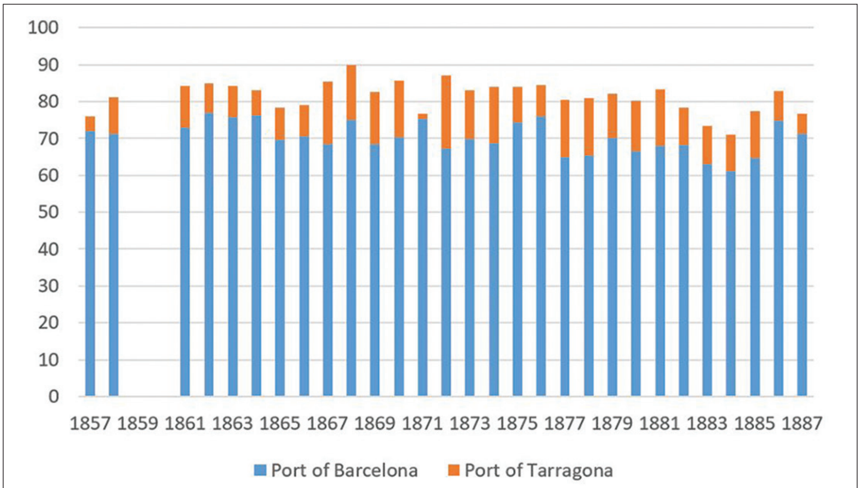

Fig. 7. Catalan wine exports to America as a percentage of the total weight of Spanish exports to this destination, 1857–1887 (based on appendix 4 and author's elaboration of data from *Estadísticas del Comercio Exterior de España*).

[34] Pascual Domènech, "El tràfic de vins i derivats a Catalunya."

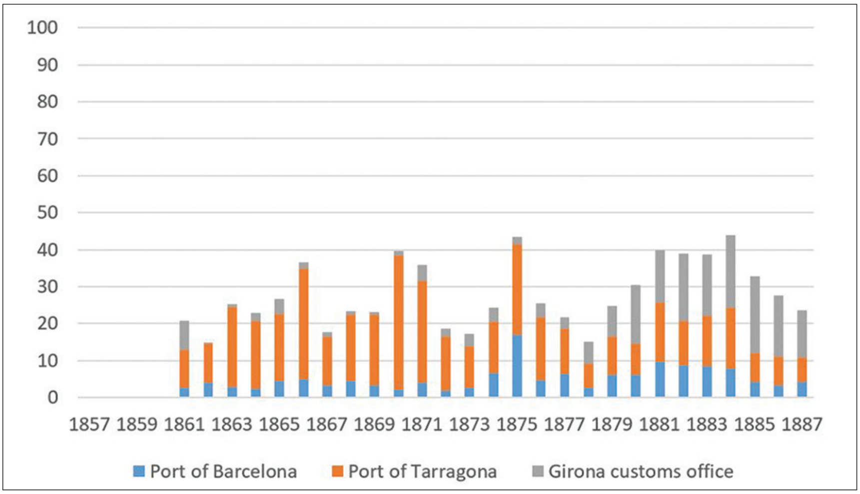

Fig. 8. Catalan wine exports to Europe as a percentage of the total weight of Spanish exports to this destination, 1857–1887 (based on appendix 4 and author's elaboration of data from *Estadísticas del Comercio Exterior de España*).

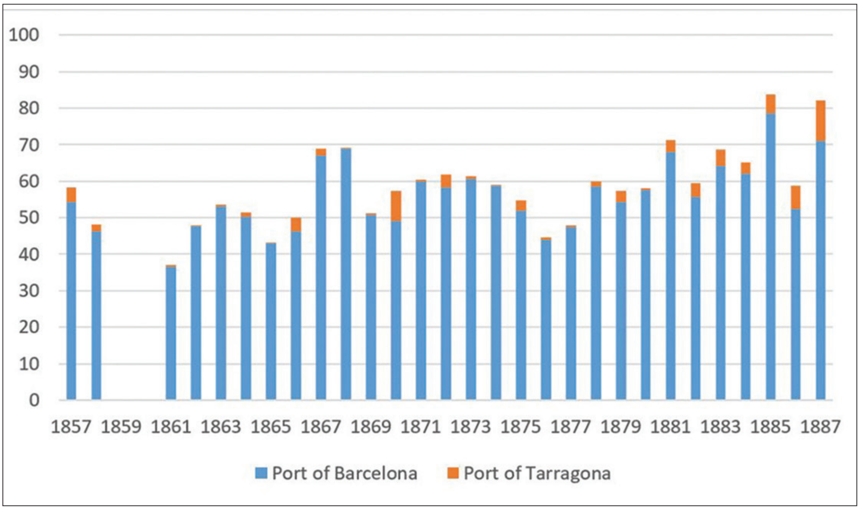

Fig. 9. Catalan brandy exports to America as a percentage of the total weight of Spanish exports to this destination, 1857–1887 (based on appendix 4 and author's elaboration of data from *Estadísticas del Comercio Exterior de España*).

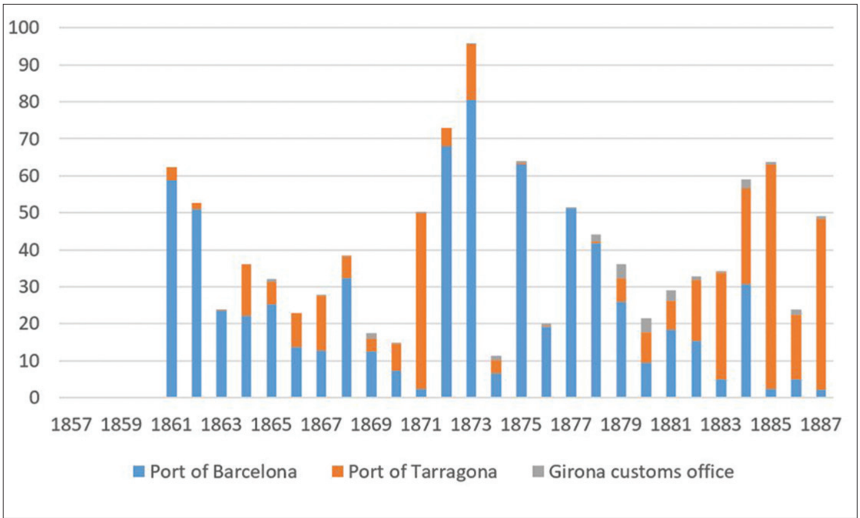

Fig. 10. Catalan brandy exports to Europe as a percentage of the total weight of Spanish exports to this destination, 1857–1887 (based on appendix 4 and author's elaboration of data from *Estadísticas del Comercio Exterior de España*).

The statistics do not indicate to which American countries Catalan wines went. However, it is known that the main destinations were Cuba and Puerto Rico. In 1866, 60.4 percent of the wine went to these two islands, 22.3 percent to Argentina, 7.7 percent to Brazil and 6.2 percent to Uruguay.[35] Cuba consumed exclusively Catalan wine, as demonstrated by this testimony from the mid-nineteenth century:

> The first thing that you find on any table, whether that of a trader or that of a mechanic … which is used almost like water, and which can indeed be considered as something really from Cuba, is Catalan wine, imported from Spain in large quantities and which is sold in Cuba at very cheap prices. It is a dark red-coloured wine, full-bodied, very strong, which is generally used diluted in water. It has a high alcohol content, is not adulterated with foreign matter like low quality wine; it can be drank pure, like Burgundy wine. It is used both for lunch and for dinner and is considered better than French clarets, due to the fact that it is not as acidic on the stomach, which has to be taken into account in a warm climate.[36]

[35] Pascual Domènech, *Agricultura i industrialització*, 198.

[36] Ismael Sarmiento Ramírez, "Las bebidas alcohólicas en la Cuba del siglo XIX: uso y abuso," in *El vino de Jérez y otras bebidas espirituosas en la historia de España y América* (Jérez de la Frontera: Ayuntamiento de Jérez, 2004), 391–412.

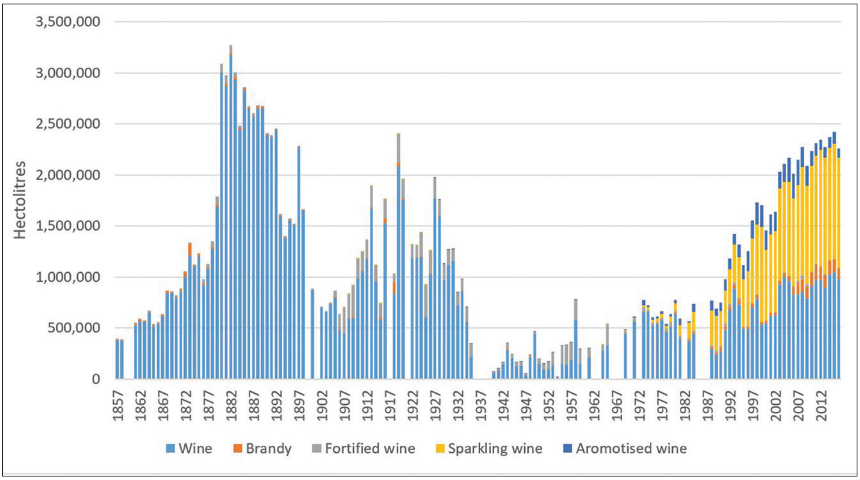

Fig. 11. Exports of wine, brandy, fortified wine, sparkling and aromatised wine in Catalonia, 1857–2017 (based on appendix 3).

Figure 11 shows the volume of exports of the different types of wine continuously since 1857, when data became available. Brandy has been converted to its wine equivalent (by multiplying it by 4.5) and it would be necessary to add the litres used to produce alcohol for fortified wine. These figures are for exports outside Spain, without counting sales to the Spanish domestic market, especially of brandy used to fortify Andalusian wines.

The following may be observed: a) the extraordinary growth until 1882 and 1883, when the 3 million hl threshold was crossed, which coincided with the peak of phylloxera in France and the signing of the trade agreement with the neighbouring country, which sought to ease the entry of Spanish wine to the French market due to the collapse in local production; b) only common wine was exported; the other wines represented very small quantities; c) the gradual decline from 1883 to 1891, which was followed by a continuous decline as a result of the end of the trade agreement with France, of phylloxera, which was decimating Catalan vineyards, and of the crisis of wine overproduction at the beginning of the twentieth century; d) the recovery, having partly restored the vineyards affected by phylloxera, until the 1920s – the era of World War I – followed by a continuous decline in the 1930s. The Spanish Civil War did the rest and left Catalonia and the whole of Spain outside the international wine markets, as we will see below.

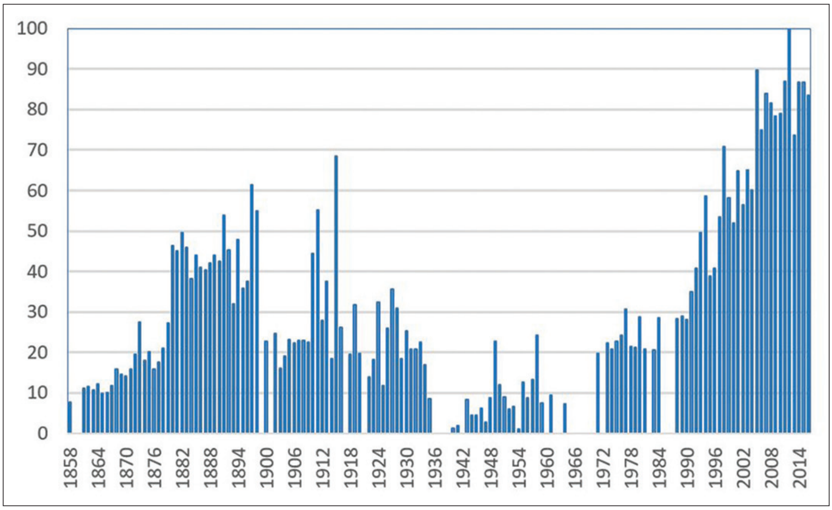

Fig. 12. Exports as a percentage of Catalonian wine production, 1858–2016 (based on appendix 3).

Figure 12 relates the volume of exports to the total wine production in Catalonia. The data refers to overseas departures from Catalan ports and customs offices and does not take into consideration either sales to the Spanish domestic market – which would increase the export figures – or the possible departure through Catalan customs offices of wines or processed wines from other areas of Spain. Exports gradually grew, reaching 40–50 percent of the total produced in 1894–1896, before entering a period of decline in the first third of the twentieth century (20–30 percent with some exceptions) and being reduced to their minimum expression after the civil war. Below, we will tackle the extraordinary opening up to the outside world in the twenty-first century. The data indicates that, as in the eighteenth century, Catalan viticulture cannot be understood without the foreign market.

The Exported Wines

Catalan exports to America were a result of an adaptation related to the return products necessary for industrialisation, a phenomenon characteristic of and specific to Catalonia. However, in the mid-nineteenth century, globalisation meant that vine diseases from America reached Europe – oidium, first, and then phylloxera and mildew – contributing to the globalisation of the wine-producing market.[37] They all appeared in France, leading to a fall in its production and some

[37] Juan Piqueras Haba, "La filoxera en España y su difusión especial: 1878–1926," *Cuadernos de Geografia*, no. 77 (2005): 101–36; Juan Piqueras Haba, *De les plagues americanes*

years of uncertainty until a solution was found and made generally available. This development favoured neighbouring countries, which took advantage of the high circumstantial prices to export wine to the affected country and increased the area under cultivation. Arguably, the plagues led to an increase in the total acreage of vineyards but, above all, to a globalisation of the wine trade.

In this context, traders, warehouse owners and exporters were the main players. Traders from France and from other countries came to Catalonia and Spain, forming partnerships with local traders to dispatch massive amounts of wine to the neighbouring country.[38] The small producers who sold wine in a local environment were of no use for this business. It was necessary to purchase large quantities from local producers and to prepare them for export. This meant giving them the taste and the alcohol by volume necessary for the destination in question and ensuring that they did not spoil on the journey (France, 15 percent; overseas, 16 percent; Spanish American markets, 18 percent; Brazil, 22 percent).[39] This led to the appearance of good and bad wine blends, with more or less colour, industrial alcohols with more or less alcoholic strength[40] and in which chemistry, which had developed in the nineteenth century, provided the solutions for all kinds of situations. The prices were so high for a time that anything was possible and it was very difficult to distinguish wine quality. It was not a question of producing high quality, but rather an accepted quantity for the destination country. Catalan, like Spanish wine, was not produced by the wine growers; it was produced by the traders/warehouse owners.

In 1885 in Tarragona, there were 47 trading houses which operated with France, 21 with the United Kingdom, 13 with Germany, 5 with Holland, 9 with Sweden and Norway, 5 with Switzerland, 6 with Russia, 8 with Italy, 5 with Central America, 13 with Argentina, 7 with Canada, 2 with Brazil, 2 with Cuba, 2 with British Guiana and 1 with Ecuador.[41] Some of them had a French, German or Swiss name, such

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al cooperativisme a Espanya, 1850–2007: la lluita del sector vitivinícola per la modernització i la supervivència (Vilafranca del Penedès: Vinseum, 2010).

[38] Antoni Martorell Pañella, "El Penedès: Notes crítiques sobre les vicissituds de l'Agricultura, Indústria i Comerç durant el segle XIX," in *El Penedès al segle XIX*, ed. Antoni Martorell Pañella, Ramon Esclasans Mila and Claudi Mas Jornet (Vilafranca del Penedès: Institut d'Estudis Penedesencs, 2010), 26–53.

[39] Emili Giralt Raventós, "Consejo Superior de Agricultura, Industria y comercio: una enquesta de 1884," *Estudis d'Història Agrària*, no. 12 (1998): 246.

[40] Núria Puig Raposo, "La modernización de la industria del alcohol en Tarragona, Ciudad Real, Navarra y Granada (1888–1953)," *Revista de Historia Industrial*, no. 4 (1993): 91–110.

[41] Giralt Raventós, "Consejo Superior de Agricultura," 231–33.

as Mercier, Muller, Violet, Pitoiret, Peiron and Goujill.[42] In Barcelona, the wine warehouse owners were located in Sant Martí de Provençals. In 1861, there were two companies, in 1877, 27, and in 1886, 47.[43] Three big names stood out: Gironella, established in 1873, Martistany, founded in 1846, and Magí Pladellorens.[44]

This export network was very dynamic, but it transformed the wine-producing sector in the sense of guaranteeing the coupage, while hardly changing the production. There were scarce attempts to create own brands, such as Codorniu, which began with the production of champagne-type sparkling wine; Marqués de Monistrol in El Penedès, the Girona family on the Castell del Remei estate but little else.[45]

Alongside this trader/exporter structure, there was a network of local producers, medium-sized winegrowers and small traders who supplied the domestic market of towns and cities. This would gradually disappear in the subsequent decades.

Vineyard Transformation and Overproduction Crises in the First Third of the Twentieth Century

The three plagues of oidium, phylloxera and mildew caused the destabilisation of the markets and of prices and increased the levels of international trade with France, the main producer and the main consumer of wine. The price rise and the scarcity of wine not only increased the plantations in countries which were already producers (such as Catalonia), but also encouraged plantations in areas where vineyards hardly existed, such as Algeria (or La Mancha in the case of Spain), or Argentina and California.[46] It likewise multiplied fraud and wine adulteration techniques. The trade agreement with France revolutionised Spanish and, to a lesser extent, Catalan exports and led to an expansion of cultivation, but when it ended it became clear that the situation had changed. Protectionist policies and new competitors exerted downward pressure on the prices and caused crises of *mévente* or of overproduction.

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[42] Joan Alió Ferrer, *El comerç i l'exportació de vi a Tarragona* (Tarragona: Arola, 2010).

[43] Jordi Nadal and Xavier Tafunell, *Sant Martí de Provençals: Pulmò industrial de Catalunya (1847–1992)* (Barcelona: Columna, 1992).

[44] Llorenç Ferrer Alòs, "La formació de la burgesia catalana: Magí Pladellorens Playà, de rabassaire al Bages a exportador de vins a Sant Martí de Provençals," in *Estudis d'Història Agrària*, no. 17 (2004): 465–84.

[45] Jaume Mateu Giral, *El castell del Remei: Terra, aigua i cultura del vi a la plana d'Urgell* (Lleida: Pagès, 2012); Francesc Valls Junyent, "La indústria del cava. De la substitució d'importacions a la conquesta del mercat internacional," *Notes*, no. 22 (2007): 105–42.

[46] Pinilla and Ayuda, " Political Economy of the Wine Trade."

The uneven spread of phylloxera delayed the finding of a solution to the problem. In Catalonia, it entered through Girona in 1879 and ended up affecting all the vineyards of Tarragona in the first decade of the twentieth century.[47] The solution was known and, in many places, the arrival of the plague was accompanied by immediate replanting. Winegrowers learned the new grafting techniques and it was normal to treat the vines with sulphur or copper sulphate to prevent oidium or mildew. The old *rabassa morta* contracts (characteristic of Catalonia, which gave the small winegrowers ownership rights) were changed to simple leases and left a social conflict on the table which would last until the civil war. The planting was immediate and swift in the provinces of Barcelona and Tarragona, but, on the other hand, Lleida, which had grown artificially due to French demand, hardly recovered. By 1934, the acreage of Barcelona's vineyards had almost returned (91 percent) to their 1889 levels, when they were at their greatest extent; in Tarragona they covered 80 percent of the area they did in 1889.[48]

The crises arising from worldwide overproduction, the reduction in exports and the fall in prices did not prevent replanting. Hundreds of syndicates and cooperatives were founded which made joint purchases, organised conferences and training courses to improve cultivation and production, and established alcohol distilleries to make use of the pomace after pressing. Later on, cooperatives appeared in order to prepare the wine, seeking to boost the income of winegrowers.[49]

The result was that the new vines had much higher yields per hectare which, combined with good harvests in the first decades of the twentieth century (except for the dire 1915 due to mildew), led to record productions which were even higher than the best years of the nineteenth century, when the vineyards reached their greatest acreage. Figure 13 shows the evolution of wine production in Catalonia. In the last third of the nineteenth century, it reached 6 million hl; it fell due to the phylloxera crisis but, when the new vines reached their maximum yield, production was between 7 and 10 million hl, which was achieved between 1916 and 1925. These figures were unprecedented.

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[47] Emili Giralt Raventós, "L'agricultura," in *Història econòmica de la Catalunya contemporània*, vol. 2, *s. XIX: Població i agricultura* (Barcelona: Fundació Enciclopèdia Catalana, 1990), 120–305.

[48] Llorenç Ferrer Alòs, "The Evolution of Catalan Winemaking in the Nineteenth and Twentieth Centuries: Without Wine Merchants there is no Viticulture," in *A History of Wine in Europe, 19th to 20th Centuries*, vol. 2, *Markets, Trade and Regulation of Quality*, ed. Silvia A. Conca Messina, Stéphane Le Bras, Paolo Tedeschi and Manuel Vaquero Piñeiro (Cham: Palgrave, 2019), 137–74.

[49] Jordi Planas Maresma, "The Emergence of Winemaking Cooperatives in Catalonia," *Business History* 58, no. 2 (2016): 264–82.

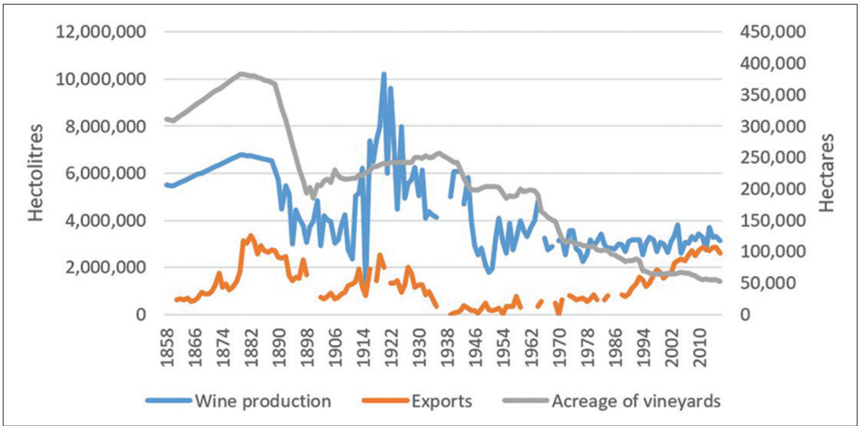

Fig. 13. Production of wine and exports of different types of wine, 1858–2016 (based on appendix 3).

Exports, however, went down. Figure 12 shows how, after accounting for over 50 percent of the wine produced in the golden age from 1876 to approximately 1890, they fell to 20–30 percent between 1900 and 1935, with the occasional exceptional year such as 1910, 1911 and 1915, and a slight rise in the World War I setting. France had an erratic policy in which it requested Catalan wine when it needed it, so new markets and new products had to be explored. The changes in the market included:

1. Barcelona, which cornered the majority of wine exports, began to lose its supremacy to Tarragona. At the end of the nineteenth century, 62 percent of wine exports departed from Barcelona and, between 1920 and 1925, this figure was only 14.5 percent. Tarragona went from 38 to 85.7 percent. The export model of the warehouse owners remained intact in the latter area.

2. From the beginning of the twentieth century, in order to confront the crisis Tarragona also specialised in Málaga-type fortified wines, known as Tarragona sweet wine. Until 1904, these wines represented only 6–7 percent of Spanish exports of fortified wines but, starting from that year, they represented 40–50 percent. More attention should be paid to this phenomenon.

3. Data on the destination of Catalan exports of common wine does not exist until 1914 (Spanish trade statistics only provide general data on departures from customs offices) and some years only refer to the port of Barcelona. Table 4, which provides data on the years for which it exists for the ports of Barcelona, Tarragona or for all the customs offices, shows that: a) France, although the percentage varied over the years, was the main importer

of Catalan wines (between 40 and 80.9 percent); b) Switzerland began to emerge as an importing country, becoming a very stable and basic importer during the Franco era;[50] c) the growing, although still not very important, role of the imports from Belgium and Germany, and d) exports to the American market, which had fallen to 10 percent in 1918 and which had completely disappeared by the 1930s (these exports basically departed from Barcelona and, as the latter declined in significance in terms of the global export of wine, gradually disappeared).

Table 4.
Destination of Catalan exports of common wine, 1918–1935

	1918	1919	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935
Europe																
France	56.3	40.9	65.2	75.9	76.8	59.8	68.1	87.8	89.4	81.8	71.7	75.9	55.7	57.2	28.7	43.1
Germany	0.0	0.3	0.3	0.3	1.7	7.1	3.2	2.0	1.0	1.6	0.7	0.3	0.6	1.1	3.6	6.8
Holland/ Belgium	0.2	26.7	4.3	4.2	6.5	6.1	2.9	0.6	1.1	2.2	2.6	1.8	3.1	2.6	4.3	9.5
Italy	0.0	9.6	2.9	1.0	0.4	3.1	4.0	0.8	1.4	2.1	1.1	0.8	1.7	0.2	0.2	1.5
Switzerland	21.3	9.2	16.9	4.1	0.9	0.0	0.0	2.0	0.6	0.0	12.9	10.0	20.3	28.9	50.9	22.3
UK	0.0	0.5	0.3	0.7	0.8	0.9	1.7	0.6	0.6	1.4	1.1	0.2	1.2	0.8	1.1	2.7
Total	77.8	87.2	89.6	86.3	87.2	77.0	80.0	93.9	94.1	89.0	90.1	89.0	82.6	90.9	88.8	85.8
North Africa																
Morocco	0.3	0.2	0.2	1.9	2.8	7.8	8.0	1.5	1.0	3.6	4.6	6.9	11.7	2.8	3.9	0.0
Americas																
Argentina	3.7	1.4	1.5	1.3	1.1	1.7	3.3	0.7	0.7	1.0	0.6	0.3	0.3	0.2	0.0	0.0
Cuba	7.3	2.4	4.6	7.6	6.0	6.3	5.3	1.5	2.1	2.9	0.6	0.5	1.0	0.5	1.1	2.8
Uruguay	2.3	1.0	0.6	0.7	0.6	1.9	1.0	0.3	0.5	0.5	0.4	0.2	0.3	0.0	0.0	0.0
Total	13.3	4.8	6.8	9.5	7.7	9.9	9.5	2.5	3.3	4.4	1.6	1.1	1.5	0.7	1.1	2.8
Others	8.6	7.8	3.4	2.4	2.3	5.3	2.6	2.1	1.7	3.0	3.7	3.0	4.2	5.6	6.2	11.4

[50] Françoise Daillens, "La vigne et le vin en Suisse," *Revue Geographique de l'Est* 2, no. 4 (1962): 345–74.

Note: The data for 1918 and 1919 is for the ports of Barcelona and Tarragona. Subsequent years refer to the totals of all Catalan customs offices.

Source: Author's elaboration of data from *Estadísticas del Comercio Exterior de España.*

The Disappearance of the Foreign Market after the Civil War

From 1934 to 1963, the acreage of Catalan vineyards declined by 25 percent, especially in the province of Barcelona. Production also went down but stabilised at around 3 million hl, which is what is currently produced, thanks to a constant increase in yields. The prices plummeted in the first years of the Franco regime. Between 1947 and 1953, they fell by 58.6 percent, and between 1958 and 1963, by 29.6 percent.[51] On the other hand, the increase in real salaries in industrial sectors stimulated the abandonment of vine cultivation and, above all, of production processes. The production cooperatives continued to be an alternative, as indicated in the 1920s, allowing some farmers to continue to cultivate vines, but without producing any wine themselves; they sold their grapes to the cooperatives. Catalonia went from having 39 cooperative wine-producing cellars in 1920, to 69 in 1940, 75 in 1946–1947 and 171 in 1980.[52]

If in Tarragona and El Penedès wine production proved more resilient than in the rest of the province of Barcelona, this was thanks to the wine traders/warehouse owners who had their facilities in Vilafranca del Penedès, Vilanova and El Vendrell. They continued to buy wine from the cooperatives and some individuals, produce their blends to make all kinds of wine, and sell it, normally in bulk, to the domestic and, to a very small extent, foreign market. Some were new companies; others already existed in the nineteenth century or in the first third of the twentieth century. They controlled wine production.[53] Already on its deathbed, this model entered a final crisis when table wine consumption began to fall.[54] It was then that the reconversion, which had already begun in some sectors, became a real alternative.

[51] Francisco J. Medina Albadalejo, "Crisis, cooperativas y estado en el sector vitivinícola español durante el franquismo" (Workshop "Estado y agricultura en España (1920–1960): Continuidad y cambios," Universidad Carlos III de Madrid, 17–18 November 2014).

[52] Francisco J. Medina Albadalejo, "El desenvolupament dels cellers cooperatius a Catalunya a la segona meitat del segle XXº," in Colomé, Planas Maresma and Valls Junyent, *Vinyes, vins i cooperativisme*, 517–46.

[53] Raimon Soler Becerro, "De magatzems a cellers: Recuperació de la producció i transformacions empresarials al Penedès, 1940–2000," in *De l'aiguardent al cava: El procés d'especialització vitivinícola a les comarques del Penedès-Garraf*, ed. Josep Colomé (Vilafranca del Penedès: Tres de Vuit, 2003), 183–222.

[54] In Spain, it went from 62 litres per inhabitant in 1970 to 34 in 2004 (Raimon Soler Becerro, "Les exportacions de vins catalans durant la segona meitat del segle XX," *Recerques*,

The sales abroad practically disappeared after the civil war (1936–1939). Figure 11 clearly shows how exports were almost non-existent from 1940 to 1970. From 1.3 million hl in the 1920s, this figure fell to 0.19 million hl in the five-year period from 1940 to 1945 and 0.4 million hl in 1961–1965. It represented 3–5 percent of production, with the exception of the occasional year such as 1958. It would be even lower if the statistics did not consider sales to the Canaries, Ceuta, Melilla and Guinea – Spanish colonies – as foreign markets.[55] Exports were very rare during this period and targeted very specific locations. Switzerland, for example, had stable demand for wine (85 percent of all exports in 1941, 74.8 percent in 1945);[56] in 1950, 17.2 percent of exports went to Egypt. It was in the mid-1950s when, although in insignificant quantities, the European market in a broader sense began to appear. In 1956, 33.3 percent of sales were to Germany, 17.1 percent to Austria, 7.2 percent to Sweden, which began to become consolidated as a stable market, and 22 percent to Switzerland.

The Cava Revolution

French champagne was a reference product in the world of viticulture. Oenology manuals generally explained how it could be imitated.[57] Various initiatives arose in Catalonia in the mid-nineteenth century to produce it,[58] including in particular that of Manuel Raventós, who began to create his own brand (Codorniu).

In the first third of the nineteenth century champagne production increased, replacing French imports, with the help of protectionist measures and an increase in consumption. In 1935, there were 62 producing companies in Spain, 52 of them in Barcelona, to be precise in Sant Sadurní d'Anoia in El Penedès, where Codorniu was established. Although some producers made their own wine, the cava companies did not tend to be producers, but rather bought white wine from cooperatives and wineries which were specialised in producing base wines

no. 55 (2007): 127–52). We should recall that, at the end of the nineteenth century, it is estimated that 70–90 litres per inhabitant was consumed.

[55] In 1941, these exports represented 7.7 percent of the total, 20.3 percent in 1945 and 10.98 percent in 1950.

[56] Daillens, "La vigne et le vin en Suisse."

[57] Carbonell Bravo, *Arte de hacer y conservar el vino*; Bonaventura Castellet, *Viticultura y enología españolas: o Tratado sobre el cultivo de la vid y los vinos de España* (Tarrasa: s.n., 1869).

[58] Emili Giralt Raventós, "Origines du 'cava' de Catalogne," in *Le vin des historiens: Actes du 1er Symposium 'Vin et histoire', 19, 20 et 21 mai 1989*, ed. Gilbert Garrier (Suze-la-Rousse: Université du Vin, 1990); Emili Giralt Raventós, "L'elaboració de vins escumosos catalans abans de 1900," in *Vinyes i vins: mil anys d'història*, ed. Emili Giralt Raventós (Barcelona: Universitat de Barcelona, 1993), 1:37–81.

to produce cava.[59] Starting from the 1960s, demand began to grow due to the improvement in the domestic standard of living and to a good product sales campaign. It was moreover excellent value for money, allowing foreign sales to begin to grow exponentially. It was at this time that the dispute over the use of the term "champagne" forbid its use for Spanish produce, with the word cava becoming the term used to identify it (1972).

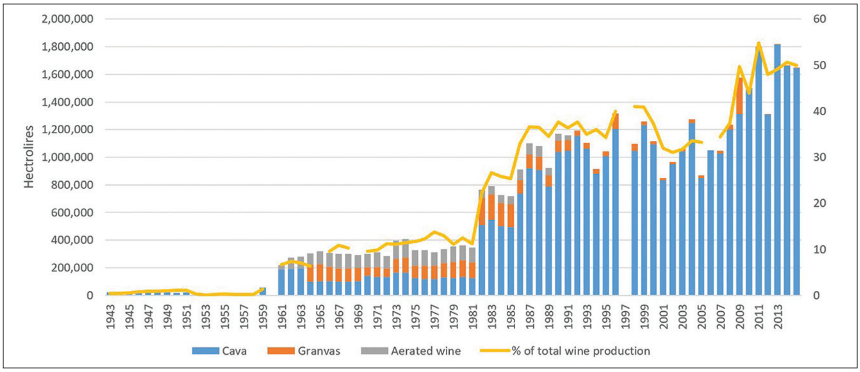

Fig. 14. Acreage devoted to the production of cava in Catalonia and the volume of cava produced from the total wine output (based on author's elaboration of data from *Anuario de Estadística Agraria*).

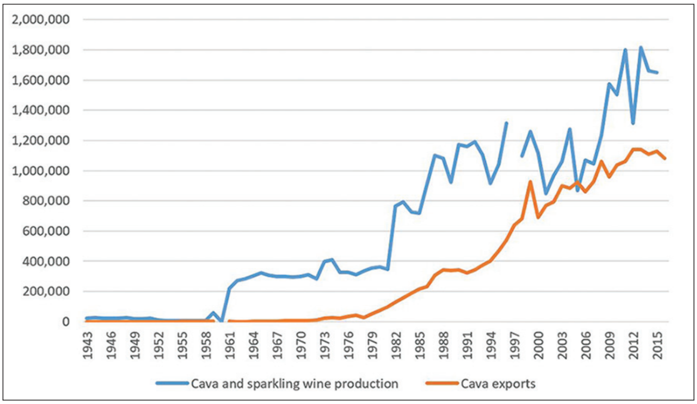

Fig. 15. Exports of cava and other sparkling wines out of the total production of cava in Catalonia, 1943–2015 (based on appendix 3).

[59] Valls Junyent, "La indústria del cava"; Valls Junyent, "Compitiendo con el *champagne*: La industria española de los vinos espumosos antes de la Guerra Civil," *Revista de Historia Industrial* 16, no. 33 (2007): 47–80.

Figures 14 and 15 illustrate the spectacular growth of cava. Until 1960, production was relatively modest (20,000 hl) and exports were non-existent. In 1960, production increased quickly to 200,000 hl, most of which was consumed in the domestic market since, until 1970, exports hardly represented 2 percent of the total production. Starting from the same year total production grew exponentially (reaching 1.6 million hl), mainly by targeting the foreign market, which would account for 60–80 percent of the total production and 1 million hl in exports.[60]

At a time of progressive decline in common wine consumption, when traders/warehouse owners who blended all kinds of wines were entering a crisis, the specialisation in the production of sparkling wine at very competitive prices partly saved viticulture, maintained a good part of the cultivated area of the El Penedès and Tarragona regions, and demonstrated how the foreign market worked, which the production of quality wine would later take advantage of when the sector had to reinvent itself. Figure 11 shows the significance of cava in Catalan wine exports from 1980.

Table 5.
Exports of cava from Catalonia by countries and continents, 1965–2015 (in percentages)

	1965	1971	1975	1980	1995	2000	2005	2010	2015
Andorra		15.1	6.6	3.7					
Austria					0.3	0.8	0.6	2.3	0.3
Belgium	5.8	4.4	2.4			0.6	1.9	11.3	13.9
Czechoslovakia			2.0						
Denmark				1.5	2.9	0.9	1.0	0.6	0.7
Finland	1.2	2.1			0.4	0.6	0.9	1.3	1.4
France					3.3	2.9	10.3	11.2	13.9
Germany	5.6	3.7	2.9	4.8	43.8	53.2	40.5	26.4	22.3
Holland	1.3	1.6			1.7	1.1	1.6	1.4	1.9
Ireland	1.5				0.1	0.1	0.2	0.1	0.1
Italy	1.1		10.9	10.4	1.0	1.1	1.8	2.1	4.0
Poland		5.4	4.3	1.1					

[60] These figures should be treated with some caution. The production figures refer to the volume of wine devoted to the production of cava in Catalonia (*Anuario de Estadística Agraria*). This is white wine based on the Macabeu, Parellada and Xarel·lo varieties. Many cava producers did not have their own vines, and it is therefore well known that this base wine was acquired in other parts of Spain. It is possible that part of the export production was not produced with Catalonian wine.

Sweden			1.3	4.5	3.8	1.9	1.3	1.4	1.9
Switzerland	3.4	4.1	1.2	1.8					
UK	44.9	31.5	18.8	6.5	9.3	14.0	19.7	17.9	12.4
Europe	66.1	71.0	54.6	39.7	74.1	83.1	84.6	80.2	78.0
Africa	2.4	2.2	1.9	0.8	0.2	0.1	0.2	0.3	0.4
North America	1.7	14.8	24.9	42.5	19.2	10.5	9.7	10.7	2.7
South America	23.8	7.0	14.8	11.3	3.4	2.7	1.9	3.3	10.7
Asia	5.9	5.0	3.8	5.7	3.1	3.6	3.6	5.6	8.2

Source: Author's elaboration from export data cited at the end of appendix 3.

Table 5 shows the destination of cava exports for certain years from 1965 to 2015. It may be deduced that Europe was and still is the main market for Catalan cava. In recent years, the European market has been the destination for 80 percent of exports, especially Germany, Belgium, Britain and France – with significant variations from year to year. Outside Europe, North America (Canada and the United States) received 10 percent, also with fluctuations.

The Commitment to High-quality Wines through Designations of Origin

The fall in the consumption of table wine pushed Catalan viticulture into a crisis. The extension of vineyards declined constantly – from 150,000 ha in 1968 to below 100,000 in 1985, to reach 52,202 ha in 2016 – a trend that would have been much worse without the appearance of cava. The situation required a change of strategy, which could only come from the improvement of quality and the creation of brands. In the 1960s, bulk wine began to be replaced by bottled wine and also stainless-steel tanks were introduced to control fermentation.[61] Some warehouse companies disappeared (there was no consumption) but others transformed and began to have their own vineyards, to control the quality of the vineyards of the winegrowers and to produce wine, thus guaranteeing better quality and control of the marketing.[62] The big companies, heirs to the old structures, were joined by small wineries that produced and marketed product.

[61] Between 1965 and 1979, exports of bulk wine represented 80.4 percent and, in 2005, only 13 percent. Soler Becerro, "Les exportacions de vins catalans," 139.

[62] This was the path followed by the Miguel Torres company from the 1960s, which set a trend in the new Catalonian viticulture.

These new producing companies, which were committed to quality, also chose to introduce French varieties which were uncommon in the area (such as Merlot, Cabernet Sauvignon, Syrah, Chardonnay and Sauvignon blanc) in order to adapt to a more international palate. They were convinced that this was one of the ways to improve the quality of the must. At present, a need has been detected to differentiate from the classical tastes of the French varieties and efforts are underway to recover the native varieties (Picapoll, Mandó and Sumoll in El Pla de Bages, Trepat in La Conca de Barberà).[63]

The next step in recovering quality was the creation of designations of origin (DO) with the aim of guaranteeing the quality of production with a specific hallmark. This was a long-standing objective; four producing areas had been recognised in 1932 (Alella, Priorat, Penedès and Tarragona) and these designations appear in the statistics, although in practice this had scarce effect and blended wines continued to be produced in them. Achieving quality meant taking these designations seriously and complying with the regulations that they contained. At the end of the 1970s, a change of policy began to be noted in this respect as all wine started to be classified. In 1975, the DO Ampurdán-Costa Brava was created, which became Empordá in 2005; in 1976, the DO Tarragona was reorganised, and in 2002 the DO Montsant was separated from it. In 1985, the DO Conca de Barberà was created. In 1986, the Costers del Segre DO was created, being subdivided into seven subzones; in 1995, the DO Pla de Bages was created and, in 2005, the DO Terra Alta. Some Catalan wine remained to be classified and there were still productions which were difficult to define under the DO regulations. Therefore, in 2001, the DO Cataluña was created, thus enhancing other wines and allowing coupage which was not possible in these areas. This explains why in Catalonia almost all wines are defined as quality wines. It is also necessary to add the DO Cava, which covers those areas which produce for this designation. Finally, joining the European Union in 1986 allowed Catalan must to compete on the international market on equal terms and favoured the commitment to quality.

All the above has led to a very important increase in exports, a path opened up by cava and then followed by the DO wines. There are several facets to this increase in the export volume. Figure 11 shows how, starting from 1980, a constant rise in foreign sales of cava began, but also of wine, aromatised wine and spirits, reaching between 2.5 and 2.8 million hl, almost at the level of the best years of the nineteenth century. Figure 12 shows the share of exports from the

[63] Soler Becerro, "De magatzems a cellers"; Llorenç Ferrer Alòs and Jaume Plans Maestra, "El picapoll a Catalunya i al Bages: Notes històriques," *Dossiers Agraris*, no. 9 (2006): 9–28.

production of wine in Catalonia, and we can see that it has exceeded 80 percent, putting it much higher than the levels of the nineteenth century.

This relationship is probably erroneous. The export data for wine and related products comes from the foreign trade by companies located in Catalonia. In this respect they are Catalan exports, but these companies can use wines from other areas of Spain to produce their products, or they can export wines from other producing areas.[64] We are faced with two different phenomena. On the one hand, the globalisation of business, also in the wine sector, means that Catalan companies have wineries in other areas and vice versa, and therefore internal transfers may condition the data on exports. On the other hand, wines may be purchased in other areas to prepare aromatised wines, liqueurs and spirits. The volumes reached by vermouths and spirits have followed the same pattern. The fact that all of this led to exports shows the dynamism of the Catalan economy and of everything related to viticulture.

The wines produced under a DO have become increasingly predominant over the years.[65] From 1992 to 1996, the wine produced under a DO in Catalonia represented 48.6 percent, while that produced between 2001 and 2015 represented 76 percent (cava is not taken into consideration). Likewise, the exports of wine produced in Catalonia under a DO went from representing 20 percent of the total at the beginning of the 1990s to 40 percent. This is significant growth area, albeit less than cava, which represented up to 66 percent of production.

[64] Here, we are analysing the foreign market for one area of Spain and, to be consistent, we would have to consider as a foreign market the sales and purchases to and from the rest of Spain, for which we do not have enough overall data to allow us to qualify the data on exports made from Catalan companies.

[65] Since 1961, with the change in the name of the export consignments, wine with designation of origin appeared for the first time (Alella, Penedès, Tarragona and Priorato), these being the areas created in 1932. While it may be assumed that wine with this designation was of a high quality, some doubt is required since the blended wines produced by the warehouse owners circulated under the same names. It was not until the 1980s when a direct relationship between high-quality wine and designation of origin was established. In 1979, the *Anuario de Estadística Agraria* began to publish productions and sometimes exports of the designations of origin wines, although not for all years and not with the same information. In 2000, the Ministry of Agriculture, Fishing and Food began publishing a series that analyses the production and exports of all the designations of origin on the basis of the 1999 European legislation. See "Calidad diferenciada," Ministry of Agriculture, Fisheries and Food, https://www.mapa.gob.es/es/alimentacion/temas/calidad-diferenciada/.

Table 6.
Destination of exports of Catalan wine, 1965–2015

	1965	1971	1975	1980	1995	2000	2005	2010	2015
Andorra		4.2	3.6	4.0					
Austria	1.2	1.5	7.8		0.2	0.3	0.2	0.2	0.1
Belgium	2.0		1.2		0.9	2.1	1.8	1.7	0.8
Denmark	5.2	3.3	8.7	3.3	6.2	8.8	2.2	2.1	1.6
Finland			1.4		1.1	2.7	1.5	1.8	1.9
France	6.4	3.6	2.4	5.4	7.7	14.2	24.5	18.7	17.8
Germany	15.4	1.6		1.3	36.0	27.9	28.1	18.9	24.4
Holland	4.1	1.1			1.5	2.5	2.1	3.6	4.4
Hungary			1.8						
Italy	1.6		1.9		0.2	0.5	2.7	0.2	0.2
Portugal				8.4					
Sweden	6.9	12.4	14.7	9.3	18.5	7.6	5.0	4.0	2.8
Switzerland	10.4	20.7	26.6	16.0	5.3	4.8	2.9	2.5	1.9
UK	33.9	26.8	16.4	13.3	4.6	5.0	6.3	5.9	7.8
USSR				20.0					
Others		3.5	2.9	2.4	8.1	6.8	6.2	13.5	9.1
Europe	87.7	77.0	89.5	83.4	90.2	83.2	83.5	73.1	72.7
Africa	7.7	5.0	3.6	5.7	0.7	1.5	2.2	2.9	4.4
North America	2.0	13.1	3.5	4.0	4.0	5.6	5.2	8.5	6.1
South America	1.3	1.2	0.8	2.1	1.9	4.8	5.1	6.3	5.5
Asia	1.3	3.7	2.5	4.8	1.8	4.4	3.9	8.7	10.4
Oceania					1.0	0.1	0.1	0.2	0.2

Source: Author's elaboration from export data about exports cited at the end of appendix 3.

Finally, table 6 analyses the destination of Catalan wine exports. The main destination is Europe, which receives 75–80 percent, although the weight of each country tends to vary from year to year. Germany has been a major buyer since the 1990s (30 percent of the total), France has emerged a large buyer again in recent years (15–20 percent), and the United Kingdom was a buying country in the 1960s and 1970s but has reduced its imports (6–8 percent) more recently. Switzerland, which was one of the major buyers of Catalan wine, has reduced its share to almost nothing. Africa meanwhile receives 4–5 percent of the production; North and South America another 5 percent, and the presence of Catalan wine in Asia is increasing due to purchases by China. However, Europe undoubtedly remains the main market for Catalan wine.

Conclusion

In Catalonia, the globalisation of the wine sector began with the mass production of brandy in the Tarragona region to be exported to northern European countries and to the northern French ports, which distributed it in France, the United Kingdom, Holland and throughout northern Europe. This gave rise to a network of traders/agents who channelled the wine for distilling and redistilled it to obtain the desired product. This represented the fundamental commercial structure for the development of this activity.

Political changes, wars, changes in consumer patterns, the independence of Latin American countries and the appearance of grain-based spirits led to the collapse of the brandy market and its inward turn to the domestic market (Andalusia used it for its fortified wines), and its replacement by common wine, which began to be predominant on the international markets. We calculate that 50 percent of the wine produced was exported as wine or brandy.

Wine exports gained new momentum at the end of the 1820s. In this case, the leading role was taken by Barcelona, which began to export common wine to America, mainly Cuba and Puerto Rico, Argentina, Uruguay and Brazil, in a commercial circuit in which the return of cotton was fundamental. All the Catalan wine went to this area and progressively increased. In 1860, 60 percent of Spanish exports involved Catalan wine.

Both oidium and later phylloxera led to significant demand from France, which pushed the prices upwards and stimulated the planting of new vines. This provoked the appearance of traders/warehouse owners who bought wine and blended it to find the type that they desired for export. In Barcelona, these traders/warehouse owners already existed to meet the demand of the American market, but they multiplied in El Penedès and Tarragona. Catalonia was the area least affected by French demand, since Catalan wine continued to be sent mainly to America (representing 80 percent of Spanish exports to this destination). Exports to Europe accounted for 20 percent of the total Spanish wine exported to this destination. Up to 3 million hl were exported, representing 50 percent of production.

After phylloxera, and despite the changes underway, vines were replanted in Barcelona and Tarragona. Exports declined, the American market disappeared, the irregular demand of France and Switzerland remained at an acceptable level and demand increased during World War I. Exports represented 20 percent of production. However, a crisis appeared in the 1920s. The reduction in prices, the presence of many adulterated wines and protectionism meant that exports declined continuously, leading to a reduction in vineyards. The commercial structure continued to be the same: traders/warehouse owners who blended wines for both the domestic and foreign markets.

After the Spanish Civil War, wine exports collapsed, with specific exceptions such as the sales, year after year, to Switzerland. The prices sank and vines were uprooted in a generalised manner. The acreage gradually declined, although the yields offset the situation, since annual production remained at around 3 million hl. In this context, the change came with cava, which managed to find a niche market as a cheap sparkling wine. Production and exports began to grow continuously, reaching 60 percent of production. This helped to maintain the cultivation of vines in El Penedès and nearby regions and to prepare the next step of producing high-quality wine.

The fall in wine consumption, low prices and scarce foreign sales ended up in a crisis for the traders/warehouse owners. Some disappeared, since they no longer had a market to supply, while others promoted the production of high-quality wine. Companies appeared which integrated cultivation, production and marketing. DO wines began to grow in prominence, which guaranteed high-quality viticulture. Globalisation likewise meant that the wine-growing business went beyond Catalonia, and therefore Catalan exports could now include wines from other areas. In this case, DO wine represents 40 percent of that produced in this environment, but if we include all kinds of wines, spirits and aromatised wines, it exceeds 80 percent of production (obviously, there are also wines from other areas), which is much higher than it was in the nineteenth century.

In this environment, the alternative of cava and the production of high-quality wines mean that Catalan viticulture is completely open to global viticulture. It remains to be seen how the industry will evolve.

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APPENDICES

Appendix 1.
Catalan wine and brandy exports to the American market starting from the introduction of free trade, 1778–1818 (in hl)

	Brandy	Wine	Processed wine
1778	4,792	10,546	32,110
1779	806	7,890	11,517
1780			
1781	416	3,554	5,427
1782	9,539	23,557	66,483
1783	17,493	26,046	104,765
1784	9,913	8,375	52,982
1785	43,288	34,659	229,454
1786	71,239	44,141	364,716
1787	27,953	39,073	164,863
1788	46,327	23,116	231,587
1789	43,164	29,645	223,881
1790	15,023	32,474	100,079
1791	27,963	19,574	145,409
1792	51,347	22,129	253,193
1793	64,277	29,423	318,667
1794	59,609	19,637	287,876
1795	23,222	21,724	126,225
1796	31,073	18,760	158,587
1797	6,389	6,906	35,655
1798	31,428	15,990	157,415
1799	23,234	12,820	117,374
1800	17,770	9,408	89,375
1801	24,473	12,067	122,196

1802	62,066	42,924	322,220
1803	60,068	94,555	364,860
1804	68,887	114,595	424,587
1805	2,968	10,811	24,167
1806	4,151	2,331	21,009
1807	3,457	2,585	18,141
1808	14,203	80,845	144,761
1809	26,814	76,744	197,409
1810	29,153	176,421	307,607
1811	3,187	1,556	15,896
1812	440	1,311	3,292
1813	8,508	38,412	76,698
1814	7,995	54,598	90,573
1815	21,064	104,153	198,941
1816	11,702	43,704	96,364
1817	9,124	26,997	68,056
1818	577	7,157	9,755

Source: Josep M. Delgado Ribas, "Catalunya y el sistema de libre comercio (1718–1818): una reflexión sobre las raíces del reformismo económico" (PhD diss., Universitat de Barcelona, 1981).

Appendix 2.
Shipments of Catalan wine and brandy from all Tarragona ports (1800–1835) and from the ports of Tarragona and Salou (1767–1835) (in hl)

	All Tarragona ports			Ports of Salou and Tarragona		
	Brandy	Wine	Processed wine	Brandy	Wine	Processed wine
1767				51,072	13,400	230,456
1768						
1769						
1770						
1771						
1772						
1773				78,473	14,436	367,565
1774				78,473	14,436	367,565
1775				78,473	14,436	367,565
1776				84,384	6,302	386,030
1777				84,384	6,302	386,030
1778				84,384	6,302	386,030
1779						
1780						
1781						
1782				84,887	11,549	393,541
1783				84,887	11,549	393,541
1784				110,437	15,026	511,993
1785				110,437	15,026	511,993
1786				110,437	15,026	511,993
1787						
1788						
1789						
1790						
1791						
1792						

1793						
1794				109,540	71,602	564,532
1795				109,540	71,602	564,532
1796				104,303	25,503	494,867
1797				104,303	25,503	494,867
1798				104,303	25,503	494,867
1799						
1800	144,337	220,904	870,421	130,521	54,008	641,353
1801	114,578	168,064	683,665	95,757	38,825	469,732
1802	130,826	169,926	758,643	109,040	18,369	509,049
1803	165,012	210,329	952,883	132,645	47,464	644,367
1804						
1805	172,879	197,808	975,764	137,583	71,481	690,605
1806	151,640	189,602	871,982	117,289	64,289	592,090
1807	88,740	172,101	571,431	69,922	55,065	369,714
1808	89,926	133,600	538,267	68,620	42,774	351,564
1809						
1810						
1811						
1812						
1813						
1814						
1815	67,366	240,247	543,394	49,144	52,229	273,377
1816	50,804	184,917	413,535	37,505	48,567	217,340
1817						
1818	58,971	131,670	397,040	50,132	37,253	262,847
1819	53,003	138,408	376,922	42,757	45,779	238,186
1820	61,107	154,037	429,019	52,146	58,003	292,660
1821	29,310	88,050	219,945	24,486	37,573	147,760
1822	53,189	120,585	359,936	46,092	46,541	253,955
1823						
1824	52,526	178,367	414,734	33,805	52,669	204,792
1825	54,250	191,239	435,364	35,960	66,618	228,438

1826	63,617	167,630	453,907	42,013	57,185	246,244
1827	70,694	181,263	499,386	58,070	64,261	325,576
1828	46,834	163,601	374,354	36,939	61,007	227,233
1829	61,397	165,069	441,356	42,715	62,439	254,657
1830	75,738	200,080	540,901	54,774	78,186	324,669
1831	59,229	223,245	489,776	48,283	90,238	307,512
1832	69,143	276,928	588,072	60,690	131,097	404,202
1833	77,597	251,614	600,801	45,960	163,330	370,150
1834	88,581	287,946	686,561	45,960	163,330	370,150
1835	62,877	275,733	558,680	45,960	163,330	370,150

Source: Francesc Valls Junyent, "El paper de les exportacions vitícoles en la configuració de les relacions exteriors de l'economia catalana, 1672–1869" (PhD diss., Universitat de Barcelona, 2001) and Agustí Segarra Blasco, *Aiguardent i mercat a la Catalunya del segle XVIII* (Vic: Eumo, 1994).

Appendix 3.
Growth of vineyards, wine production and exports of common wine, brandy, fortified, sparkling and aromatised wine in Catalonia, 1858–2016

Production and extension data				Exports from Catalonia (in hl)				
	Wine production (hl)	Expansion of vineyard (ha)	Exports[a]	Common wine[b]	Brandy	Fortified wine	Sparkling wine	Aromatised wine
1858	5,508,736	311,228	425,420	387,062	5,574	324		
1859	5,485,336	309,906		375,016	11,132	309		
1860	5,461,937	308,584						
1861	5,531,372	312,507	620,156	525,839	20,913	207		
1862	5,600,808	316,430	650,760	569,280	18,044	280		
1863	5,670,243	320,353	609,764	567,022	9,498	0		
1864	5,739,679	324,276	701,765	653,440	10,218	2,343		
1865	5,809,115	328,199	565,966	521,969	9,112	2,994		
1866	5,878,550	332,121	591,001	540,988	9,043	9,320		
1867	5,947,986	336,044	693,442	616,729	17,047	2		
1868	6,017,421	339,967	952,917	840,191	25,050	0		
1869	6,086,857	343,890	888,078	844,881	9,478	547		
1870	6,156,292	347,813	867,431	797,552	13,630	8,543		
1871	6,225,728	351,736	981,200	863,917	26,063	0		
1872	6,295,164	355,659	1,228,320	1,002,505	50,060	543		
1873	6,364,599	359,582	1,748,723	1,205,727	117,968	12,139		
1874	6,434,035	363,505	1,152,738	1,105,607	10,386	393		
1875	6,503,470	367,428	1,315,664	1,198,231	25,979	526		
1876	6,572,906	371,351	1,041,602	919,395	18,732	37,912		
1877	6,642,341	375,274	1,171,352	1,084,339	11,243	36,418		
1878	6,711,777	379,196	1,411,489	1,272,610	17,181	61,564		
1879	6,779,442	383,019	1,845,521	1,686,453	16,143	86,425		
1880	6,765,445	382,229	3,130,420	3,002,241	11,995	74,201		
1881	6,751,447	381,438	3,040,820	2,877,056	17,558	84,753		
1882	6,737,449	380,647	3,343,617	3,175,001	20,115	78,099		
1883	6,723,451	379,856	3,087,440	2,933,763	23,878	46,226		

1884	6,686,836	377,787	2,555,108	2,441,815	21,138	18,170		
1885	6,650,220	375,719	2,926,974	2,828,084	18,669	14,878		
1886	6,613,605	373,650	2,716,744	2,643,171	12,556	17,071		
1887	6,576,990	371,581	2,651,009	2,575,032	13,600	14,779		
1888	6,540,374	369,513	2,751,796	2,650,803	18,462	17,914		
1889	6,138,788	367,444	2,705,653	2,653,773	8,291	14,572		
1890	5,733,389	348,071	2,440,395	2,391,172	9,151	8,043		
1891	4,484,278	328,699	2,411,691	2,374,103	6,680	7,526		
1892	5,475,076	309,326	2,482,631	2,434,585	7,470	14,430		
1893	5,132,182	289,954	1,636,754	1,595,516	5,845	14,937		
1894	3,008,489	270,581	1,440,017	1,376,520	10,388	16,751		
1895	4,446,393	251,209	1,595,912	1,554,732	6,581	11,564		
1896	4,103,499	231,836	1,538,270	1,506,699	4,946	9,316		
1897	3,760,605	212,464	2,309,348	2,274,719	6,015	7,561		
1898	3,058,886	193,091	1,681,137	1,654,987	4,114	7,639		
1899	3,732,227	202,421						
1900	3,958,130	184,766	897,349	875,204	3,755	5,250		
1901	4,825,356	207,018						
1902	2,913,261	205,340	720,199	700,858	3,351	4,262		
1903	4,189,602	212,572	668,986	655,123	2,274	3,630		
1904	4,033,552	216,280	772,108	735,206	6,588	7,258		
1905	3,932,666	210,064	906,829	801,387	11,455	53,896		
1906	3,027,697	230,627	677,031	483,664	11,059	143,601		
1907	3,182,339	221,338	730,996	450,765	7,719	245,427	69	
1908	3,800,379	217,356	871,372	598,203	10,971	223,727	74	
1909	4,238,185	215,720	956,380	600,458	10,853	307,035	49	
1910	2,743,070	215,706	1,219,997	989,426	11,423	179,043	127	
1911	2,362,757	216,767	1,304,699	1,054,802	16,351	176,005	312	
1912	5,060,380	217,610	1,409,702	1,171,963	11,985	183,583	223	
1913	5,161,065	222,160	1,936,836	1,670,615	12,211	211,128	142	
1914	6,222,202	220,860	1,140,390	955,809	6,914	153,358	112	
1915	1,186,304	226,120	813,114	587,507	19,293	138,558	230	
1916	7,373,042	228,780	1,922,180	1,529,074	45,111	189,723	382	
1917	6,485,921	236,056					127	

1918	7,412,938	235,800	1,450,927	834,702	119,367	78,658	416	
1919	7,977,956	238,500	2,540,113	2,084,010	38,737	280,433	1,354	
1920	10,193,895	240,861	2,007,546	1,754,867	13,468	191,068	1,004	
1921	5,996,430	240,034					255	
1922	9,591,548	241,649	1,334,105	1,179,584	3,857	137,064	101	
1923	7,273,385	241,987	1,325,739	1,185,946	4,392	119,910	121	
1924	4,493,693	242,498	1,451,321	1,196,978	5,094	231,095	327	
1925	7,965,953	242,651	942,797	614,126	5,381	304,308	151	
1926	4,942,862	242,493	1,277,373	1,031,885	5,735	219,632	48	0
1927	5,579,146	242,125	1,990,437	1,766,463	4,502	202,516	71	1,129
1928	5,734,558	242,239	1,766,625	1,601,320	2,790	151,042	50	1,658
1929	6,241,130	250,312	1,143,671	969,165	3,429	158,681	33	360
1930	5,046,453	249,622	1,273,695	1,113,988	2,301	148,411	178	764
1931	6,131,047	249,559	1,280,567	1,153,342	1,893	117,601	72	1,032
1932	4,101,357	252,812	854,459	725,334	1,164	121,857	86	1,943
1933	4,366,481	250,145	985,218	861,357	1,578	113,935	134	2,693
1934	4,227,428	249,740	712,143	568,788	1,754	132,240	270	2,952
1935	4,115,370	256,171	352,399	220,600	1,104	122,694	101	4,035
1936		257,407						
1937		253,534						
1938		249,661						
1939	5,027,733	245,787						
1940	6,056,300	241,914	75,626	66,092	896	3,927	99	1,476
1941	6,087,598	242,321	109,158	92,885	1,043	10,534	293	753
1942		229,925	171,379	147,800	1,935	13,485	215	1,173
1943	4,700,783	217,528	386,749	288,827	10,406	49,644	253	1,199
1944	5,833,494	205,288	257,595	205,955	5,361	25,227	519	1,771
1945	4,002,465	198,648	175,933	126,272	2,667	32,302	547	4,808
1946	2,933,721	198,497	181,728	135,197	3,564	26,489	561	3,441
1947	2,520,267	198,041	69,771	35,430	4,611	10,009	416	3,167
1948	2,816,444	201,418	248,984	215,061	4,190	12,178	233	2,655
1949	2,114,393	203,735	480,869	440,337	5,222	14,447	428	2,157
1950	1,779,962	204,396	211,597	155,098	3,680	36,664	583	2,693
1951	1,919,435	203,394	172,783	96,326	6,832	42,608	502	2,602

1952	3,166,866	204,294	185,826	93,247	3,665	73,580	577	1,928
1953	4,109,220	202,158	271,440	141,438	3,656	111,452	601	1,494
1954	3,070,505	192,780	32,130	13,438	3,623	1,417	74	899
1955	2,615,401	184,750	331,416	154,859	1,123	169,201	1,924	380
1956	3,887,019	188,811	336,189	141,944	1,481	185,751	896	934
1957	2,734,413	187,865	361,664	190,625	1,282	163,117	1,331	820
1958	3,247,209	188,890	784,081	589,031	1,182	187,349	1,712	672
1959	3,993,679	199,550	298,976	156,752	1,141	133,671	2,819	599
1960	3,575,474	196,122						
1961	3,325,045	197,279	310,871	214,972	2,338	80,962	3,452	964
1962	3,651,212	198,835						
1963	3,990,743	197,390						
1964	4,792,910	191,190	351,082	276,816	2,379	59,360	4,200	0
1965		164,270	558,418	333,720	4,876	198,908	3,849	0
1966	3,227,105	159,668						
1967	2,742,824	155,064						
1968	2,902,221	151,169						
1969		147,814	491,107	450,796	1,967	21,894	7,295	2,268
1970	3,124,248	133,937						
1971	3,194,903	120,059	628,821	566,767	5,455	19,251	7,483	10,773
1972	2,532,004	115,090						
1973	3,555,924	117,441	794,049	661,234	5,551	36,441	20,742	50,654
1974	3,572,840	115,458	742,631	662,255	5,041	12,332	26,752	18,607
1975	2,790,250	112,936	634,615	536,226	7,689	10,653	22,973	30,161
1976	2,662,160	111,898	645,624	541,976	8,898	7,480	33,602	22,525
1977	2,268,000	110,115	694,595	580,758	7,735	9,126	41,938	27,965
1978	2,585,172	109,099	554,843	464,486	3,702	27,600	26,704	19,393
1979	3,187,575	108,013	679,560	518,865	11,474	29,487	50,513	29,063
1980	2,917,928	108,001	840,658	637,102	18,526	13,190	74,717	32,280
1981	3,094,658	102,778	642,871	400,195	14,132	12,978	98,183	67,921
1982	3,418,430	101,891						
1983	2,977,200	103,367	609,544	372,892	12,034	9,523	158,725	14,252
1984	2,810,593	101,256	801,282	443,960	19,128	9,259	188,668	73,320
1985	2,826,735	96,568						

1986	2,769,000	94,576						
1987	2,999,900	91,743						
1988	2,960,938	88,404	839,515	296,522	19,849	15,358	341,133	97,180
1989	2,667,169	84,438	771,305	239,567	22,143	19,131	337,875	75,089
1990	3,110,600	85,945	870,693	275,833	34,651	13,741	341,240	83,949
1991	3,182,260	86,378	1,111,918	484,679	37,889	22,581	321,931	112,225
1992	3,166,081	88,984	1,289,157	679,428	30,808	23,606	344,159	103,327
1993	3,161,232	85,779	1,566,512	886,838	40,437	16,177	373,990	107,539
1994	2,534,667	69,261	1,483,328	729,327	46,653	20,198	401,293	122,572
1995	3,040,328	68,514	1,180,297	493,142	17,906	646	467,545	138,389
1996	3,292,116	65,798	1,343,330	490,904	26,546	634	538,080	194,255
1997	3,162,392	64,820	1,689,785	701,430	38,759	734	638,237	174,969
1998	2,676,177	64,546	1,893,973	780,373	47,530	1,389	682,816	215,513
1999	3,081,215	64,576	1,790,884	534,124	25,465	1,464	926,983	213,720
2000	2,991,879	64,336	1,554,155	544,608	28,742	720	690,477	189,013
2001	2,649,317	65,495	1,717,342	621,147	29,475	584	767,422	195,551
2002	3,105,323	64,489	1,756,155	624,075	32,933	530	793,208	190,142
2003	3,345,557	65,040	2,178,897	925,225	42,003	381	900,562	163,715
2004	3,797,551	65,571	2,282,743	995,121	50,383	399	883,952	176,547
2005	2,615,516	67,759	2,345,737	958,586	51,017	2,098	924,495	230,981
2006	3,052,741	66,010	2,289,110	828,109	78,783	3,543	860,458	242,478
2007	3,041,982	65,445	2,553,541	831,371	115,327	21,906	928,547	252,745
2008	3,304,569	63,126	2,699,165	855,291	121,423	37,964	1,059,828	199,677
2009	3,173,577	61,727	2,483,614	796,138	112,117	26,004	958,896	198,051
2010	3,420,247	58,536	2,704,384	914,035	134,168	4,722	1,037,357	144,515
2011	3,278,578	55,533	2,853,554	970,416	154,399	2,684	1,061,790	123,870
2012	2,736,543	56,321	2,801,074	969,453	130,976	2,860	1,141,180	98,189
2013	3,702,748	55,385	2,730,451	893,572	131,602	2,961	1,141,749	99,960
2014	3,281,009	54,842	2,847,564	1,022,400	136,500	2,804	1,107,087	101,024
2015	3,302,037	54,980	2,866,502	1,047,202	126,352	2,714	1,126,684	121,318
2016	3,129,637	52,202	2,615,071	984,675	102,338	2,087	1,080,091	87,696

Methodological notes:

[a] The export figures are the sum of the exports of common, fortified, sparkling and aromatised wine, as well as brandy. The last mentioned is multiplied by 4.5, since this is the estimated quantity of wine necessary to produce a unit of brandy.

[b] The brandies include ordinary brandy, anise brandy, liqueurs and spirits. The fortified wines are Málaga and Jérez and those that the documentation cites as others (imitations such as those produced in Tarragona).

Wine production data does not exist until the end of the nineteenth century and data on the extension of vineyards exists from 1858 but it is not continuous. To reconstruct the evolution of the extension in acreage, we took the years for which data is available and calculated the average growth between these years. We then applied a yield of 17.7 hl/ha, which is the average yield for the years for which we have data and indications from other sources. Extrapolated data is highlighted.

Sources: For the growth of vineyards and the evolution of production, see Josep Pujol Andreu, *Les transformacions del sector agrari català entre la crisi finisecular i la Guerra Civil* (Barcelona: Universitat Autònoma de Barcelona, 1988); *Anuario de Estadística Agraria* (https://www.mapa.gob.es/es/desarrollo-rural/estadisticas/forestal_estadistica_agraria.aspx); *Memoria Comercial de la Cámara de Comercio de Barcelona* (1917–1965), *Estadístiques Agràries i Pesqueres*, Departament d'Agricultura de la Generalitat de Catalunya (1988–2000), Idescat (Estadístiques de Catalunya) (www.idescat.cat).

For exports, see: *Estadísticas del Comercio Exterior de España*, *Memoria Comercial de la Cámara de Comercio de Barcelona* (1917–1965), *Vida económica de la provincia de Tarragona*, published by the Cámara de Comercio de Tarragona, *Cataluña exporta* (1965–1984) and *Cataluña exporta, Cataluña importa* (1985–1991) published by the Cámara de Comercio, information about foreign trade published by Agencia Tributaria (AEAT) (1985–1994) (http://www.agenciatributaria.es/AEAT.internet/datosabiertos/catalogo/hacienda/datos_estadisticos_Comercio_Exterior.shtml) and those published by Datacomex (1994–2016) (http://datacomex.comercio.es/principal_comex_es.aspx).

Appendix 4.
Common wine exports from Catalonia to Europe, America and Asia, 1857–1887 (in hl)

	Customs office								
	Barcelona			Tarragona			Girona		Lleida
	Europe	America	Asia	Europe	America	Asia	Europe	America	Europe
1857		365,945	301	0	21,116		0		
1858		329,709	309	0	45,307		0		
1859			0	0					
1860			0	0					
1861	10,892	381,518	161	41,743	59,581		31,684		421
1862	12,005	473,702	280	32,712	49,699		836		326
1863	5,770	465,592	0	42,561	51,610		1,427	28	62
1864	9,544	549,881	2,343	38,436	48,630		5,052	8	788
1865	8,497	403,777	2,994	50,246	50,424		8,394	330	631
1866	12,861	420,648	9,029	51,166	50,452		2,961	0	2
1867	24,966	384,498	0	101,653	95,698		5,172	1,441	782
1868	16,063	602,371	0	92,165	119,744		5,362	0	486
1869	5,645	612,295	547	94,863	128,559		3,152	0	367
1870	9,465	587,889	8,282	64,729	129,354		2,760	0	0
1871	9,528	749,849	0	68,355	15,858	2,484	9,709	11,768	1,736
1872	23,623	658,157	543	105,170	195,634		10,107	0	336
1873	47,707	853,821	12,139	102,963	163,419		30,997	0	0
1874	82,319	700,426	321	119,215	156,290		27,796	0	0
1875	25,431	933,774	146	92,075	120,026		8,920	0	0
1876	46,694	664,045	33,231	91,600	74,469		20,445	0	3,647
1877	41,636	727,739	32,904	107,430	173,176		23,003	0	3,811
1878	156,293	601,292	39,028	261,087	142,696		92,841	0	4,139
1879	296,945	650,604	58,238	409,958	110,018		207,758	0	3,211
1880	548,895	647,377	49,059	899,308	132,629		754,645	0	0
1881	517,276	662,035	76,456	741,161	151,324		788,689	0	2,431
1882	389,729	687,298	67,582	842,504	102,104		1,117,791	0	10,540

1883	244,956	682,285	38,805	832,802	112,232		1,025,515	0	3,041
1884	192,148	663,859	16,538	456,073	109,499		995,477	0	3,449
1885	283,267	702,962	14,255	477,645	139,395		1,202,864	0	5,743
1886	381,949	724,477	11393	460,849	78,733		983,838	0	1,976
1887	261,074	815,540	14030	550,085	64,523		856,857	96	2,164

Source: *Estadísticas del Comercio Exterior de España*. Starting from 1887, it provides export data by port but not by destination.

Appendix 5.
Brandy exports from the customs offices of Catalonia to Europe, America and Asia, 1857–1887 (in hl)

	Customs office							
	Barcelona			Tarragona		Girona		Lleida
	Europe	America	Asia	Europe	America	Europe	America	
1857		5,181			393			
1858		10,700			433			
1859								
1860								
1861	15,694	4,272		906	42			
1862	10,616	7,032		365	31			
1863	2,802	6,608		22	65			
1864	1,112	7,510	698	705	193			
1865	2,209	6,284	0	529	17	73		
1866	734	6,686	565	484	573			
1867	2,503	10,838	455	2,916	307	20	8	
1868	4,943	9,708	608	907	34	10		
1869	921	8,098	0	263	80	116		
1870	294	10,661	597	290	1,769		20	
1871	345	17,481	742	7,073	149	3		
1872	25,691	20,728	519	1,871	1,251			
1873	87,760	12,957	687	16,395	143	27		
1874	292	9,280	515	150	59	58	32	
1875	7,289	16,176	1,570	23	829	92		
1876	7,749	7,870	2,619	112	128	253		
1877	3,793	6,615	769	0	62	5		
1878	3,265	10,720	2,741	42	267	147		
1879	2,658	11,018	778	635	661	393		
1880	1,134	8,390	972	984	56	459		
1881	2,029	12,158	1,621	858	575	317		

1882	2,301	11,386	3089.98	2,477	735	125		0
1883	724	13,138	4499.46	4,229	941	86		261
1884	3,144	13,064	1256.07	2,637	611	242		186
1885	314	7,722	1678.03	8,194	520	111		131
1886	1,402	4,363	445.95	5,064	542	442		297
1887	271	5,867	345.67	5,889	899	71		257

Source: *Estadísticas del Comercio Exterior de España*. Starting from 1887, it provides export data by port but not by destination.