

IX Congreso Internacional de la Asociación Española de Historia Económica
Sesión A-2: Empresas y distritos industriales en el mercado mundial
Murcia, 9-12 de septiembre de 2008

**MEDITERRANEAN OLIVE OIL EXPORT FIRMS AND ENTRY BARRIERS IN
THE AMERICAS PRIOR TO WORLD WAR II**

Ramon Ramon-Muñoz^{a b}

**Departament d'Història i Institucions Econòmiques
Centre d'Estudis Antoni de Capmany
Universitat de Barcelona**

Draft, June 2008

Please do not quote without permission

^a Corresponding Address: Ramon Ramon-Muñoz. Departament d'Història i Institucions Econòmiques. Facultat de Ciències Econòmiques i Empresariales. Universitat de Barcelona. Av. Diagonal, 690. 08034-Barcelona. Tel: + 0034 93 403 96 38. E-mail: ramon@ub.edu

^b A previous draft of this paper was presented at the meeting "Empresas, distritos y competitividad internacional" (Alicante, 3-4, June 2008). I am grateful to the participants for their useful comments. I would also like to thank Alfonso Herranz for his help. All remaining errors are mine.

MEDITERRANEAN OLIVE OIL EXPORT FIRMS AND ENTRY BARRIERS IN THE AMERICAS PRIOR TO WORLD WAR II

**Ramon Ramon-Muñoz
(Universitat de Barcelona)**

1. Introduction

The entry of new competitors into a market is a basic issue in industrial organisation literature. There is no doubt that both market growth and expected post-entry profitability have a positive effect on entry. Nevertheless, the entry in markets also depends on the height of barriers to entry, namely the obstacles found by the firms that want to enter a given market. The literature has generally identified three basic sources of barriers. The first is absolute cost advantages of incumbents over entrants. The second deals with economies of scale on the supply side because to successfully enter a market a minimum efficient scale plant relative to the market may be required. The third source of barrier has to do with product differentiation and the existence of certain market power at firm level. In general, this is associated with packaging, branding and advertising strategies of the established firms, consumers' loyalty to established brands and firms and the existence of sunk costs of both consumers and entrant firms.

This paper analyses the entry process of Mediterranean export firms in the American markets for brand-name olive oil prior to World War II. One of the main conclusions of the paper is that entry barriers (measured by levels of exporters' concentration) substantially differed across markets. On average, entry barriers were higher in the Americas than in the Old continent. Product differentiation seems to explain a significant part of this difference. As the American markets for brand-name olive oil became more mature, early-entrants advantages partly associated to product differentiation arose. This probably made the entry of new Mediterranean export firms in these markets more difficult after World War I.

The paper is organised as follows. Sections 2 and 3 give an overview on the dynamics of export firms' entry in the Americas between the 1880s and 1938. This is followed by a survey of the main literature on entry barriers and first-movers advantages. Using available data for Spanish export firms in the early 1930s, section 5 documents exporters' concentration across individual markets, which is used as a proxy for entry barriers. Section 6 explores the determinants of these entry barriers in the main foreign markets for brand-name olive oil. The paper ends with the conclusions.

2. The entry of Mediterranean exporters' in the brand-name olive oil markets of the Americas prior to World War I

During the largest part of the nineteenth century, the consumption of olive oil remained at very low levels in the Americas. This situation was, however, modified after the 1870s, as a massive southern European emigration crossed the Atlantic Ocean. Between 1880 and 1913, the aggregate consumption of olive oil increased at an annual rate of 4.4 per cent, more than in any other continent. In per capita terms, olive oil consumption boomed, going from less than 0.15 kilograms per head in 1875/1879 to around 0.35 in 1909/1913 (0.51 in Latin America).¹ There is no doubt that the three decades prior to 1913 represented an expansive period for olive oil trade in the Americas. They also stood for a period of formation for most of the olive oil markets on the other side of the Atlantic. During these years, consumers' preferences were created and commercial networks were progressively set up.

Favoured by market growth as well as the opportunity to enhance sales, the number of exporting firms that crossed the Ocean and entered the markets of the New World rapidly increased between 1880 and 1913. Unfortunately, this phenomenon is impossible to be quantified. As censuses of exporters are not available, it is extraordinary difficult to detail the number of Mediterranean firms involved in exporting olive oil to the Americas throughout the period under consideration. Rates of entry, exit or survival also seem also impossible to be estimated on the account of a lack of appropriated information.² Consequently, the question of firms' entry to the Americas can only be treated at a very superficial level, using qualitative and anecdotic information as well as sources that are incomplete in offering a comprehensive picture of the process.

Table 1 lists what appears to have been the most reputed or better-known brands (and firms) that were operating in Argentina (one of the largest markets of the continent) in the years around 1887, 1900 and 1913. The list has been made on the basis of information provided by both the Spanish and the Italian consuls. This implies a certain degree of subjectivity in the election of firms. Although fragmentary and weak, the data presented in table 1 is clear in showing the existence of a remarkable increase in the process of entry throughout the thirty years prior to Word War I. According to this information, the number of firms operating in Buenos Aires would have more than doubled between 1887 and 1913.

¹ Ramon-Muñoz (2007).

² For Spain, see ME (1914). One of the problems of this source has to do with under-coverage, since several firms seems to have not been included. Another shortcoming of this source is that no information is provided regarding the markets the firms addressed their products.

Table 1
The most important brands (and firms) of olive oil in Argentina according to both
Spanish and Italian consular information, c. 1887 – c. 1913

c. 1887	c. 1900	c. 1913
French leading brands and firms in Buenos Aires		
<ul style="list-style-type: none"> ● Cheval (<i>na</i>) ● Planiol (<i>James Planiol</i>) ● Puget (<i>Adolphe Puget</i>) 	<ul style="list-style-type: none"> ● Planiol (<i>James Planiol</i>) ● Puget (<i>Adolphe Puget</i>) 	<ul style="list-style-type: none"> ● Cordon Bleau (<i>S. Saugues & Co.</i>) ● Gallard (<i>G. Gallard et Fils</i>) ● Planiol (<i>James Planiol</i>) ● Puget (<i>Adolphe Puget</i>) ● Nini (<i>na</i>) ● Saugues (<i>S. Saugues & Co.</i>)
Italian leading brands and firms in Buenos Aires (brands owned by Argentinean firms of Italian origin are included)		
<ul style="list-style-type: none"> ● Ardisone (<i>na</i>) ● Biancheri (<i>na</i>) ● Muratorio n.1 (<i>Carlo Muratorio</i>?) ● Ottone (<i>Giuseppe Ottone & Figli</i>) ● Salvo (<i>na</i>) 	<ul style="list-style-type: none"> ● Extra Lucca n.1 (<i>Luigi Parpaglioni</i> [?]) ● Extra Lucca D.O. (<i>na</i>) ● Leveratto & Raggio [?] (<i>Leveratto & Hermanos Raggio</i>) ● Lucca Costa (<i>Francesco Costa & Figli</i> [?]) ● Lucca Perla (<i>na</i>) ● T. Moro (<i>Tommaso Moro & Figli</i>) ● Tixi Extra Olivo (<i>A. Canepa & Co.</i>) 	<ul style="list-style-type: none"> ● Boccanegra (<i>Tommaso Moro & Figli</i>) ● Costa (<i>Francesco Costa & Figli</i>) ● Extra Lucca (<i>Luigi Parpaglioni</i>) ● Helvetia (<i>na</i>) ● Lavagnino (<i>na</i>) ● Leone (<i>Carlo Muratorio fu GB</i>) ● Leveratto (<i>L. Leveratto</i>) ● T. Moro (<i>Tommaso Moro & Figli</i>) ● P. Moro (<i>Pio Moro</i>) ● C. Muratorio (<i>Carlo Muratorio fu GB</i>) ● T. Muratorio (<i>Tommaso Muratorio</i>) ● Ottone (<i>Giuseppe Ottone & Figli</i>) ● Raggio (<i>L. Raggio Hermanos</i>) ● Tixi (<i>A. Canepa & Co.</i>)
Italian leading brands and firms in Rosario de Santa Fe (brands owned by Argentinean firms of Italian origin are included)		
	<ul style="list-style-type: none"> ● Aquila Ottone (<i>Giuseppe Ottone & Figli</i>) ● Ottone (<i>Giuseppe Ottone & Figli</i>) ● Raffo Extra (<i>na</i>) ● Zena (<i>na</i>) ● Paloma (<i>na</i>) ● Ausonia (<i>na</i>) ● Extra Lucca (<i>Luigi Parpaglioni</i> [?]) 	<ul style="list-style-type: none"> ● Boccanegra (<i>Tommaso Moro & Figli</i>) ● G. B. Carpaglioni (<i>G. B. Carpaglioni</i>) ● Extra Lucca (<i>B.M. & C</i>) ● F. & Manacorca (<i>F. & Manacorca</i>) ● Frugoni (<i>E. Frugoni & Hijos</i>) ● Flor de Oliva (<i>na</i>) ● María (<i>Q.H.C., Querolo Hermanos & Cía.</i>) ● Ottone Extra (<i>Giuseppe Ottone & Figli</i>)
Spanish leading brands and firms in Buenos Aires		
<ul style="list-style-type: none"> ● Porcar y Tió (<i>Manuel Porcar y Tió</i>) ● Quinzà (<i>Quinzà</i>) ● Conill (<i>Conill Hermanos</i>) ● Martí (<i>Domingo Martí</i> (?) ● Sensat (<i>Gerardo Sensat e Hijos</i>) 	<ul style="list-style-type: none"> ● Porcar y Tió (<i>Manuel Porcar y Tió</i>) ● Conill A (<i>Conill Hermanos</i>) ● Sensat (<i>Gerardo Sensat e Hijos</i>) 	<ul style="list-style-type: none"> ● Bau (<i>José Bau</i>) ● Conill (<i>Conill Hermanos</i>) ● D. Gómez (<i>Diego Gómez</i>) ● Lorenzo (<i>A. Lorenzo</i>) ● Luca de Tena (<i>Hijos de Luca de Tena</i>) ● Minerva (<i>na</i>) ● Porcar y Tió (<i>Manuel Porcar y Tió</i>) ● La Reina (<i>na</i>) ● Salat (<i>José Salat e Hijos</i>) ● Saturno (<i>na</i>) ● Sensat (<i>Gerardo Sensat e Hijos</i>)

Notes and Sources: na= not available; Junta de Aranceles y Valoraciones (1887), p. 288; MAIC (1890), p. 113, MAIC (1900), pp. 83 and 95; MAIC (1913), pp. 186-187, 192-193, 209 and 216; ME (1899), pp. 47-48 and ME (1920), p. 42.

The number of brands also rapidly increased. By the eve of World War I, the number of better-known brands in Buenos Aires already amounted at 31.³ Of course, this was not the total number of brands in the market. According to the Italian consuls, prior to 1913 a process of brand proliferation had taken place in Argentina and “*an infinity of secondary brands have the name of wholesalers and retailers*”.⁴

Unfortunately, the information presented in table 1 does not say anything about the consequences of the entry process either in terms of firms’ share or regarding firms’ ranking. Although impossible to be known in detail, it is obvious that the entry of new competitors in Argentina modified the market position of the incumbent firms between the 1880s and the outbreak of World War I. In this connection, the case of Ottone needs to be pointed out. This firm was set up in Genoa in the XIXth century and soon took the lead in Argentina. Between the mid-1880s and the early 1890s, it accounted for around half of the Argentinean olive oil market share.⁵ Italian olive oil represented between 70 and 80 per cent of total Argentinean imports, which means that throughout these years the Italian leadership in Argentina was mostly due to Ottone.

However, Ottone’s reign did not last forever. In the course of the two following decades, Ottone still stood out from most of the Mediterranean export firms trading with Argentina, but was losing ground relative to other Italian and Spanish competitors. In this respect, it cannot be discarded that by 1913 Tommaso Moro & Figli, another Genoese firm that had entered the Argentinean market between the mid-1880s and the late 1890s, had already substituted Giorgio Ottone & Figli as the largest Mediterranean exporter of olive oil to Argentina.

Of course, Ottone was not alone in losing share as new competitors entered the market. During the three decades preceding the outbreak of World War I, two well-known French firms seem to have experienced a similar situation. One of them was a firm called James Planiol (brand Planiol de James) which was set up at the beginning of the nineteenth century in Marseilles. The other was also a Marseilles firm named Adolphe Puget (brand Puget) which was established in 1857. With presence in the Americas long before the 1880s, these two firms were able to achieve a great reputation for their olive oils because they

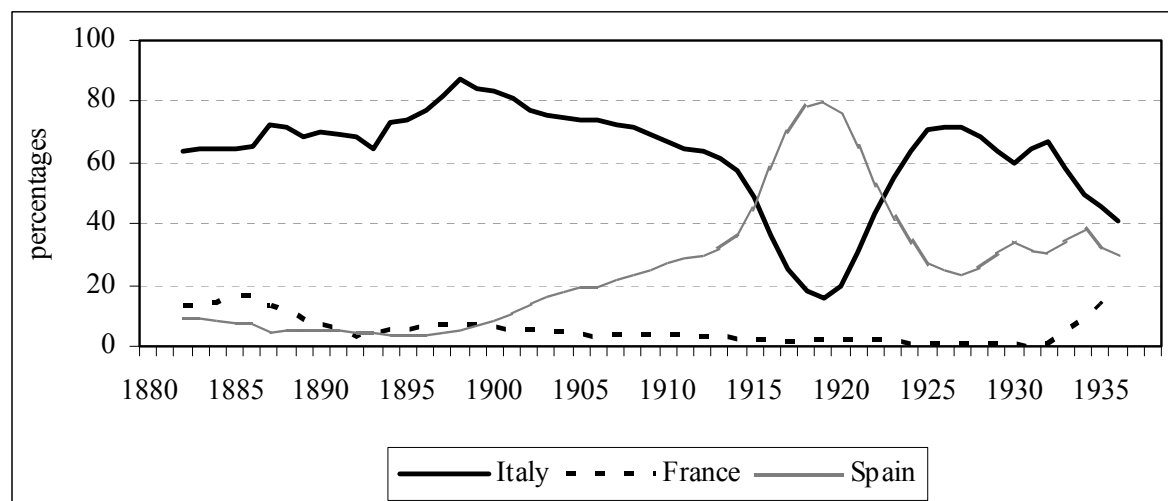
³ Of the 1913 better-known brands, a respectable number of them were owned by importers, mostly Italians established in Argentina at the end of the nineteenth century. These were the cases of L. Raggio Hermanos, Francesco Costa & Figli, Luigi Parpaglioni or A. Canepa & Co, E. Frugoni & Hijos and Querolo Hermanos & Co.

⁴ MAIC (1913), p. 187. The translation is mine.

⁵ ME (1899), pp. 47-48. The same report pointed out that Ottone was considered to have formed the basic taste for olive oil in Argentina. See also Fernández (2004), p. 195.

manufactured a high quality product. As a result, their products were expensive and only affordable to the upper classes of the other side of the Atlantic.⁶

Figure 1
Olive oil imports in Argentina by country of origin, 1880-1938
 (% of total imports, five-year moving averages)



Sources: Fernández (2004) and Argentinean foreign trade statistics.

The available evidence suggests that between the late 1880s and the early 1910s the share of these two firms seems to have been reduced while their reputation as providers of a high-quality olive oil remained untouched. Unfortunately, the lack of detailed data makes it impossible to know the extent of this likely reduction. If Planiol and Puget are assumed to have accounted for the bulk of the French olive oil exports to Argentina, then the share loses might have been significant. In any case, there is no doubt that French olive oil exports (and probably the market position of many French firms) substantially declined relative to the Argentinean market. Between 1885/1889 and 1909/1913, their share fell 11 percentage points, from 15 to 4 percent (see figure 1).

The Spanish export pioneers also lost shares. These losses were probably limited to the Spanish segment of the Argentinean market.⁷ Manuel Porcar y Tió was one of these pioneers which was established in 1857 in Tortosa and Barcelona. In the 1870s, he was already operating in the Antilles and Rio de Janeiro (Brazil) and in the 1880s he was leading a small group of Spanish exporters to Argentina. This included such firms as Quinzà, Conill Hermanos or Sensat.⁸ Despite their reputation, Italian consular information suggests that from the first years of the twentieth century, Porcar y Tió as well as other pioneers faced strong

⁶ ME (1899), p. 48 and Galula (1985), p. 126.

⁷ MAIC (1913), p. 187.

⁸ For further information on these pioneering firms, see Nadal (1989), pp. 31-32 and Ramon-Muñoz (1999) and (2000b), (2005) and (forthcoming)

competition from other Spanish exporters, especially Josep Bau.⁹ This firm was established in 1842 in the south-eastern Catalan city of Tortosa and began to export olive oil to Argentina around 1900. Even though this was much later than Porcar y Tió, by 1913 Bau had already become the largest Spanish olive oil exporter to this south-American country as well as one of the most important Mediterranean firms in terms of olive oil exports to Argentina.¹⁰ In spite of this, by the eve of World War I two-thirds of Argentinean imports were Italian olive oil.

Table 2
Growth rates of olive oil imports in selected American markets by decades, 1870-1938
(log-linear adjusted annual growth rates, %)

period	Argentina	Brazil	Chile	Cuba	Mexico	Peru	USA	Uruguay	Americas
1870-1880	0.1	-6.4	na	1.3	na	na	4.0	na	0.2
1880-1890	7.9	-1.6	na	2.0	na	na	15.0	0.8	6.1
1890-1900	5.5	12.7	4.6	-4.7	-6.6	na	2.8	1.2	4.1
1900-1910	12.3	6.2	7.8	2.2	5.7	6.3	16.0	8.5	10.7
1910-1920	-8.0	-10.8	-2.9	-1.0	-13.9	-5.8	-5.3	2.5	-4.0
1920-1930	14.9	14.9	8.5	5.9	10.7	4.6	8.2	12.3	11.2
1930-1938	-17.7	-2.3	-7.6	-12.3	-0.9	-6.0	-4.4	-15.6	-10.5

Sources and notes: American total imports have been estimated on the following basis: 1870-1895, export data for France, Italy, Portugal and Spain have been taken from the foreign trade statistics of these 4 countries; 1895-1920, import data for the eight countries listed in this table have been taken from their own foreign trade statistics; 1920-1938, import data for a sample of 25 countries taken from the *Annuaire International d'Statistique Agricole*, various issues. For Argentina, annual growth rates for 1870-1880 are for the period 1870/73 and 1880/84. For Brazil, prior to 1903 import figures have been estimated on the basis of export data for France, Italy, Portugal and Spain; 1870-1880 is 1870-1879 and for 1880-1890 the results refer to the annual growth rate between 1875/79 and 1890/94. For Chile, 1890-1900 refers to 1889-1897 whereas 1900-1910 is 1903-1910. For Mexico, 1890-1900 is 1892/1893-1900. For Peru, 1900-1910 it only considers 1898 and 1910. For the USA, non-edible olive oil has been excluded when possible. For Uruguay, for 1880-1900 gaps have been estimated on the basis of export data for Italy and Spain.

The entry of new firms into the market did not only accelerate in Argentina after the 1880s, but also in many other markets of the Americas. If market growth serves as an indicator of the dynamism of entry, it is clear that export firms' entry was very intense in the USA after 1880; in Brazil after 1890; and in Uruguay and Mexico after 1900. Cuba is an exception in the American context of growth and entry acceleration. Total olive oil

⁹ However, the losses of these pioneering firms took place in a context of expansion of the Spanish olive oil exports to Latin America. This expansion must be connected to the acceleration of the Spanish emigration as well as the Iberian quality improvements in olive oil production (Ramon-Muñoz (2007)). Note that by the mid-1880s the only Spanish firms that had been able to enter into the Argentinean market were mainly from Catalonia. Together with Valence and Aragon, Catalonia was the only Spanish region able to produce high quality olive oil as well as the area where refining and blending techniques more rapidly developed. See Zambrana (1987), Nadal (1989), Parejo and Zambrana (1994), Pinilla (1995), Simpson (1995) and Ramon-Muñoz (2000b). For an overview of the Catalan foreign markets, see Ramon-Muñoz (2000b) and (2001) and for the case of Norway see Hernández Armenteros (2001).

¹⁰ The information provided by a Spanish importer suggests that Bau concentrated almost $\frac{3}{4}$ of the total exports of Spanish olive oil to Argentina and $\frac{1}{4}$ of the total Argentinean olive oil imports. These shares certainly seem too high. Unfortunately, it is impossible to know whether this information is reliable or not even though they make clear the leading role of Bau in Argentine. See BCIC (1914), n. 289, p. 2.

consumption declined in the conflictive decade of 1890 and grew far below the American average throughout the decade following the Independence year of 1898 (see table 2).

3. The entry of Mediterranean exporters' in the brand-name olive oil markets of the Americas after Word War I

Did new exporters of brand-name olive oil enter into the Americas during the interwar years? Without a doubt, the answer is positive. Trade journals and commercial reports show that a remarkable number of new export firms entered into the markets on the other side of the Atlantic throughout the interwar period. If we focus on exporting firms instead of brands (owned either by exporters or by importers, wholesalers and retailers), the phenomenon acquires a much larger dimension. The question becomes is whether during the interwar period the process of entry of Mediterranean exporters into the American markets for brand-name olive oil was as intense as in previous decades.

The answer is not easy due to the lack of quantitative information. Judging from the available evidence on trade and other anecdotic information, the process of (gross) entry seems to have enormously accelerated during the years of World War I.¹¹ This was caused by a large number of Spanish firms which began to export olive oil to the other side of the Atlantic. Italy and France were involved in the Great War. Spain was then transformed *de facto* into the only producing country with capacity to supply olive oil to the American continent. This influenced many Spanish firms to enter into these markets, despite governmental pressures restricting exports to control domestic prices. American importers also turned towards Spain for the demanded product and also to launch their own brands into the market. During the War years, these factors helped Spanish olive oil exports to the Americas boom, whereas Italian and French firms were forced to abandon the markets on the other side of the Atlantic.

The end of the War marked a new period in the process of entry, exit and survival. The Italian and (to less extent) the French firms resumed their exports, whereas a significant (although unknown) number of the Spanish firms that had entered the market during the War years progressively abandoned the Americas during the course of the 1920s.¹² Throughout these years, the entry of Mediterranean exporters into the New World was probably positive,

¹¹ This evidence also suggests that whereas gross entry accelerates net entry probably reduced.

¹² The causes why these Spanish firms were unable to consolidate their positions in the American markets once the War was ended became an issue of major concern in Spain. See Ramon-Muñoz (2003), pp. 534-546.

but it is doubtful that the number of entrants overcame entry rates for the period prior to the end of World War I.

The 1929 international crisis represented a new breaking point in entry, exit and survival. The collapse of the American markets for olive oil discouraged the entry of new export firms and also seemed to have accelerated a process of exit. The Spanish Civil War was also a catalyst in this process and caused many Spanish to abandon these markets. These factors led to an increase in consumption of Turkish and Greek olive oil on the other side of the Atlantic. However, the olive oil being exported from these two Eastern Mediterranean countries was mostly traded in bulk to be used for blending and packaging purposes rather than traded in cans and bottles to be directly consumed by the final consumers.

Table 3
The Italian and Spanish leading exporters of packaged olive oil to Argentina and the USA c. 1930

Firms	Location ^a (city, region, country)	Period or year of foundation	Argentina (as % of the total olive oil imported in cans)		USA	
			%	Rank	%	Rank
Tommaso Moro & Figli	Genoa (Liguria-IT)	19 th century	18.6	1	[2 – 4]	8
Escoffier-Guidi ^b	Sanremo (Liguria-IT)	c. 1834	8.5	2	[3 – 6]	5
Giorgio Ottone & Figli	Genoa (Liguria-IT)	19 th century	7.2	3	na	na
Fratelli Berio	Oneglia (Liguria-IT)	1870	6.9	4	na	na
Olivarera del Mediterráneo	na	na	6.8	5	na	na
P. Sasso & Figli ^b	Oneglia (Liguria-IT)	1860 / 1899	5.7	6	[3 – 6]	6
Hijos de Ybarra	Seville (Andalusia-SP)	1842	5.3	7	[4 – 8]	4
Pietro Bresciano	Borghetto S. Spirito(Liguria-IT)	1826	4.0	8	na	na
A.S.T.O.R.	na	na	3.2	9	na	na
M. G. Longoria & Cía. S. C.	Seville (Andalusia-SP)	1904	3.0	10	[0 – 1]	na
Giuseppe Lupi	Porto Maurizio(Liguria-IT)	1880	2.8	11	na	na
Aceites Bau S.A.	Tortosa (Catalonia-SP)	1842	2.7	12	[0– 1]	na
Pietro e Vincenzo Salvo ^b	Porto Maurizio(Liguria-IT)	na	2.6	13	[2 – 4]	9
Giacomo Costa	Genoa (Liguria-IT)	1854	1.4	14	[7–13]	2
Francesco Bertolli	Lucca (Tuscany-IT)	1870	1.2	15	[7–13]	1
Frugone & Preve	Genoa (Liguria-IT)	1856	0.9	16	na	na
S.A.L.O.V.(brands Filippo Berio and Calisto Francesconi) ^b	Lucca (Tuscany-IT)	1850 / 1919	0.8	17	[6–11]	3
Hijos de Luca de Tena, S.C.	Seville (Andalusia-SP)	19 th century	0.8	18	[1 – 2]	na
G. Sensat & Hijos, S.C.	Barcelona (Catalonia-SP)	1878 / 1895	0.5	19	[1]	na
Hijos de José Sabater	Reus (Catalonia-SP)	1824	0.5	20	na	na
Carbonell & Cía.	Cordoba (Andalusia-SP)	1866	0.2	21	[1 – 3]	na
Carlo Daneri & Figlio	Porto Maurizio(Liguria-IT)	1830	0.2	22	[1 – 2]	na

Notes: ^a In 1923, Porto Maurizio and Oneglia were unified in a single municipality. The city took the name of Imperia; ^b Escoffier-Guidi was first established in Nice, but moved to Sanremo after the Italian Unification; P. Sasso & Figli was the name that adopted Agostino Novaro's firm in 1899 when he moved from Diano Marina (province of Imperia) to Oneglia. It is not clear whether Pietro e Vincenzo Salvo formed two separate firms. Here they have been considered together; for the case of SALOV see the following footnotes; IT means Italy; SP means Spain and na means not available.

Sources: See text and footnotes.

In conclusion, it is likely that when the interwar period as a whole is taken into account, the entry of Mediterranean export firms into the Americas had been less intense in the 1920s and 1930s than in previous decades. This was probably more apparent among the group of the most reputed and better-known export firms. Table 3 identifies the largest Italian and Spanish exporters of packaged olive oil to Argentina and the USA around 1930.¹³ With the exception of 6 firms (and perhaps less), the rest of the 22 olive oil exporters listed in the table had begun to export to the other side of the Atlantic prior to 1914. Furthermore, a significant number of these 22 firms had already achieved leading positions in the Americas (or, at least, were well-known firms in the New World) by the eve of World War I or before.¹⁴

The case of Francesco Bertolli (Tuscany, Italy, 1870) was one of them. By the late 1920s and early 1930s, it was one of the most successful firms in the USA. It was also a leading firm in Brazil and probably in other Latin American markets.¹⁵ However, the importance of Bertolli as an olive oil exporter was not a novelty of the inter-war period. In 1913, the Italian Chamber of Commerce of San Francisco reported that olive oil from several brands was consumed in California, but only “*the brands Francesconi and Bertolli were credited all over the USA*”. This seems to indicate that by the eve of World War I Bertolli was also a leading firm in North America.¹⁶ In the same years, the Italian consuls in Brazil and Colombia also mentioned the name of this Tuscan firm. This suggests that apart from the USA, Bertolli’s olive oil was also consumed in Latin American markets.¹⁷ In fact, prior to

¹³ The data used in the construction of this table have two different origins. For Argentina, the information has been elaborated on the basis of commercial reports for the period 14 October 1932 to 31 December 1933. These reports were published in *ART* (Barcelona, 1933-1934). For the USA, the figures mainly come from Tomás Espuny (Espuny (1929), pp. 48-51), a Spanish olive oil exporter who travelled to the USA in 1929 in order to know the characteristics of this market. The information he provides has to be considered as a rough approximation. Therefore, the data for the USA market in table 3 has a provisional nature. The rest of information of the table has been taken from ME (1899), ME (1922), p. 28, Cerisola (1973), pp. 128-184, Castejón (1977), pp. 205 and 208, Sierra (1992), pp. 44-46, Isolica (1997), pp. 160, 179-180, Ramon-Muñoz (2000b) and Stumpo (2003), pp. 141-143.

¹⁴ The firms that did not export packaged olive oil to the Americas prior to 1914 were Olivarera del Mediterráneo, A.S.T.O.R. Hijos de José Sabater and, perhaps, Salvo, Frugone & Preve and Daneri.

¹⁵ According to a French report for Brazil, the brands Bertolli, Rosita and to a lesser extent Casuboggi, stood out against the rest of Italian brands in the late 1920s. This report pointed out that Bertolli was particularly consumed in the state of Sao Paulo even though its quality was below that of the reputed brand Plagniol. The report also recognised that Bertolli was probably the leading brand in Brazil. Other important firms in this market were Lopes Coelho Diaz, Coelho Martins and Carlos Taversas, which were from Portugal. The Spanish firms commercialised the product under different brands, the most important being Vasco de Gama, Canções, Oliveira, Tena and Sublime Sensat, which was considered a high quality brand. Finally, the leading French brands operating in Brazil were Virgilio d’Or, J. B. Gavandan and Plagniol. In terms of quality, Plagniol continued being the most reputed brand, although its sales had declined enormously relative to previous periods. See “Brasil” in SIFE. Supplement to the report n. 744 (Madrid, 1929).

¹⁶ MAIC (1913), p. 139. The translation is mine.

¹⁷ MAIC (1913), pp. 238-274.

1913 this firm had already been involved in commercial business between Argentina and Italy.¹⁸

Of course, Bertolli was not alone on the other side of the Atlantic. The data presented in table 3 suggest that in the late 1920s and early 1930s, Filippo Berio (owned by S.A.L.O.V.),¹⁹ Fratelli Berio, Giacomo Costa, Carlo Daneri, Escoffier and Guidi, Giuseppe Lupi, Tommaso Moro, Giorgio Ottone, Pietro e Vincenzo Salvo or P. Sasso were other Italian leading firms in the Americas.²⁰ Interestingly, most of them had also entered the markets on the other side of the Atlantic relatively early and by the first decade of the twentieth century they were already well-known firms in the New Continent. To give some examples, by the eve of World War I, Berio, Costa or Sasso had achieved a remarkable presence in the USA, Brazil and perhaps other smaller Latin American markets.²¹ Although it had lost share relative to previous decades, by 1913, Ottone still was successfully operating in Argentina whereas Tommaso Moro had become a leading firm in Argentina and had achieved remarkable success in Peru.²² By the eve of World War I, Escoffier and Guidi commercialised its olive oil to Peru by means of the brand *Arbolito*. They also used this brand to enter markets in Panama, Uruguay and, probably, Argentina.²³

Of the Spaniards, Hijos de Ybarra was the firm that in the early 1930s exported the largest amount of canned olive oil to the Americas (brands “Ybarra” and “El Toro”). Set up in 1842, this was a solid company involved in several businesses including wine production, finances, mining, shipping and, of course, olive oil production and trade.²⁴ The point that needs to be stressed is that Ybarra had probably entered the southern American markets for olive oil during the first decade of the twentieth century. The available information suggests that by the eve of World War I Ybarra’s position was weak in Argentina as well as in the USA. Instead, it was stronger in other places of the New Continent. According to the Italian

¹⁸ Stumpo (2003), p. 141. See also Segreto (1988).

¹⁹ S.A.L.O.V. (Società Azionaria Luchese Oli e Vini -Society for Oils and Wines of the Province of Lucca) was set up in 1919 by several growers and producers of Lucca. The Berio family was among the founders.

²⁰ The available data from the Ligurian city of Imperia on olive oil imported under temporary admission confirms that Fratelli Berio, P. Sasso, Giuseppe Lupi or Pietro and Vincenzo Salvo were on the top of the export ranking. Other significant exporters in Imperia were Ramella, Roverano, Consorzio, Muratorio, Bresciano and Daneri. See Isolica (1997), 160.

²¹ For example, by 1913 P. Sasso (brand Sasso) was also present at least in Chile, Guatemala and Panama, whereas Giacomo Costa (brands Costa and Dante) sent olive oil to Uruguay too. MAIC (1913), pp. 111-143, 148-149, 154-155, 254-255.

²² In Peru, Moro operated under the brand “La Palma”, which had become one of the leading brands in the market. MAIC (1913), p. 284.

²³ MAIC (1913), pp. 154-155, 165-237 and 284.

²⁴ Sierra (1992), pp. 38-61.

consuls, it had become one of the most important olive oil firms in Mexico and perhaps in some other small Latin American markets.²⁵

Together with Ybarra, in the early 1930s the names of Bau, Carbonell, Longoria, Luca de Tena or Sensat were also on the top of the Spanish packaged olive oil ranking.²⁶ These firms were not new on the other side of the Atlantic. By the eve of World War I, Bau had a remarkable share in Argentina and by 1913 it was also present in Chile and perhaps other Latin American countries. Sensat's olive oil was successfully sold in Argentina as well as in Brazil and Cuba. In the course of the first decade of the twentieth century, the firm Hijos de Luca de Tena was able to penetrate in Argentina and Uruguay (operating under the brand "La Giralda"), while by 1913 both Carbonell and M.G. Longoria (brand "El Guadalquivir") were already exporting olive oil to Latin American markets.²⁷

The dynamics of the Mediterranean olive oil export firms in the Americas is far from being completely understood. Nevertheless, at the present stage of research the available evidence suggests that relative to previous decades, the entry of new brand-name olive oil exporters in the Americas decelerated in the course of the 1920s and 1930s. This seems especially true in the group of firms that were leading olive oil exports to the Americas in the early 1930s, as most of them had entered the markets on the other side of the Atlantic prior to 1914. Of course, this does not mean that the export ranking remained unchanged throughout the inter-war period. Firms that by 1913 were on the top of the ranking were losing positions in the course of the 1920s and 1930s and vice versa.²⁸ It does not mean either that exporters' entry was blocked in the Americas. It simply suggests that throughout the 1920s and 1930s the process of entry seems to have decreased relative to previous periods and that when entry took place it was probably focused on the periphery rather than on the core of the export industry.

Having said this, the question that immediately arises is why this likely deceleration in the entry process to the Americas might have taken place after the end of World War I. The next section reviews the most salient literature dealing with the determinants of entry into markets. This review will provide the theoretical background for a better understanding of the dynamics of firms' entry, exit and survival in the American markets for brand-name olive oil.

²⁵ MAIC (1913), p. 111.

²⁶ See Ramon-Muñoz (2000b) and (2000c) for a complete description of the Spanish export firms operating abroad in the early 1930s.

²⁷ See, for example, Muguerza (1909), pp. 13-14, MAIC (1913), pp. 145-147, 255 and 287-288 and Castejón (1977), pp. 205-208.

²⁸ In this respect, one of the most remarkable events was the replacement of Catalan firms by Andalusian exporters in the top positions of the Spanish brand-name olive oil export ranking during the 1920s. Ramon-Muñoz (2000b), pp.106-110.

4. The determinants of entry into markets: a survey

At first glance, the subject of new entry into markets might seem quite a simple issue. Firms decide entering the markets depending on the expected post-entry profitability.²⁹ However, the fact is that profitability (and therefore entry) is determined by many factors. These include market structure (i.e. the height of barriers to entry), the existence of potential early-entrants advantages, the response of incumbent firms when they face the threat of potential new entrants and, market evolution (i.e. the dynamism or maturity of markets).

Of all of these factors, entry barriers and early-entrants advantages have become basic issues in the literature dealing with entry, exit and survival. The connection between entry process, entry barriers and advantages of incumbent firms has existed in economic literature for a long time. As early as 1956, Joe S. Bain argued that the condition of entry in a given industry was associated to the existence of entry barriers. He defined this as “*the advantages of established sellers in an industry over potential entrants*”. These advantages allowed incumbent firms earning supernormal profits without threat of entry.³⁰ Bain also argued that there were three major types of entry barriers or three major advantages to incumbent firms: product differentiation advantages, absolute cost advantages and economies of scale advantages.

Since the publication of Bain’s seminal study, the bibliography devoted to analyse the real influence on entry (and survival) of these three barriers has become enormous.³¹ In spite of this, both theoretical analysis and empirical works have not provided conclusive answers yet. As far as economies of scale is concerned, Bain suggested that economies of scale might deter entry not only because a minimum efficient scale plant is required for efficiency, but also because “*large absolute amounts of capital investment are required for efficiency*”.³²

²⁹ This is the approach of most of the articles included in Geroski and Schwalbach (1991). Thus, entry occurs if expected profitability exceeds the rate of profit that is sustainable in the long run. This certainly means to adopt a static framework for entry. Newman (1993), p. 594.

³⁰ Bain (1956), p. 3. See also Bain (1959).

³¹ The distinction between entry and survival has to be stressed. For example, Geroski has insisted in the fact that entry is rather easy and common. This could lead to the conclusion that entry barriers are rather low. However, “*if barrier of entry are thought of as an obstacle which prevents new firms from surviving long in a market, then the data present less of a puzzle. In this alternate view, barriers to entry appear similar in character to costs of adjustment, and they are particularly pressing for those entrants who have only a limited time in which to prove themselves*”. Geroski (1995), p. 436. See also Caves and Porter (1977), who have developed the concept of mobility barriers; Geroski (1991a) and Audretsch and Mata (1995), who have summarized the contents of the special issue of the *International Journal of Industrial Organization* on the post-entry performance of firms. For a survey on entry, exit and survival, see also Caves (1998).

³² Bain (1956), p. 55. Although Bain made clear the connection between scale economies and capital requirements, he finally considered this issue in terms of absolute cost advantages of established firms. Capital requirements are also treated as an independent entry barrier. Bain (1956), pp. 156-165 and p. 169.

Although these hypotheses have found some empirical support, it is also true that evidences on scale advantages are somewhat ambiguous. Small-scale entry based on product differentiation and specialisation can also be a successful strategy of entry, even though “*the strategies that sustain entry at small scales do not always give much promise of subsequent market expansion*”.³³ Nevertheless, it does not seem wrong to conclude that entry costs for potential new entrants become greater when a minimum efficient plant size or (and) a minimum capital are required to enter a particular industry or a particular market.³⁴ In addition to this, scale economies from the demand side are expected to arise in connection with advertising. This provides an important advantage to large sellers and large advertisers as well as to incumbent firms over potential new entrants.³⁵

Apart from scale economies, absolute cost advantages of established firms was another source of entry barriers in Bain’s classical analysis. In this respect, Bain argued that the potential sources of cost advantages of established firms over potential entrants might stem from several factors. First, established firms might control superior production techniques. Second, they may secure productive factors at lower prices than potential entrants could. Third, they could control strategic factor supplies. Finally, they might have access to investible funds at lower costs than potential entrants might, in part, because of the possibility of risk creditors.³⁶

Whilst the influence of these factors varies across industries, empirical literature has found strong support to the hypothesis that absolute costs act as an important entry barrier.³⁷ Literature on early-movers has also suggested the idea that cost efficiencies through both learning-by-doing and technology matters.³⁸ This is argued by D.C. Mueller who suggests, “*the more experience an organization has with production, the more opportunities it will have to recognize cost-reducing improvement. Since experience accumulates with production, learning-by-doing cost reduction should depend on the cumulative output of the firm*”. In

³³ Geroski (1991b), p. 191. Using a different approach, Schmalensee has also suggested the “*general unimportance of entry barriers erected by scale economies*”. Schmalensee (1981), p. 1228.

³⁴ Geroski (1995), p. 429.

³⁵ Scale economies in advertising are in part due to the existence of a threshold level for advertising that leads to higher advertising cost for smaller firms. See, for example, a survey in Comanor and Wilson (1979), pp. 467-470 and Geroski (1991b), pp. 189-190.

³⁶ Bain (1956), pp. 144-145.

³⁷ For a survey, see Geroski (1991b), pp. 178-185.

³⁸ See Lieberman and Montgomery (1988), pp. 42-43 and Mueller (1997), pp. 839-840, who offers a survey on this issue. See also Jovanovic and Lach (1991). The notion of experience as a driver of cost reduction is the key concept of the experience curve analysis, which reached a large popularity before the 1980s. According to this analysis, there is a close relationship between the expansion of output at firm level, deterring entry and gaining a long-term cost advantage over rivals. This cost advantage may be less apparent with the diffusion of knowledge. See Day and Montgomery (1983) and Lieberman (1987).

addition, Lieberman and Montgomery have also argued that “*pioneers can gain advantage if technology can be patented or maintained as trade secrets*”.³⁹ One important conclusion of all this literature is that the height of absolute cost advantages is endogenous to the competitive process, namely these potential advantages are related to the response of incumbents.⁴⁰

Indeed, entry barriers are also affected by the response of incumbent firms when they face the threat of potential new entrants. In this connection, both literature on strategic management and modern game theory literature have argued that it cannot be expected that incumbent firms remain passive if new companies enter the market.⁴¹ On the contrary, incumbents tend to respond to new entrants by using several strategies. These include price modifications, production capacity alterations, advertising and branding responses or new product introduction. For example, in the short-term, incumbents may find it useful to lower the price of their products in response to entry. This could make it unprofitable for subsequent entrants. Despite this possibility, entry deterrence by lowering prices has very little empirical support. The investment of incumbent firms in selecting the level of production is another strategy of incumbent firms to make entry unprofitable.⁴² The main point of the argument is that established firms might be able to increase their production capacity in order to become more efficient and to sell at lower costs than potential new competitors might be able to do. This arguments is also drawn form little empirical evidence.

There has been more support found in empirical literature for other potential strategies. This is the case for the strategic behaviour of incumbent firms whose aim is to maintain or to increase advertising once they are established in the market. This strategy raises both capital requirements and fixed (and sunk) costs for potential entrants and makes entry more difficult too. On the other hand, it is also quite common that incumbent firms deter entry by developing new products (product proliferation) or new brands (brand proliferation) as a mean to hamper the attraction of enough demand for the new entrants. In this respect, brand proliferation, which implies that established firms leave no profitable market niche unfilled, has a particular consequence in the presence of product differentiation and economies of scale. It offers the opportunity to the established firms to increase long-run price above average costs without attracting new entrants. This is not only due to the face that they

³⁹ Mueller (1997), p. 839 and Lieberman and Montgomery (1988), p. 43, respectively.

⁴⁰ Geroski (1991b), p. 185.

⁴¹ See, for example, Tirole (1988) for theoretical models based on modern game theory.

⁴² Although other authors dealt with the issue, this hypothesis was formally established by Dixit (1980). See also Schmalensee (1981) and Bagwell and Ramey (1996) or Brandts, Cabrales and Charness (2007) for alternative game theory models.

act as a monopolist in relation to their own products, but also because of the potential entrants experience a disadvantage in costs due to their small scale of production or distribution.⁴³

Together with scale economies and absolute costs, product differentiation was the third source of entry barrier suggested in the Bain's classical study. The role of product differentiation has been discussed in depth. In theory, product differentiation gives the early entrants the advantage to form consumers' preferences, whereas late entrants face supplementary costs as they have to change these preferences.⁴⁴ Consumers' preferences for established firms' products are part of the results of advertising campaigns and other marketing strategies. This helps to create brand loyalty and niche markets which contribute to the emergence of monopoly power at firm level. In other words, firms may act as a monopolist in relation to their own products. This is due to the fact that by means of using several marketing strategies products from different firms would have become imperfect substitutes.⁴⁵

Consumers' preferences for established firms' products also arise in presence of switching costs, i.e. the costs incurred when a customer changes from one supplier to another.⁴⁶ For potential entrants, the costs of persuading consumers may become sunk costs, namely unrecoverable expenditures.⁴⁷ The line of causation can be summarised as follows. Consumers need to acquire information before buying and consuming goods, especially "experienced goods", i.e. those goods whose intrinsic characteristics cannot be fully discovered merely by inspection prior to purchase and consumption. The drawback to this is that to acquire this information, expenses are required by the consumer. Therefore, consumers may prefer existing and experienced firms and brands. This weakens their interest for those firms and brands that have gotten to the market later. In this context, pioneering firms and brands may have some advantage over potential new entrants, since the later may have to incur additional costs in the form of price cuts, advertising campaigns and other marketing strategies in order to persuade consumers to acquire a new brand. These costs can be considered sunk costs. If the product launched by the potential entrant is not successful in the market, the costs associated with the introduction of the product will be impossible to recover.

⁴³ See Thomas (1999) for advertising and the introduction of new products. For brand proliferation, see Schmalensee's well-known article on the American ready-to-eat breakfast cereal industry. Schmalensee (1978).

⁴⁴ Bain (1956), pp. 114-117.

⁴⁵ In this framework, the established firms may obtain monopoly profits, since they would be able to elevate their long-run price above average costs without attracting new entrants. Bain (1956), p. 3.

⁴⁶ Schmalensee (1982). In his model, he pointed out the importance of looking at consumers' acquisition and use of information, "by *paying less attention to advertising in particular than has been done in much of the industrial organization literature*". Schmalensee (1982), p. 360. See also Kemperer (1987a) and (1987b), who analyses the explicit influence of switching costs on competition.

⁴⁷ For sunk costs, see also Sutton (1991).

The final consequence is that product differentiation would benefit early movers, whereas for potential entrants, it would raise entry barriers and discourage entry.

Many studies have defended the role of product differentiation as an entry barrier, while others have questioned the advantages of established firms based on product differentiation. For example, D.C. Mueller has argued that switching costs are more obvious in some products than in others. He suggests that the switching costs argument perhaps fits well in the case of the film industry, since it is likely that an amateur is prepared to pay an extra cost for a pioneer and well-known brand in order to assure the quality of the pictures. Conversely, it is more difficult to be applied to the soft drink industry, as the consumers' cost of trying and acquiring information of a new soft drink appear to be relatively low.⁴⁸

Focused on entry-detering effects of advertising, Kessiades concluded that advertising, and therefore product differentiation, does not necessarily deter entry either. By using US information for the period 1972-1976, he found that advertising impedes entry since necessary advertising expenditures give rise to sunk costs. This in turn raises the risk of entry. However, he also found that advertising may have a positive effect on entry since potential entrants perceive a greater likelihood of success in markets where advertising plays an important role.⁴⁹

Whether product differentiation deters entry or not is difficult to determine. After revising the existing empirical literature on this issue, Paul A. Geroski has concluded that *“although difficult to think of as a structural entry barrier, [the] influence [of product differentiation advantages] (...) is hard to deny”*.⁵⁰ In fact, the general impression is that the existence of product differentiation increases the cost of entry for potential new entrants, but does not deter entry.

In addition to entry barriers, entry may also be affected by the evolution of markets. For example, recent literature on industrial organisation has suggested that entry rates vary over time depending on the maturity of markets.⁵¹ Thus, rates of entry are expected to be relatively high in young industries. This is especially important in the early phases of the product cycle and the birth of the markets when new competitors strive to achieve leading positions. Conversely, rates of entry tend to decline in a mature industry or market.

⁴⁸ Mueller (1991), p. 10.

⁴⁹ Kessiades (1986). For alternative views, see also, Schmalensee (1972) and (1974), Comanor and Wilson (1974), Spence (1980) or Cubbin (1981). For a survey of the empirical literature on this issue for the years before the late 1970s see Comanor and Wilson (1979). For the impact of advertising on concentration, see Guth (1971), Sutton (1974), Friedland (1977), Mueller and Rogers (1980), Wright (1978) and Robinson and Chiang (1996).

⁵⁰ Geroski (1991b), p. 204. See also Geroski (1995), p. 429.

⁵¹ See, for example, Gort and Klepper (1982), Mueller (1991), p. 13, Geroski (1995), pp. 425-426 and 437 and Agarwal and Gort (1996).

Interestingly, in arguing why entry declines in mature markets, potential advantages of early-entrants are suggested. Thus, it is argued that the more mature the markets are, the more advantages early-entrants enjoy and the more difficulties potential new entrants face. This is generally due to three major factors. First, consumer preferences have become reasonably well formed; second, distribution systems have already been set up, third, the leaders tend to be protected by their product images as well as some other advantages closely connected with the fact of being an early-entrant in the market. Consequently, in mature markets new entrants face disadvantages relative to the incumbent firms, whereas entry tends to be largely limited to the industry's periphery.

Were the advantages of early-entrants really so important in determining entry and survival? Although many empirical analyses have found that pioneering firms tend to have higher market shares than later entrants, the advantages of the early movers can be exaggerated. In fact, first-movers also have disadvantages while there are advantages for later entrants.⁵² It is possible that later entrants in markets may learn from the mistakes of the first-entrants. They may also avoid technological and demand uncertainties. For example, Golder and Tellis have questioned the general idea that pioneers have long-lived market share advantages. After analysing approximately 500 brands in 50 product categories for the USA over the twentieth century, they conclude that almost half of market pioneers fail and their mean market share is much lower than other studies suggested. However, they also find that early market leaders have much greater long-term success than the rest of firms do.⁵³

5. Entry barriers and exporters' concentration across markets in the early 1930s

Which of the factors suggested by the literature better explains the entry process of the Mediterranean exporters of brand-name olive oil to the Americas before World War II? Before analyzing the answer in depth, it is worth noting that in the early 1930s most of those firms leading brand-name olive oil exports on the other side of the Atlantic had already penetrated the markets of the Americas prior to World War I. This may suggest the existence of a sort of early-mover advantage and therefore, entry barriers for potential later entrants. Consequently, it could be argued that the likely post-World War I reduction of entry of Mediterranean exporters in the American markets for brand-name olive oil was due to the existence of

⁵² For a survey, Lieberman and Montgomery (1988) and (1998). See also Robinson, Kalyanaram and Urban (1994).

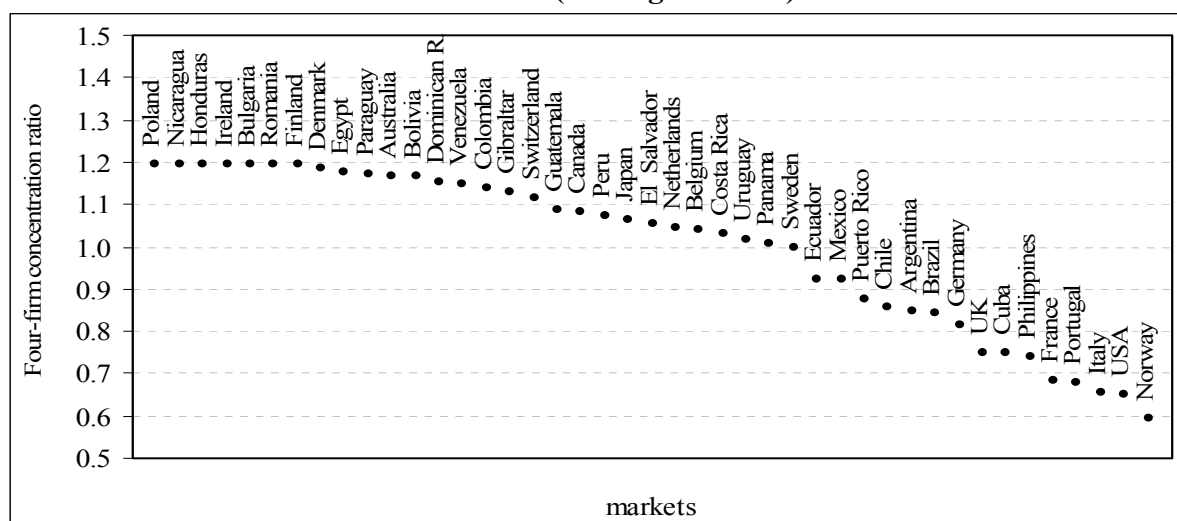
⁵³ Golder and Tellis (1993). See also Shankar, Carpenter and Krishnamurthi (1998) and Boulding and Christen (2003).

increasing entry barriers, no matter what the sources were, in most of the markets on the other side of the Atlantic.

The most important point in the confirmation of this hypothesis is to show that entry barriers were generally higher in the Americas than elsewhere. However, the problem is how to measure the height of these barriers. According to the classical literature on industrial organisation, the structure of markets tends to differ depending on the height of the entry barriers. More precisely, the higher the entry barriers in a given industry or market, the stronger the levels of firms' concentration in that market. There is no reason to think that foreign markets for olive oil performed in a different way. Therefore, one possibility is to look at exporters' concentration across markets in order to obtain a proxy measure for entry barriers. If entry barriers were really higher in the Americas than elsewhere, one would expect to find higher levels of exporters' concentration in the former rather than in the latter markets.

Unfortunately, analysing the structure of foreign markets for olive oil prior to World War II is not an easy task because quantitative evidence is extremely scarce. To my knowledge, information about both the number and the foreign sales of olive oil exporting firms was never systematically recorded. The same can be said for importers, agents, wholesalers or retailers involved in the olive oil trade. Consequently, comprehensive data on market structure appears poor and scarce. In fact, the only systematic information I have been able to find comes from Spain. It refers to the export orientation of a large sample of Spanish olive oil firms for the period 1930/1934.⁵⁴

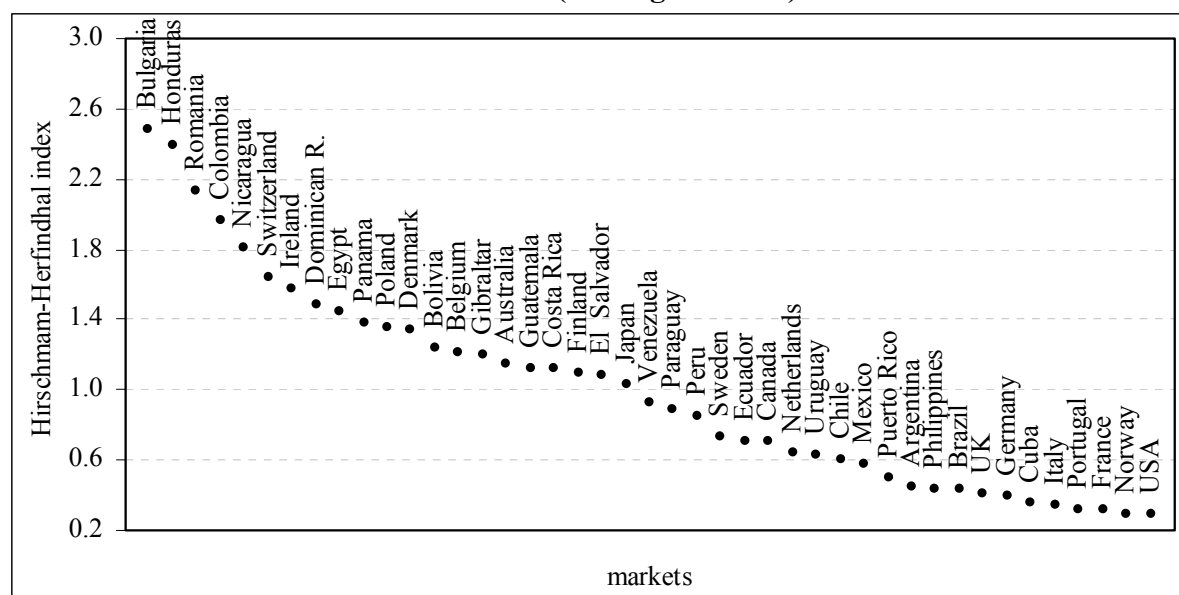
Figure 2
Four-firm concentration ratios of the Spanish exporting firms by foreign markets, 1930/1934 (Average ratio=1)



Notes and Sources: See text and footnotes

⁵⁴ See Ramon (2000b) and (2000c) for further details on these data.

Figure 3
Hirschman-Herfindhal index of the Spanish exporting firms by foreign markets, 1930/1934 (Average ratio=1)



Notes and Sources: See figure 2.

Table 4
Levels of firm concentration of the Spanish exports by regions, 1930/1934

Region or Continent	Number of countries included (I)	Individual countries (unweighted average) (Average=100)		Regional and continental aggregation (Average=100)		Olive oil exported by the Spanish firms (metric tonnes)	
		Four-firm concentration ratio (C ₄) (II)	Hirschman-Herfindahl index (HH) (III)	Four-firm concentration ratio (C ₄) (IV)	Hirschman-Herfindahl index (HH) (V)	total (VI)	per market (VII)
North	2	87	50	98	94	13,165	6,583
Central /Antilles	10	103	118	109	110	9,810	981
South	10	102	87	120	130	18,261	1,826
Total Americas	22	101	98	86	73	41,236	1,874
Scandinavia	4	99	86	98	104	2,681	670
Others North	9	106	132	90	92	3,628	403
South	3	67	32	83	77	15,660	5,220
Total Europe	16	97	102	70	58	21,969	1,373
Others	5	106	105	101	92	348	70
Average	43	100	100	100	100	63,552	1,478

Americas: North includes Canada and the United States of America; Central and Antilles include Costa Rica, Cuba, Dominican Republic, Guatemala, Honduras, Mexico, Nicaragua, Panama, Puerto Rico and El Salvador; South includes Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay and Venezuela. Europe: Scandinavia includes: Denmark, Finland, Norway and Sweden; Others North includes Belgium, Bulgaria, Germany, Ireland, the Netherlands, Poland, Romania, Switzerland, the United Kingdom; South includes France, Italy and Portugal. Others: Australia, Egypt, Gibraltar, Japan and Philippines;

Sources and Notes: See figure 2, text and *Estadística(s) del Comercio Exterior de España, 1930/1934*.

Figures 2 and 3 summarise the information provided by these firms by ranking foreign markets according to exporters' concentration level. Table 4 shows the data grouped by regions or continents. Both the figures and the table include the 43 largest markets to which

Spanish firms exported, i.e. markets in which exports were more than 1 metric tonne in the period 1930/1934. However, they exclude Spanish colonies, possessions and markets for which data have shortcomings. The calculations shown in figures 2 and 3 have been elaborated on the basis of the information provided by 58 exporting firms, which on average, concentrated around 90 per cent of the total olive oil exported from Spain. In addition, it is worth noting that official figures from the Spanish foreign trade statistics have not been used because several of the markets are below the figures provided by the firms of the sample. For example, according to the data provided by these firms, the Spanish total exports to Brazil were in 1.3 thousands of metric tonnes in the period 1930/1934, whereas according to the foreign trade statistics the olive oil exported to Brazil from Spain amounted only at 0.9 thousands of metric tonnes. These divergences are probably due to compilation errors and differences in compilation criteria.⁵⁵

Two alternative concentration indexes are presented. The first is the four-firm concentration ratio (C_4) which is calculated by summing up the shares of the four largest Spanish exporting firms in a given market relative to the olive oil exported to that market by all the Spanish firms of the sample. Used extensively in the literature, this concentration ratio is not always a satisfactory measure because it only takes into account a small (and arbitrary) number of firms. Part of this problem can be avoided by using the Hirschman-Herfindahl index (HH). The HH index takes into account the shares of all the firms in the market. This second index is not free of problems either. It is obtained by summing up the squares of the firms' share and, therefore, tends to overestimate the importance of the largest firms.⁵⁶

In spite of this, the results presented in both figures 3 and 4 and table 4 tell the same story. They show a remarkable variation on exporters' concentration across foreign markets. This suggests that market structures, and therefore entry barriers, also differed across foreign markets. To give some examples, in Italy, which was in the lower part of the ranking, the four-firm concentration ratio was around 35 per cent of the Uruguayan one, which was ranked in the middle of the classification, and was almost half the Nicaraguan ratio, which held the top ranking. Not surprisingly, if instead of considering the four-firm concentration ratio, the Hirschman-Herfindahl index is used, variations on exporters' concentration across foreign markets tend to become larger.⁵⁷ To continue with the same example, the level of

⁵⁵ See Ramon (2000b) and (2000c) for details on sources and data.

⁵⁶ For a further discussion in the use of alternative measures of concentration in the industry, see, for example, Hannah and Kay (1977), Curry and George (1983), Clarke (1985), chapter 2 or Schmalensee (1989).

⁵⁷ The coefficients of variation of the countries plotted in figures 3 and 4 are 19 per cent for the four-firm concentration ratio and 58 per cent for the Hirschman-Herfindahl index.

concentration of the Spanish firms in Italy is now around half of Uruguay is and around 80 per cent of Nicaragua's.

The key point is to assess whether levels of concentration of the Spanish olive oil exporters were higher in the American markets than elsewhere. At first glance, the results shown in figures 2 and 3, as well as in table 4 (columns II and III), do not seem to confirm the existence of higher level of exporters' concentration for the markets of the Americas relative to the rest of markets of the world. To start with, a simple inspection to figures 2 and 3 makes it clear that many European countries stood out from the rest of the countries included in the sample. On the top of the concentration ranking, it is not only possible to find Honduras, Nicaragua, Colombia, Dominican Republic, Panama or Paraguay, but also Bulgaria, Romania, Ireland, Switzerland, Poland, Denmark, Finland and Egypt. At a regional or continental level, the results are not very different. The unweighted average of the 22 markets of the New World included in the sample yielded a level of exporters' concentration only 4 cent higher than the 16 markets of the Old Continent when measured by the four-firm concentration ratio. If measured by the Hirschman-Herfindahl index the results are still more surprising. On average, the former had a concentration level 4 per cent lower than the latter (see table 4, columns II and III).

According to these results, it would seem obvious to conclude that in the Americas, entry barriers for potential olive oil exporters were similar to the rest of markets. Consequently, other factors would explain the decline of entry and survival of brand-name olive oil exporters to the New World after World War I. However, this could be a misleading conclusion. The literature on industrial organization has not only made it clear that levels of concentration are determined by entry barriers, but has also pointed out that concentration can be also be associated to the size of the markets. It has argued that *ceteris paribus* a negative relationship between market size and concentration level should be expected, since an expansion in the size of the market not only raises the profitability of incumbents, but also the expectation of profits. These facts tend to induce potential competitors to enter the market, causing the concentration to fall.⁵⁸

The size of the market certainly seems to determine the results plotted in figures 2 and 3, as well as those shown in table 4 (columns II and III). One of the most salient characteristics of the markets with the highest levels of concentration is that they are all small markets by Spanish olive oil foreign trade standards. Yet, as most of the 43 markets considered in our sample are relatively small, concentration levels appear mostly determined by market size. The coefficient

⁵⁸ See, for example, Schmalensee (1989). An alternative explanation to the negative relationship between market size and market structure is found in Sutton (1991).

of determination after correlating market concentration (C_4) with market size (total Spanish olive oil exports by market) is remarkably high with a coefficient of 0.644.

Table 5
Spanish exporters' concentration across the fourteen largest foreign markets
for the Spanish olive oil, 1930/1934

countries	Total Spanish exports	Concentration indexes		countries	Total Spanish exports	Concentration indexes	
	(metric tons)	C_4	HH		(metric tons)	C_4	HH
Italy	11,122	54.8	0.115	Chile	708	71.6	0.202
Portugal	2,684	56.5	0.107	Mexico	802	76.9	0.193
Norway	2,560	49.7	0.097	Argentina	11,496	70.7	0.151
France	1,854	57.2	0.106	Cuba	7,777	62.6	0.122
UK	2,674	62.6	0.139	Uruguay	4,111	84.8	0.210
Germany	568	68.2	0.135	Pto. Rico	786	73.3	0.168
USA	13,104	54.3	0.097	Brazil	1,295	70.5	0.145

Notes and Sources: See table 4.

The picture changes radically when the market size effect is neutralized either by using aggregated information at regional and continental level or by considering only the largest markets of the sample. As shown in table 4 (columns IV and V), levels of exporters' concentration become higher in the Americas as a whole rather than in any other continents or regions. For example, by 1930/1934 the New Continent had on average levels of exporters' concentration between 23 and 26 per cent higher than the Old Continent, depending on the measure of concentration used. In addition, levels of exporters' concentration were especially high in the Southern part of the New Continent. They had an index between 1.7 and 2.2 higher than in Europe.

The results do not substantially change if instead of looking at regions or continents, we look at the largest markets on both sides of the Atlantic. As shown in table 5, the markets placed in the Americas generally have higher levels of concentration than those placed in Europe. The only clear exception to this rule is the USA. This partly has to do with the marketing of the product, which will be explained later on. The United Kingdom and Germany also have levels of exporters' concentration quite high relative to the European norm. Most of this is due to the size of the market (Germany) and partly because of specific characteristics in marketing and commercialisation.

6. The sources of entry barriers in the Americas: hypotheses and evidences

To sum up, the available evidence suggests that entry barriers were generally higher in the Americas than elsewhere. The question that immediately arises is why entry barriers became higher in the Americas. As described in section 4, the literature on industrial organisation has suggested three basic categories of entry barriers. These include product differentiation, which tends to lead to the existence of certain market power at firm level, economies of scale on the supply side and finally, absolute cost advantages of incumbents over entrants.

6.1. Product differentiation and entry barriers in the Americas

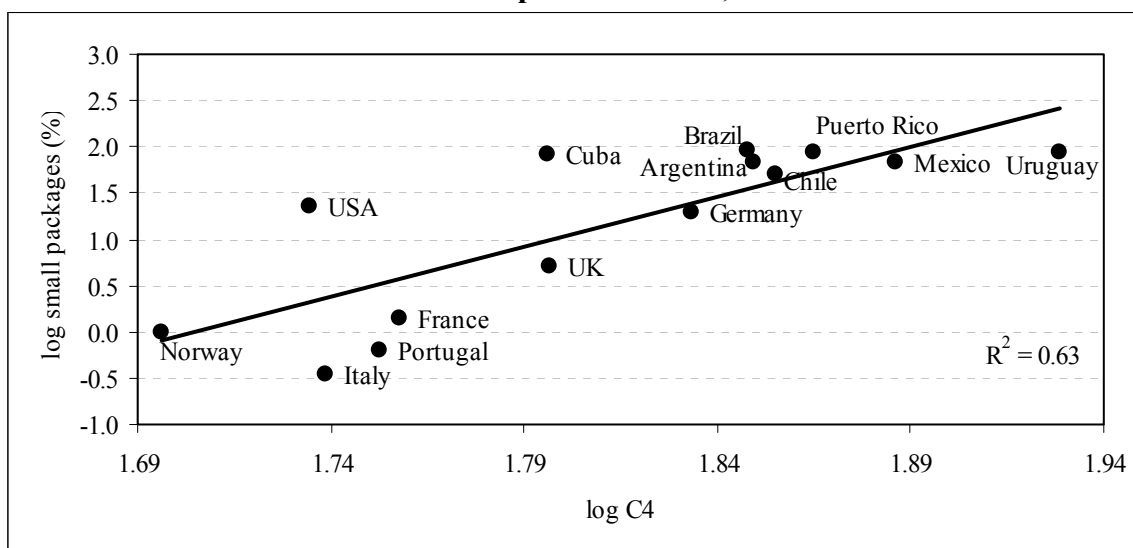
In the case of the Americas, product differentiation seems to be the obvious candidate. This is mainly due to the marketing strategies followed by most of the exporting firms trading with olive oil to the New World. Packaging, branding and advertising became essential factors in penetrating the American markets for brand-name olive oil (as well as other markets with similar characteristics). This was so especially in the formative phases of these markets. To give an example, in explaining the success of a Catalan exporter in Argentina prior to World War I, many contemporaries considered a crucial factor that he regularly (and intensively) advertised his products in journals and newspapers.⁵⁹

During the inter-war period, the use of modern marketing continued being as important as it had been in pre-war years, and probably, even more. This was because new and more expensive methods of advertising developed. In 1933, a report published in the journal of the Spanish olive oil exporters pointed out that the fact that some Spanish export firms used an “*active and suggestive*” way of advertising their brands consisting of a “*raffle of money prizes among their consumers*”. Moreover, the same study suggested a close relationship between advertising and firm market shares because the largest firms invested a significant amount of their resources in advertising their products. The report indicated that in the early 1930s they invested on average one Argentinean peso per box of olive oil. This means that advertising costs would have accounted for between 1.5 and 7.2 per cent of the final value of the product depending on the information used in the calculations.⁶⁰

⁵⁹ See BCIC (1913), n. 280, p. 1, MAIC (1913), pp. 187-188 and BCIC (1914), n. 289, p. 2. This Catalan exporter was José Bau.

⁶⁰ See AOE (1932), n. 48, p. 299 and 301 and (1933), n. 52, p. 69.

Figure 4
Spanish exporters' concentration versus modern marketing in the largest foreign markets for the Spanish olive oil, 1930/1934



Notes and Sources: See table 4.

The fact that packaging, branding and advertising were extensively used in the Americas had some interesting consequences. The most obvious was that by making use of these marketing strategies, product differentiation rapidly arose, which contributed to increase entry barriers for new entrants. Although evidence at firm level is not available, the reasons explaining why product differentiation created entry barriers can be immediately deduced in the light of the literature reviewed above. On the one hand, the growing use of advertising and other modern marketing strategies probably created consumers' loyalty to established brands and firms. Moreover, it perhaps raised sunk costs for both consumers and potential entrant. This would have led to the existence of certain market power at firm level, which probably made the entry of potential exporters more difficult. On the other hand, the use of these marketing strategies probably increased the capital requirements for entering brand-name olive oil markets, which in turn might have contributed to raise entry barriers for potential new exporters too.

Figure 4 provides evidence suggesting that product differentiation contributed to increase entry barriers in international markets for olive oil. The figure correlates for the early 1930s Spanish exporters' concentration (C_4) in the largest markets on both sides of the Atlantic versus the percentage of Spanish olive oil exported in small packages relative to the total Spanish olive oil exports to the selected market. Although imperfect, this latter measure is taken as proxy of the use of modern marketing techniques, and therefore, product differentiation.⁶¹ It is also worth

⁶¹ The percentage of olive oil traded to foreign market in small packages appears to be quite adequate as a proxy for packaging and branding. However, it is very imperfect as a proxy for advertising. In this case it would be

noting that in order to avoid the influence of market size on concentration; the exercise only takes into account the largest foreign markets for the Spanish olive oil. Bearing all of this in mind, it is quite clear that levels of concentration tended to increase as modern marketing techniques were used more intensively. As packaging, branding and advertising were extensively applied by most of the exporters involved in trading olive oil to the other side of the Atlantic, the conclusion seems obvious: product differentiation advantages of established firms acted as a significant barrier to entry in the American markets for packaged olive oil.⁶²

6.2. Scale economies and capital requirements as entry barriers in the Americas

Commercial information at firm level suggests that economies of scale may have been at least as important as product differentiation. In 1925, the manager of *Hijos de José Sabater*, a Spanish exporter of olive oil established in Reus (Catalonia), which had entered the Americas during the First World War, asked his agent in Sao Paulo (Brazil) about the (low) level of orders for the brands prepared by the firm. In justifying why the agent should be more active, Sabater stated that only by increasing sales would his firm be able “*to use the equipment more efficiently, which [would] allow [offering] better selling conditions*” to his clients. A similar reasoning was made in a letter written by the manager of the company to his agent in Rio de Janeiro (Brazil). In this case, Sabater argued that, “*increasing sales benefits my clients [since] it allows me to supply a cheaper product*”. According to Sabater, larger exports of canned olive oil required a larger production of canned olive oil, and therefore led to larger acquisitions of bulk olive oil, tin-plate, cans and labels. If the firm bought large amounts of these inputs, it obtained better buying conditions from suppliers, which in turn, allowed the firm to sell a cheaper product.⁶³ In other words, according to this Catalan exporter, the costs of producing and distributing brand-name olive oil were remarkably influenced by the scale of operations. If this is correct, it would be expected that the size of the firm acted as an entry barrier in the Americas, since a minimum efficient size would be required for penetrating brand-name olive oil markets in order to take advantage of economies of scale.

appropriate to use the advertising expenditures-sales ratio, which is also used as a measure of product differentiation barriers. Unfortunately, there is no detailed information regarding the expenses in advertising of the Spanish exporters for the period 1930/1934.

⁶² For example, by 1925/1929 around 73 per cent of the total olive oil imported in the Americas was packaged in cans and bottles, whereas in Europe this percentage was a mere 7 per cent.

⁶³ Arxiu Comarcal de Reus. Fons Sabater. Box n. 1. “Copiador de Cartas. Salidas. América”, February 4th 1925, p. 299; February 16th 1925, p. 341 and May 5th 1926, p. 464-465.

Closely connected to the existence of a minimum efficient size, there is the issue of capital requirements for entry in international markets for olive oil. The available evidence suggests that these requirements were higher in the brand-name olive oil market than in the bulk one. Part of this was due to the different nature of both activities. The production of packaged olive oil was a more capital-intensive activity relative to the manufacturing of bulk olive oil, and therefore caused the minimum capital requirements in brand-name olive oil trade to increase.⁶⁴ This happened because the latter activity required large inventories of olive oil as well as stocks of bottles or cans in order to meet demand. Technical change was equally important because from the eve of World War I the production of brand-name olive oil was closely related to the setting up of industrial refining plants, and to a lesser extent, the adoption of mechanical processes in filling and labelling cans.

Trading abroad with brand-name olive oil also increased capital requirements. To start with, the terms of payments that exporters gave to importers were generally longer in the Americas (where most of the packaged olive oil was consumed) than in Western Europe. Additional capital was also required when a new brand or firm was first introduced in the market. This was not only because of advertising expenses, but also because sometimes this meant supplying the goods on consignment.⁶⁵ Obviously, the fact that brand-name olive oil was generally advertised in the final markets contributed to an increase in the capital requirements for those exporters dealing with this product. Probably being aware of all of this, in 1910, the Spanish vice-consul in New York pointed out the additional costs associated to both the introduction and accreditation of an olive oil brand in the American market. He finally suggested a less capital-intensive alternative to Spanish exporters: to export the product under the name of the American importer.⁶⁶

Did those firms more orientated in trading with brand-name olive oil have a larger size than those focused on exporting bulk olive oil? If this was true, were the former more capitalised than the latter? Table 6 provides some evidence on these issues. It displays data elaborated from a sample of 61 Spanish export firms in the early 1930s. These firms accounted for around 93 per cent of the total olive oil exported by Spain in the period 1930/1934. Two different groups of export firms are shown in the table. Group 1 includes 23 exporters for which Latin America was their main export region. Note that Latin American markets mostly demanded brand-name olive oil for final consumption. This could indicate

⁶⁴ Manjarrés (1872), p. 156.

⁶⁵ MAIC (1913), p. 116.

⁶⁶ BCIC (1910), pp. 1-2.

that a significant share of the olive oil exported by the firms belonging to this group was packaged olive oil. In contrast, Group 2 integrates 38 firms that mainly orientated their exports towards the Old continent. This group also includes those firms that mostly exported bulk olive oil to the USA.

Table 6
Size and capital requirements of 61 Spanish olive oil export firms grouped according to the geographical destination of their exports, 1930/1934

Proxies and indicators	Groups		All sample	Ratio (1/2)
	1 (Latin America)	2 (Other regions)		
1. Average exports per firm, 1930/1934 ('000s kilograms)	1,559	832	1,106	1.874
<i>(% of firms with exports equal to or above the Spanish average)</i>	<i>(44)</i>	<i>(26)</i>	<i>(33)</i>	<i>1.692</i>
<i>(% of firms with exports equal to or above the group average)</i>	<i>(39)</i>	<i>(32)</i>	<i>(34)</i>	<i>1.219</i>
2. Average capacity of refining per firm, c. 1935 ('00s of kilograms per 24 hours)	300	245	274	1.224
<i>(% of firms possessing their own refining plants)</i>	<i>(57)</i>	<i>(32)</i>	<i>(39)</i>	<i>1.781</i>
<i>(% of firms with a capacity equal to or above the Spanish average)</i>	<i>(54)</i>	<i>(42)</i>	<i>(48)</i>	<i>1.286</i>
<i>(% of firms with a capacity equal to or above the group average)</i>	<i>(46)</i>	<i>(42)</i>	<i>(44)</i>	<i>1.095</i>
3. Average capacity of producing sulphured olive oil per firm c. 1935 ('00s kilograms per 24 hours)	877	653	747	1.343
<i>(% of firms possessing their own plants of production)</i>	<i>(22)</i>	<i>(18)</i>	<i>(18)</i>	<i>1.222</i>
<i>(% of firms with a capacity equal to or above the Spanish average)</i>	<i>(40)</i>	<i>(29)</i>	<i>(33)</i>	<i>1.379</i>
<i>(% of firms with a capacity equal to or above the group average)</i>	<i>(20)</i>	<i>(57)</i>	<i>(42)</i>	<i>0.351</i>
4. Average nominal capital per firm c. 1935 ('000s pesetas) ^a	3,252	2,143	2,655	1.517
<i>(% of firms with capital equal to or above the Spanish average)</i>	<i>(37)</i>	<i>(29)</i>	<i>(33)</i>	<i>1.276</i>
<i>(% of firms with capital equal to or above the group average)</i>	<i>(21)</i>	<i>(29)</i>	<i>(25)</i>	<i>0.724</i>

^a It only includes information for 28 firms

Sources and notes: See text, footnotes and Ramon-Muñoz (2000b), pp. 129-132 and (2000c), pp. 185-200.

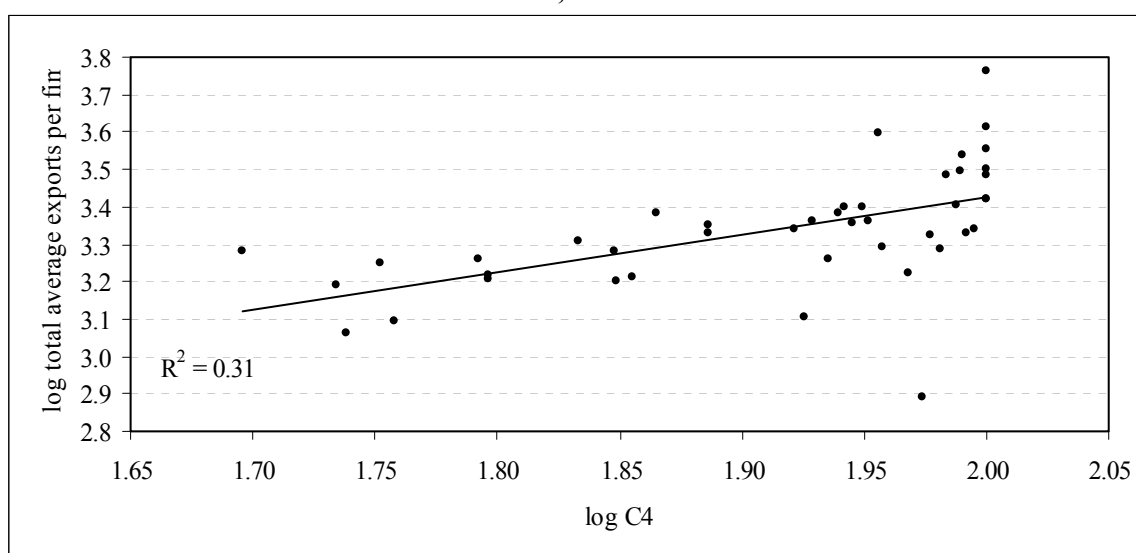
Table 6 shows several indicators for the measurement of firm size. One of them is nominal capital per firm and is used as a proxy of firm capital requirements. It is worth noting that there is a clear association between the indicators used for measuring firm size and firm nominal capital, since it is obvious that a large firm requires larger amounts of physical capital and vice versa.⁶⁷ Consequently, capital per firm can be taken as an indicator of firm size, while the proxies used for measuring firm size can be also expected to be capturing firm capital requirements. Needless to say, all the indicators presented in the table are clearly imperfect. This is partly due to the lack of appropriate data and the problems associated to the measurement of economies of scale. The concept and measurement of economies of scale economies has been a very controversial issue in the industrial economics literature, as will be explained in this section below.

⁶⁷ Bain (1956), p. 156-57.

The key point that needs to be considered from the information displayed in table 6 is whether those firms more orientated in trading with brand-name olive oil had a larger size and required more capital than those more focused on exporting bulk olive oil. Unfortunately, the results presented in the table do not give a definitive answer. They show that the average exports per firm, the average capital per firm or any other of the proxies used for measuring firm size or capital requirements were substantially higher in Group 1 than in Group 2. As the qualitative information suggested, this would indicate that both the minimum efficient scale and the capital requirements of those firms dealing with brand-name olive oil had to be higher than the rest.

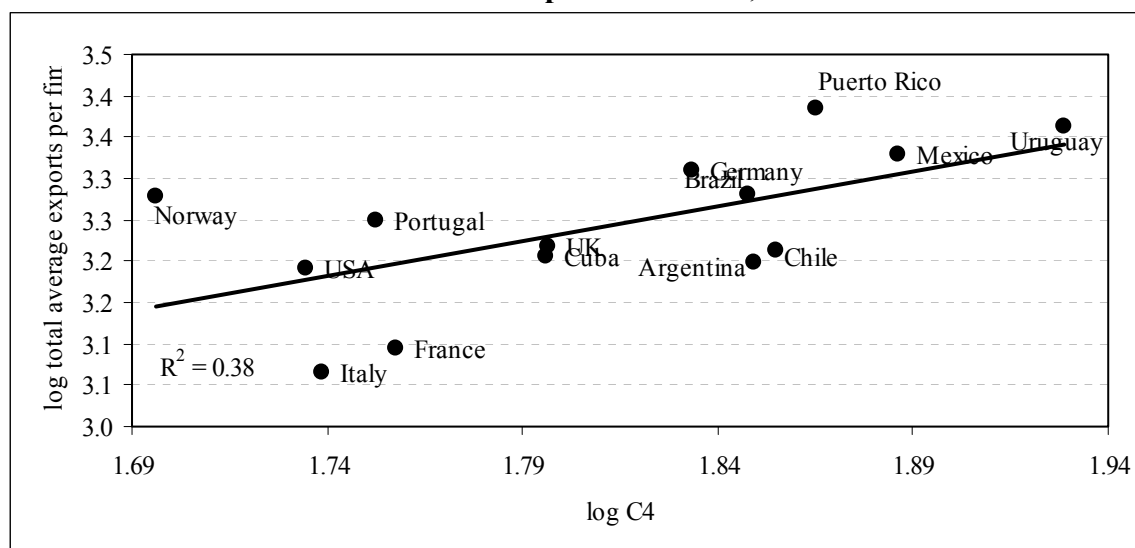
Nevertheless, a closer look at the information presented in table 6 suggests that size and capital requirements substantially varied inside each group of firms. For example, in Group 1, only 44 per cent of the firms (i.e. 10 out of 23) had a size (measured by total exports), equal to or above the Spanish average. As far as nominal capital is concerned, only 26 per cent of the firms integrated into Group 1 had a nominal capital equal to or higher than the Spanish average. It is true that these percentages are lower when the firms belonging to Group 2 are considered. In spite of this, it seems obvious that the previous evidence relaxes the role of both scale economies and capital requirements as sources of entry barriers in markets for brand-name olive oil.

Figure 5
Spanish exporters' concentration versus firms size in foreign markets for the Spanish olive oil, 1930/1934



Notes and Sources: See table 4.

Figure 6
Spanish exporters' concentration versus firms size in the fourteen largest foreign markets for the Spanish olive oil, 1930/1934



Notes and Sources: See table 4.

The ambiguous role of economies of scale also emerges when firm's size is compared to levels of concentration across individual markets. Using Spanish export data at firm level for the period 1930/1934, figures 5 and 6 correlate firms' size versus firms' concentration in 43 individual foreign markets. Firm size is proxied by the total average exports of those firms trading with the selected individual market, while firm concentration refers to the four-firm concentration ratio (C_4) of the Spanish exporters in the considered market. The figures speak for themselves. Size correlates positively with concentration. Its influence is far from being negligible. In spite of this, the coefficients of determination presented in figures 5 and 6 suggest that firm size explained much less of the concentration levels, and therefore of entry barriers in the international markets for olive oil than product differentiation did. This is true both when all the markets of the sample are included in the correlation and when the 14 largest markets of the sample are the only taken into account in order to control for the market size effect.

Certainly, the results of these simple bivariate correlations need to be taken with caution. In the exercise, the variable used for measuring firms' size has been total average exports per firm operating in the considered market. This indicator biases the results of the correlations in at least two different ways. First, the indicator is very sensitive to the number of firms operating in any of the individual markets of the sample and is very insensitive to the share that these firms have achieved in the individual market. Second, total average exports per firm are influenced by the reasons mentioned above and does not seem to be a very good

indicator of the minimum efficient scale of the firms in each of the 43 markets included in the sample.

In the light of these caveats, other indicators could be constructed. Given the available data on export firms prior to World War II, two usual and popular statistical proxies can be considered. The first, which was suggested by P.S. Florence and then was used by L. W. Weiss and other scholars, is the total exports of the mid-point firm in the considered market. The second, which was introduced by W. S. Comanor and T. A. Wilson, is the total average exports amongst the largest firms accounting for 50 percent of the share in the individual market. Nevertheless, these proxies have been considered to be better estimates of concentration than of economies of scale. In addition, their use causes autocorrelation between the dependent and the independent variables in regression analysis, and therefore, tends to overestimate the real effect of economies of scale on concentration.⁶⁸

To summarize, the available evidence presented above is still fragmentary. The measurement of economies of scale and minimum efficient scale is not free of shortcomings either. In the light of these caveats, it is difficult to offer conclusive answers. The impression is that both economies of scale and some minimal capital requirements had to be achieved in order to produce and commercialise brand-name olive oil even though the threshold level of both has been impossible to be established. Firm size and capital requirement probably have had some influence on concentration and, consequently, on entry barriers. However, judging by the available evidence, this influence seems lower in comparison to product differentiation. In fact, a significant number of small firms populated the Latin American markets, although it is true that they generally accounted for a small share of the market.⁶⁹

6.3. Economies of agglomeration and absolute cost advantages of incumbent firms in the Americas

For the firms that apparently lacked a minimum efficient scale in the early 1930s, other factors might have eased their entry and survival in the American markets for brand-name olive oil. Economies of agglomeration might be one of these factors. As table 7 shows, two-thirds of Spanish firms in the early 1930's whose main export region was Latin America

⁶⁸ See Florence (1933), Weiss (1963) and Comanor and Wilson (1967). For a review of these and other measures of economies of scale, see, for example, Lyons (1980), Davies (1980) and Curry and George (1983).

⁶⁹ In Latin America, the average share of those firms exporting equal or below the total average exports per firm is around 40 per cent if the markets are taken individually. However, this percentage decreases to around 10 per cent when Latin America is considered as a single market.

were located in (and exported from) the coastal cities of Barcelona (Catalonia) and, to a lesser extent, Seville (Andalusia). This geographic concentration probably arose due to the existence of agglomeration economies linked to commercial services and trade flows. In these two cities, olive oil export firms could have taken advantage of both the existing supply of commercial services and the intensity of trade flows with Central and Southern America.⁷⁰ Whether economies of agglomeration increased (or reduced) barriers to entry into markets for brand-name olive oil is difficult to be established.

Besides agglomeration economies, another factor may explain why, in the early 1930s, firms that were small by Spanish standards were mostly orientated towards the American markets for brand-name olive oil. This factor has to do with the existence of absolute cost advantages of first-movers, which was the third barrier of entry suggested in Bain's classical book. To start with, commercial experience seems to have played a role in penetrating American markets for brand-name olive oil. Both exporters and experts repeatedly argued that knowledge about consumers' tastes and the marketing of the product was essential in brand-name olive oil exports. In general, this knowledge was only acquired after some years of commercial experience.⁷¹

If experience was important to enter these markets, it could also be hypothesised that the costs of producing and exporting brand-name olive oil substantially decreased as the experience of firms increased. First, exporters that entered earlier in the market for brand-name olive oil could have acquired a deep knowledge about both consumers' tastes and the marketing of the product. Second, these earlier firms could have established solid commercial networks. Last, they could have become more efficient in producing and exporting brand-name olive oil. Consequently, incumbent firms might have enjoyed absolute cost advantages over potential entrants, which would have contributed to deter entry in the Americas.

Certainly, by 1930/1934 a large share of the Spanish exporters dealing with brand-name olive oil consisted of experienced firms. An inspection of the figures presented in table 7 shows that by the early 1930s, Spanish early-movers intensively populated the group of Spanish firms whose main export region was Latin America (Group 1). Of the Spanish firms that belonged to this group, almost 80 per cent had been set up prior to World War I; more

⁷⁰ This seems especially true for Barcelona. For example, 64 per cent of those Spanish firms highly specialised in exporting brand-name olive oil and with a size below the Spanish average had their head office in Barcelona. See Ramon-Muñoz (2000b) and (2000c).

⁷¹ See, for example, Manjarrés (1872), p. 155, Aguiló (1918), p. 65, Ministerio de Fomento (1923), p. 302, Longoria (1929), p. 31.

than 60 per cent had already begun to export to the Americas before 1914, whereas most of the other firms belonging to this group started to penetrate these markets during World War I.

Table 7
Location and commercial experience of 61 Spanish olive oil export firms grouped according to the geographical destination of their exports, 1930/1934
(as percentage of the firms belonging to the group)

Proxies and indicators	Groups		All sample	Ratio (I/II)
	1 (Latin America)	2 (Other regions)		
<i>1. Proxies for economies of agglomeration (geographical location of the firm's head office)</i>				
1. Firms from North-eastern Spain	52	37	43	1.405
2. Firms from Central and Southern Spain	48	63	57	0.762
3. Firms from Barcelona (Northeast)	43	11	23	3.909
4. Firms from Seville (South)	22	5	11	4.400
<i>2. Proxies for commercial experience and entry in foreign markets</i>				
1. Firms set up prior to 1900 ^b	57	28	40	2.036
2. Firms set up prior to 1914 ^b	78	48	62	1.625
3. Firms exporting olive oil prior to 1900	39	13	23	3.000
4. Firms exporting olive oil prior a 1914	61	37	46	1.649
5. Firms that entered in the Americas prior to 1914	61	8	28	7.625

Sources and notes: See text, footnotes and Ramon-Muñoz (2000b), pp. 129-132 and (2000c), pp. 185-200.

Table 7 also shows that North-eastern export firms (mainly Catalan) were more intensively present in Group 1 (Spanish firms for which in the early 1930s Latin America was the main export region) than in Group 2. As already mentioned, relative to other Spanish exporters, North easterners had been pioneers in penetrating the markets on the other side of the Atlantic. This was mainly due to the quality of the product, as well as a higher accumulation of technical and commercial capabilities in the region. Although in the course of the interwar period they lost share in the Americas, it is interesting to note that most of the north-eastern pioneers continued exporting brand-name olive oil even when their initial advantages were less apparent.

These evidences could suggest that firms that entered the American markets earlier enjoyed absolute cost advantages over new entrants. However, it could also be concluded that the competitive advantage of many firms dealing with packaged olive oil was linked to the ability to create niche markets throughout product differentiation rather than to the capacity for decreasing costs. Therefore, at the present stage of research, it is very difficult to know whether and to what extent absolute cost advantages of incumbent firms deterred entry in the Americas.

6.4. An econometric test for explaining the influence of product differentiation as an entry barrier

Throughout this paper, it has been suggested that product differentiation may have played a crucial role in making entry barriers higher on the other side of the continent than elsewhere. By contrast, the influence of scale economies and absolute cost advantages of established firms appears to have been more moderate. To this, it must be added that the evolution of markets contributed to reinforce the strength of entry barriers in the New World.

Favoured by protective tariff rates as well as the shock caused by outbreak of World War I, American importers began to develop their own lines of products and brands. Many grocers and wholesalers did the same thing. This process was especially important in the USA. The result was that in the 1920s there were already many olive oil brands owned by importers, wholesalers and grocers in the USA. These brands were neither prepared nor packaged in Europe, but on the other side of the Atlantic. These marketing strategies of the American olive oil importers had two different consequences. First, they eroded the share of Mediterranean exporter's brands on the New World. Second, they probably hindered the entry of new Mediterranean brands in the Americas.

As far as the evolution of the American markets for brand-name olive oil is concerned, importers' marketing strategies is only one part of the story. The other part has to do with the fact that during the interwar period, these markets became more mature. Although evidence is still scarce, it does not seem wrong considering that by mid-1920s consumer preferences had become formed and that some exporters (and brands) had already achieved a strong position in the market. It is also likely that these facts also acted as barriers for potential entrants, since it made it more difficult to enter and survive in most in most of the markets of the other side of the Atlantic.

There is no doubt that only by means of econometric analysis can the role of the potential entry barriers be properly assessed. This kind of analysis would require reliable proxies for product differentiation, scale economies and costs at firm level. Indicators on the evolution of markets would also have to be taken into consideration. As stated before, it is unfortunate that the appropriate quantitative evidence is lacking for most of these variables, or at least, for most of the variables more clearly identified as entry barriers by the industrial literature. The only exception refers to product differentiation since Spanish export data on the size of the packages of the exported olive oil seems to be an appropriate proxy for

measuring the intensity in the use of packaging, branding, and to a lesser extent, advertising in foreign markets.

With this evidence on the size of the packages, an econometric model is constructed in order to measure whether, and to what extent, product differentiation influenced concentration, and therefore, entry barriers. The econometric model employed here is estimated on the basis of cross-sectional data; it uses least squares and is very simple but useful for our purposes. The dependent variable is the level of Spanish exporting firms' concentration in a sample of 43 foreign markets for the period 1930/34. As mentioned above, the data used to calculate concentration have been obtained from a sample of 58 Spanish exporting firms. Concentration is measured by the four-firm concentration ratio (C_4) and appears to be more appropriate for our purposes than the Hirshman-Herfindhal index (HH).⁷²

There are 2 independent variables. The first is the percentage of Spanish olive oil exported in small packages relative to total Spanish olive oil exports to each of the selected markets. This captures the existence of product differentiation, and, therefore, entry barriers. The second independent variable is market size as measured by the total amount of olive oil exported by the firms of the sample to the sampled markets. The data that makes up the model are expressed in logarithms and have been previously transformed into index numbers (USA=100).

Table 8
Determinants of Spanish exporting firms' concentration (C_4)
by foreign markets, 1930/1934

Independent variables	Coefficients	t-statistic
Constant	4.781***	(90.959)
Modern marketing (percentage of olive oil exported in small packages)	0.044***	(3.637)
Size (olive oil exported by the firms of the sample)	-0.055***	(-8.230)
Adjusted R2	0.694	
Jarque-Bera test	5.926*	
White test	4.636***	
Included observations	43	

Notes and Sources: *** 1 per cent of significance level; ** 5 per cent of significance level; * 10 per cent of significance level; see also text, footnotes and table 4.

Table 8 summarises the results of the estimation of the model. Weighted least squares are used in order to correct for the presence of cross-section heteroskedasticity. According to the applied tests (Jarque-Bera and White), the behaviour of the residuals is adequate. The adjusted R-squared is also acceptable and relatively high.⁷³ As far as the independent

⁷² As the HH index overestimate the weight of the largest firms, it appears to be more appropriate to use this index when the purpose of the research is to measure the level of oligopoly in the market. See Hannah and Kay (1977).

⁷³ White's test indicates that the null hypothesis of no heteroskedasticity can be accepted at the 1 per cent of significance level. On the other hand, the Jarque-Bera test indicates that the null hypothesis of normal distribution

variables of the model are concerned, they also appear to behave as expected. The proxy used for export marketing techniques obtains the expected (positive) sign and is statistically significant at the 1 per cent level. The magnitude of the coefficient is relatively low, or at least lower, than *a priori* one would expect. However, this coefficient is not that different from the one obtained for the size of the foreign market. This is the other explanatory variable included in the model. As can be seen, the size of the foreign market also obtains the expected (negative) sign and is statistically significant at the 1 per cent level.⁷⁴

On the basis of these results, several conclusions may be raised. The first and most obvious is that a number of factors have influenced exporter's concentration in the international markets for olive oil. The size of the market was one of them. However, for the purpose of this section, it is worth pointing out that export marketing did not play a neutral role in concentration. On the contrary, the results of the model confirms that *ceteris paribus* olive oil importing markets in which packaging, branding and advertising were used more intensively had a higher concentration of exporters, and therefore higher entry barriers. As previously stated, the Americas were the areas of largest use of modern marketing techniques in olive oil. In consequence, it seems obvious to conclude that it was in the American markets where potential new entrants probably had to incur additional costs in order to achieve market penetration due to product differentiation.

This does not mean that entry barriers in American markets were impossible to surmount. This does not mean that on the other side of the Atlantic, the only source of entry barriers were product differentiation. It simply means that both the characteristics and the competitive conditions of the American markets may have influenced the final decision of olive oil exporting firms, which in turn, may help to explain the likely deceleration of the entry process amongst the Mediterranean exporters of brand-name olive oil that took place in the Americas after the end of World War I.

of the series can be accepted at the 10 per cent level. The model has been replicated by using as a measure of concentration the HH index instead of the C_4 ratio. Unfortunately, the applied tests (White and Jarque-Bera) indicate the presence of cross-section heteroskedasticity and not normally residual distributed series, even though the coefficients of the equation for the independent variables have the expected sign and are statistically significant.

⁷⁴ Exporters' concentration ratio remarkably varied across markets, but these variations were not enormous. This might help to explain the low levels of these coefficients.

9.7. Conclusions

This paper has shown that prior to the end of World War I, the rates of entry of Mediterranean exporters in the Americas were relatively high, but probably slowed down in the 1920s and 1930s. A result of this was that by the early 1930s the largest share of the Mediterranean brand-name olive oil exports on the other side of the Atlantic was in the hands of firms that had entered these markets prior to the end of World War I.

The causes explaining these dynamics have also been analysed. This paper has focused on arguing that the existence of increasing entry barriers, which were more apparent as these markets became more mature, might have played a very important role in explaining the dynamics of firms' entry (and survival) in the Americas prior to World War II. By 1930/1934, entry barriers were on average higher in the New than in the Old world. These differences in the height of entry barriers arose in part from product differentiation throughout packaging, branding and advertising. This finally contributed to the emergence of early-entrants advantages and the increase of entry barriers in the Americas. Relative to product differentiation, the role played by economies of scale and absolute cost advantages as entry barriers seems rather modest, although a definitive answer cannot be given due to the lack of appropriate data as well as measurement problems.

These results have several implications. In light of the recent literature on industrial organisation, they confirm that entry is attracted by market growth, but over the long-run product differentiation may discourage entry and may act as an entry barrier. According to the results of the econometric model presented in this paper, product differentiation (as measured by the type of package the product was traded) is a variable statistically significant in explaining levels of firms' concentration, and therefore entry barriers.

In the framework of the international markets for olive oil, the results of this paper have led to another interesting conclusion. In the American markets for brand-name olive oil, early-movers could probably retain higher market shares than late entrants which coped with higher entry barriers as the markets became more mature. Italian export firms penetrated earlier than the Spanish ones in the largest American markets for olive oil. Probably, this fact had long-term consequences; for example by giving Italian firms a certain market power as first entrants. By the late 1920s, the Italian firms still concentrated around 60 per cent of the total American olive oil imports. The share for the Spanish ones was around 30 per cent.⁷⁵

⁷⁵ See Ramon-Muñoz (2000a), (2003) and (2007).

References

- AOE, *Aceite de Oliva de España, El. Organo de la Federación de Exportadores de Aceite de Oliva de España* (Madrid, 1929-1936), various issues.
- ART, *Aceites. Revista Técnica Mensual* (Barcelona, 1931-1935), various issues.
- Aguiló, Isidro (1918), *Notas de actualidad sobre la elaboración del aceite de oliva*. Barcelona: Herederos de Juan Gili, Editores.
- Annuaire International d'Statistique Agricole* (Rome, 1911-1938), various issues.
- Agarwal, Rajshree and Michael Gort (1996), "The Evolution of Markets and Entry, Exit and Survival of Firms", in *Review of Economics and Statistics*, vol. 78, n. 3, pp. 489-498
- Audretsch, David B. and José Mata (1995), "The post-entry performance of firms: Introduction", in *International Journal of Industrial Organization*, vol. 13, pp. 413-419
- Bagwell, Kyle and Garey Ramey (1996), "Capacity, entry and forward induction", in *The RAND Corporation*, vol. 27, n. 4, pp. 660-680.
- Bain, Joe S. (1956), *Barriers to New Competition*. Cambridge, Mass.: Harvard University Press.
- (1959), *Industrial Organization*, New York, John Wiley.
- BCIC, *Boletín del Centro de Información Comercial* (Madrid, 1898-1935), various issues.
- Boulding, William and Markus Christen (2003), "Sustainable Pioneering Advantage? Profit Implications of Market Entry Order", in *Marketing Science*, vol. 22, n.3, pp. 371-392.
- Brandts, Jordi, Antonio Cabrales and Gary Charness (2007), "Forward induction and entry deterrence: an experiment", in *Economic Theory* (2007), vol. 33, n. 1, pp. 183-209.
- Castejón, Rafael (1977), *La casa Carbonell de Córdoba, 1866-1918. Génesis y desarrollo de una Sociedad Mercantil e Industrial en Andalucía*. Córdoba: Publicaciones del Monte de Piedad y Caja de Ahorros de Córdoba.
- Caves, Richard E. (1998), "Industrial Organization and New Findings on the Turnover and Mobility of Firms", in *Journal of Economic Literature*, vol. 36, n. 4, pp. 1947-1982.
- and Michael E. Porter (1977), "From Entry Barriers to Mobility Barriers: Conjectural Decisions and Contrived Deterrence to New Competition", in *The Quarterly Journal of Economics*, vol. 91, n. 2, pp. 241-262.
- Cerisola, N. (1973), *Storia delle industrie imperiesi*. Savona: Casa Editrice Liguria.
- Clarke, Roger (1985), *Industrial Economics*. Oxford / Cambridge, Mass.: Basil Blackwell.
- Comanor, William S. and Thomas A. Wilson (1967), "Advertising, market structure, and performance", in *Review of Economics and Statistics*, vol. 49, pp. 423-440.
- (1974), *Advertising and market power*. Cambridge, Mass.: Harvard University Press.
- (1979), "The Effect of Advertising on Competition: A Survey", in *Journal of Economic Literature*, vol. 17, n. 2, pp. 453-476.
- Cubbin, John (1981), "Advertising and the Theory of Entry Barriers", in *Economica*, v. 48, n. 191, pp. 289-298.
- Curry, B. and George, K.D. (1983), "Industrial concentration: a survey", in *Journal of Industrial Economics*, vol. XXXI, n. 3, pp. 203-255.
- Davies, Stephen (1980), "Minimum efficient size and seller concentration: an empirical problem", in *Journal of Industrial Economics*, vol. 28, n. 3, pp. 287-301.
- Day, George S. Day and David B. Montgomery, "Diagnosing the Experience Curve", in *Journal of Marketing*, vol. 47, n. 2, pp. 44-58.
- Dixit, Avinash (1980), "The Role of Investment in Entry-Deterrence" in *Economic Journal*, vol. 90 (March 1980), pp. 95- 106.
- Espuny, Tomás (1929)[2002], *De Gallur a Nueva York. Diario de viaje (1929)*. Zaragoza: Ayuntamiento de Gallur / Diputación Provincial de Zaragoza.
- Fernández, Alejandro (2004), *Un "mercado étnico" en el Plata. Emigración y exportaciones españolas a la Argentina, 1880-1935*. Madrid: Consejo Superior de Investigaciones Científicas.
- Florence, Philip Sargant (1933), *The Logic of Industrial Organization*: London, Routledge & Kegan Paul,
- Friedland, Thomas S. (1977), "Advertising and Concentration", in *Journal of Industrial Economics*, vol. 26, n. 2, pp. 151-160.

- Galula, R. (1985), "Le commerce des huiles d'olive sur la place de Marseille", in Centre Nacional de la Recherche Scientifique. Maison de la Méditerranée, *L'huile d'olive en Méditerranée. Histoire, Anthropologie, économie de l'antiquité à nos jours*. Aix-en-Provence: Institute de Recherches Méditerranéennes. Université de Provence, pp. 125-132.
- Geroski, Paul A. (1991a), "Some Data-Driven Reflections on the Entry Process", Geroski, Paul A. and Joachim Schwalbach (eds.), *Entry and market contestability: An international comparison*. Oxford: Blackwell, pp. 282-296.
- (1991b), *Market Dynamics and Entry*. Oxford: Blackwell.
- (1995), "What do we know about entry?" in *International Journal of Industrial Organization*, n. 13, pp. 421-440.
- and Joachim Schwalbach (eds.) (1991), *Entry and market contestability: An international comparison*. Oxford: Blackwell.
- Golder, Peter N. and Gerard J. Tellis (1993), "Pioneer Advantage: Marketing Logic or Marketing Legend?" in *Journal of Marketing Research*, vol. 30, n. 2, pp. 158-170.
- Gort, Michael and Steven Klepper (1982), "Time paths in the diffusion of product innovations" in *Economic Journal*, vol. 92, n. 367, pp. 630-653.
- Guth, Louis G. (1971), "Advertising and market structure: revisited", in *Journal of Industrial Economics*, vol. XIX, n. 2, pp. 179-198.
- Hannah, Leslie and Kay, John A. (1977), *Concentration in Modern Industry: Theory, Measurement and the U.K. Experience*. London: Macmillan.
- Hernández Armenteros, Salvador (2001), "Empresas y empresarios españoles en la exportación de aceite de oliva, 1900-1936. Especial referencia al mercado noruego de conservas de pescado", in *Revista de Historia Económica*, núm. 2, 2001, pp. 383-414.
- Isolica, Andrea (1997), *L'emporio mondiale dell'olio di oliva. Imperia, 1870-1990*. Tesi di Laurea (Unpublished). Milan: Facoltà di Economia. Università Commerciale Luigi Bocconi.
- Jovanovic, Boyan and Saul Lach (1989), "Entry, Exit, and Diffusion with Learning by Doing", in *American Economic Review*, vol. 79, n. 4, pp. 690-699.
- Junta de Aranceles y Valoraciones (1887), *Memorias comerciales redactadas por el Cuerpo Consular de España en el Extranjero*. Tomo XII. Madrid: Imprenta del Boletín de Obras Públicas.
- Kessides, Ioannis N. (1986), "Advertising, Sunk Costs, and Barriers to Entry", in *Review of Economics and Statistics*, vol. 68, n. 1, pp. 84-95.
- Klemperer, Paul (1987a), "Markets with Consumer Switching Costs", in *The Quarterly Journal of Economics*, vol. 102, n. 2, pp. 375-394.
- (1987b), "Entry Deterrence in Markets with Consumer Switching Costs", in *Economic Journal*, vol. 97 (Supplement Conference Papers), pp. 99-117.
- Lieberman, Marvin D. (1987), "The learning curve, diffusion, and competitive strategy", in *Strategic Management Journal*, vol. 8, p. 5.
- and David B. Montgomery (1988), "First-Mover Advantages", in *Strategic Management Journal*, vol. 9, pp. 41-58.
- and David B. Montgomery (1998), "First-Mover (Dis) Advantages: Retrospective and Link with the Resource-Based View", in *Strategic Management Journal*, vol. 19, pp. 1111-1125.
- Longoria, M. G. (1929), "Sobre la exportación aceite de oliva", in *El Aceite de Oliva en España. Organo de la Federación de Exportadores de Aceite de Oliva de España*, n. 5, pp. 30-31.
- Lyons, Bruce (1980), "A New Measure of Minimum Efficient Plant Size in U.K. Manufacturing Industry", *Economica*, vol. 47, pp. 19-34.
- MAIC, Ministero di Agricoltura, Industria e Commercio ([c.1890]), *Il commercio degli oli d'oliva all'Estero*. [Roma].
- (1900), *Il commercio degli oli d'oliva italiani in America e nel Levante*. Roma: Tipografia Nazionale di G. Bertero e C.
- (1912), *Il commercio dell'olio d'oliva all'estero. Parte I: Europa*. Roma: Tipografia Nazionale di G. Bertero e C.
- (1913), *Il commercio dell'olio d'oliva all'estero. Parte II: Asia, Africa e America*. Roma: Tipografia Nazionale di G. Bertero e C.

- Manjarrés, Ramon de (1872), *Memoria sobre el mejoramiento de nuestros aceites y necesidad de presentarlos bien elaborados y clarificados. Informe dado a la Junta Directiva del Instituto Agrícola Catalán de San Isidro*. Barcelona: Imprenta del Diario de Barcelona.
- ME, Ministerio de Estado (1899), *Centro de Información Comercial. Aceite de oliva (primera parte)*. Madrid: Imprenta de la Vda. de M. Minuesa de los Rios.
- (1914), *Catálogo de Exportadores Españoles*, Imprenta Tipografía Sucesores de Rivadeneyra, Madrid.
- (1920), *Los aceites en la República Argentina. Por Emilio Boix*, Imprenta del Ministerio de Estado, Madrid.
- (1922), *Mercado Argentino. Aceite de oliva. Por Emilio Boix*. Madrid: Imprenta del Ministerio de Estado.
- Ministerio de Fomento. Dirección General de Agricultura y Montes (1923), *El aceite de oliva. Resumen hecho por la Junta Consultiva Agronómica de las Memorias de 1921 remitidas por los ingenieros del Servicio Agronómico provincial*. Madrid: Imp. Hijos de M.G. Hernández.
- Mueller, Dennis C. (1991), "Entry, Exit, and the Competitive Process", in Geroski, Paul A. and Joachim Schwalbach (eds.), *Entry and market contestability: An international comparison*. Oxford: Blackwell, pp. 1-22.
- (1997), "First-mover advantages and path dependence", in *International Journal of Industrial Organization*, vol. 15, pp. 827-850
- Mueller, Willard F. and Richard T. Rogers (1980), "The Role of Advertising in Changing Concentration of Manufacturing Industries", in *Review of Economics and Statistics*, vol. 62, n. 1, pp. 89-96.
- Muguerza, Simeón (1909), *República Argentina. Presente y Porvenir del Comercio Hispano-Argentino*. Barcelona: Imprenta Hijos de Domingo Casanovas.
- Nadal, Jordi (1989), "La industria fabril española en 1900. Una aproximación", in Nadal, Jordi; Albert Carreras and Carles Sudrià (editors), *La economía española en el siglo XX. Una perspectiva histórica*. Barcelona: Ariel, pp. 23-61.
- Newman, Manfred (1993), "Review of Paul A. Geroski and Joachim Schwalbach (eds.), *Entry and market contestability: An international comparison*. Oxford: Blackwell", in *International Journal of Industrial Organization*, vol. 11, pp. 593-596.
- Parejo, Antonio and Juan F. Zambrana, Juan F. (1994), "La modernización de la industria del aceite en España en los siglos XIX y XX", in Jordi Nadal and Jordi Catalan (eds.), *La cara oculta de la industrialización Española*. Madrid: Alianza, pp. 13-42.
- Pinilla, Vicente (1995), *Entre la inercia y el cambio. El sector agrario aragonés, 1850-1935*. Madrid: Ministerio de Agricultura, Pesca y Alimentación.
- Ramon-Muñoz, Ramon (1999), "Estructura empresarial, empreses i canvi tècnic en la indústria de l'oli d'oliva de les comarques de Lleida, 1890-1936", in Enric Vicedo (editor), *Empreses i Institucions Econòmiques Contemporànies a les Terres de Lleida, 1850-1990*. Lleida: Institut d'Estudis Ilerdencs, pp. 141-187.
- (2000a), "Specialization in the international market for olive oil before World War II", in Pamuk, Sevkett and Williamson, Jeffrey G., *The Mediterranean Response to Globalization before 1950*. London: Routledge, pp. 159-198.
- (2000b) "La exportación española de aceite de oliva antes de la Guerra Civil: empresas, mercados y estrategias comerciales", in *Revista de Historia Industrial*, n. 17, pp. 97-151.
- (2000c), "La exportación española de aceite de oliva antes de la Guerra Civil: empresas, mercados y estrategias comerciales. Apéndice cuantitativo", in *Revista de Historia Industrial*, n. 18, pp. 185-200.
- (2001), "El comercio exterior de los aceites catalanes y aragoneses y las transformaciones en el mercado internacional, 1870-1935", in *Actas del I Curso de Verano Interdisciplinar sobre el Aceite de Oliva: Ciencia, Economía y Salud*. Caspe (Zaragoza): Centro de Estudios Comarcales del Bajo Aragón de la Institución "Fernando el Católico", pp. 275-309.
- (2007), "Migration and trade: the case of southern Europe olive oil trade to the Americas, 1870-1930", paper presented at the *XXVII Encontro da Associação de História Econômica e Social/27th*

- Conference of the Portuguese Economic and Social History Association. Globalization: Long-Term Perspectives. Lisboa (Portugal), November 17-18, 2007.*
- Robinson, William T. (1988), "Sources of Market Pioneer Advantages: The Case of Industrial Goods Industries" in *Journal of Marketing Research*, vol. 25, n. 1, pp. 87-94.
- and Claes Fornell (1985), "Sources of Market Pioneer Advantages in Consumer Goods Industries", in *Journal of Marketing Research*, vol. 22, n. 3, pp. 305-317.
- Gurumurthy Kalyanaram and Glen L. Urban (1994), "First-mover advantages from pioneering new markets: A survey of empirical evidence" in *Review of Industrial Organization*, vol. 9, n. 1, pp. 1-23
- and Jeongwen Chiang (1996), "Are Sutton's Predictions Robust?: Empirical Insights into Advertising, R & D, and Concentration", in *Journal of Industrial Economics*, vol. 44, n. 4, pp. 389-408.
- Sungwook Min (2002), "Is the first to market the first to fail? Empirical evidence for industrial goods business", in *Journal of Marketing Research*, vol. 39, n. 1, 2002. pp. 120-128.
- Segreto, Luciano (1988), "Bertolli", in Alberto M. Ghisalberti (dir.), *Dizionario Biografico degli Italiani. Volume 34. Primo supplemento: A-C*. Roma. Istituto della Enciclopedia Italiana
- Scherer, Frederic M. (1970), *Industrial Market Structure and Economic Performance*. Boston: Houghton Mifflin.
- Schmalensee, Richard (1972), *The Economics of Advertising*. Amsterdam: North-Holland.
- (1974), "Brand Loyalty and Barriers to Entry", in *Southern Economic Journal*, vol. 40, n. 4, pp. 579-588.
- (1978), "Entry deterrence in the ready to-eat breakfast cereal industry", in *Bell Journal of Economics*, vol. 9, pp. 305-327.
- (1981), "Economies of Scale and Barriers to Entry", in *Journal of Political Economy*, vol. 89, n. 6, pp. 1228-1238.
- (1982), "Product Differentiation Advantages of Pioneering Brands", in *American Economic Review*, vol. 72, pp. 349-365.
- (1989), "Inter-Industry Studies of Structure and Performance", in Richard Schmalensee and Robert Willig (eds.), *Handbook of Industrial Organisation. Vol. 2*. Amsterdam: North Holland, pp.951-1009.
- Shankar, Venkatesh; Gregory S. Carpenter and Lakshman Krishnamurthi (1998), "Late Mover Advantage: How Innovative Late Entrants Outsell Pioneers" in *Journal of Marketing Research*, vol. 35, n. 1, pp. 54-70.
- Sierra, María (1992), *La familia Ybarra, empresarios y políticos*. Sevilla: Muñoz Moya y Montraveta.
- SIFE, *Servicio Informativo de la Federación de Exportadores de Aceite de Oliva de España*. Madrid, Supplement to the report n. 744 (Madrid, 1929).
- Simpson, James (1995), *Spanish Agriculture. The long Siesta, 1765-1965*. Cambridge: Cambridge University Press.
- Spence, A. Michael (1980), "Notes on Advertising, Economies of Scale, and Entry Barriers", in *Quarterly Journal of Economics*, vol. XCV, n. 3, pp. 494-507.
- Stumpo, Enrico (2003), "Per una storia dell'industria dell'olio di oliva in Italia: i casi della Toscana e della Liguria", in Carlos Barciela and Antonio Di Vittorio (eds.), *Las industrias agroalimentarias en Italia y España durante los siglos XIX y XX*. Alicante: Publicaciones de la Universidad de Alicante, pp. 137-154.
- Sutton, C. J. (1974), "Advertising, Concentration and Competition", in *Economic Journal*, vol. 84, no. 333, pp. 56-69.
- Sutton, John (1991), *Sunk costs and market structure. Price competition, advertising, and the evolution of concentration*. Cambridge, MA: The MIT Press.
- Thomas, Louis A. (1999), "Incumbent firms' response to entry: Price, advertising, and new product introduction", *International Journal of Industrial Organization*, vol. 17, pp. 527-555.
- Tirole, Jean (1988), *The Theory of Industrial Organization*. Cambridge, Mass/London, England: The MIT Press.
- Weiss, Leonard W. (1963), "Factors in Changing Concentration", in *Review of Economics and Statistics*, vol. 45, pp. 70-77.

- Wright, Neil R. (1978), "Product differentiation, concentration, and changes in concentration", in *Review of Economic and Statistics*, vol. LX, n. 4, pp. 628-631.
- Zambrana, Juan F. (1987), *Crisis y modernización del olivar español, 1870-1930*, Madrid: Ministerio de Agricultura, Pesca y Alimentación.