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A history of the sugar and cement cartels in twentieth-century Spain

Ana Rosado-Cubero[a,b] and A. M. Angel Martínez-Soto[c,d]

[a]Department of Applied and Structural Economics and History, Complutense University, Madrid, Spain; [b]Faculty of Commerce and Turism, Madrid, Spain; [c]Department of Applied Economy, University of Murcia, Murcia, Spain; [d]Faculty of Economics and Business, Murcia, Spain

ABSTRACT

In twentieth-century Spain, many industries were cartelised, and successfully created and maintained long-standing, mutually beneficial relationships with the State. This article describes two: the Spanish based sugar and cement cartels. In the case of sugar, controlling foreign imports was the key to survival of the General Association of Sugar Manufacturers (Sociedad General Azucarera, SGA). Although small 'non-associated' companies survived and competed with it, the cartel became strong when the three main sugar producers agreed not to compete and negotiated with the Spanish Government on tariff protection. In the more cohesive cement industry, a cartel was formed by the six largest companies and they presented a united front to the Ministry of Industry. From 1941 the cement cartel mainly sought, and received, support via production sharing (attending to the requests of the Franco's regime) and participating in domestic price control.

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1. Introduction

The publication of George Stigler's article in 1964 'A theory of oligopoly', showing how cartels arise and survive led economists to establish a new theoretical model. Stigler argued that the phenomenon of collusion, in terms of when and why it arises, cannot be blamed entirely on efforts to limit competition; its origins are more complex than many theorists had assumed. The cartels created the incentives for corporate cheating, but showed themselves to be constitutionally unstable and only able to survive by fostering common interests. External shocks or fluctuating demand destabilised the cartels as much as corporate cheating. Debora Spar's analysis of the diamond, gold, uranium and silver cartels concluded that long-lasting cartels owe their existence to ongoing negotiations, the ability to take a flexible approach to changes over time, and to take harsh reprisals against any members that fall out of line. Having a robust collective organisation or a dominant player acting as a 'hegemon' enhances the cartel's effectiveness (Spar, 2006). The threat of a price war often helps hold cartels together. German coal, iron and steel prices actually fell relative to British domestic prices after the formation of cartels at the beginning of the twentieth century (Kinghorn & Nielsen, 2004).

Other studies have used economic theory to identify formal relationships between relevant market-related and agent-related variables that are consistent with different types of corporate conduct (Berger, Demsetz, & Strahan, 1998; Demsetz & Strahan, 1997). The most recent economic study on cartels published by Levestein and Suslow (2006) is significant in that that the authors ask key

CONTACT Ana Rosado-Cubero arosado@ucm.es Department of Applied and Structural Economics and History, Complutense University, Madrid, Spain, Faculty of Commerce and Turism, Avenida Filipinas, 3, 28003 Madrid, Spain

questions about the internal conduct of cartels. New studies on economic history attempt to elucidate how and why cartels have been successful (Bridgman, Qi, & Schmitz, 2015; Fiar, 2006). The samples of cartels analysed show very different levels of sustainability, ranging from those that last only one year to those that can persist for thirty years (Fellman & Shanahan, 2016; Levestein & Suslow, 2006).

The development of the sugar and cement cartels in Spain can best be explained using the theoretical framework of 'market power' (Filson, Keen, Fruits, & Bocherdind, 2001) wielded by the leading companies, aided by State collusion in the form of regulations and laws governing industrial and commercial activity. Regulation, which presumably operates 'against' business, goes hand in hand with special privileges and artificial protections 'for' business. This perspective has given rise to the concept of the 'corporate welfare state', which describes some of the problems observed in the complex nexus between the market sector and the government sector. Companies often pressure governments to give them special privileges that they would not otherwise enjoy in a free market. In this way, the State creates incentives that benefit a particular company or group of companies by a variety of means (bailouts, subsidised loans, outright 'disincentive' subsidies, resource privileges, monopoly privileges, etc.).

Major corporations have supported or pressed the State to pass legislation regulating labour, production zoning, start-up licences, and all kinds of obstacles designed to keep low-cost competitors out, always arguing that they are already in compliance with such laws. In these cases, market power provides corporations with the means to control the market and gives them a competitive edge over new rivals. Companies learned how to lobby for regulations and legislation that establish stricter production and marketing standards, in the knowledge that these would hinder the development of market upstarts (Stiglitz, 2006).

Tax breaks are another aspect of 'State capture' that directly affect collusion and the maintenance of dominant market positions (Azacis, 2014; Azacis & Collie, 2018), although some privileges or exemptions are slipperier to define. States have often used customs duties as a means of protecting the domestic market and favouring companies whose high production costs make it difficult for them to compete, as was the case with the sugar industry in Spain. At other times, they have achieved the same end by introducing tax exemptions, which are really no more than corporate subsidies. Reducing excise duty is another means of favouring the products of industrial groups, cartels, oligopolies, etc. Finally, in Spain, the sugar and cement markets are an example of the tacit collusion in oligopolistic markets modelled by Green, Marshall, and Marx (2015).

In the absence of independent market regulators, companies try to gain a foothold with states to ensure that no new competitors enter the national market, whether they be foreign or new domestic players.

The two Spanish industries examined in this article began their journey at the end of the nineteenth century. Both were founded with private capital and operated within a competitive environment. The cement industry arose in Spain following the development of Portland cement production technology, and Spanish capital was used to acquire the machinery it needed from abroad. The sugar industry, on the other hand, began to develop as a result of the loss of the last Spanish colonies in 1898, and the subsequent need to replace imported cane sugar with sugar made from domestic sugar beet, the principle raw material used in the Spanish sugar industry.

To understand the market structure of these industries, recall that the products they manufactured are an intermediate input to other industries. They are often sold through intermediaries, or wholesalers. In the cement industry, the problem of vertical integration was solved by buying quarries and, as will be discussed later, expropriating the adjoining land when the mine was exhausted. In the sugar industry, however, the companies had to negotiate purchase contracts with sugar beet farmers to source their produce.

The cartelisation of both industries occurred very early on; in the case of sugar, it began when several factories joined together to form the General Association of Sugar Manufacturers (Sociedad General Azucarera, or SGA) in 1903, which they called a trust or cartel. From the start, the existence of the SGA was opposed by a number of so called 'non-associated companies' that refused to be absorbed into its business structure. The governments of the time resorted to regulatory protectionism, i.e. tariffs, to control the situation. The enacted legislation did not, however, fully favour the cartel's position, since it also tried to serve the interests of other pressure groups (beet farmers, traders, etc.). During the period studied, from 1900 to 1936, the industry managed to push through a combination of laws that allowed it to control both local sugar prices and access to the foreign market.

The first association of cement factories was formed in 1906 (the first factory went into production in 1898) under the name of the Union of Portland Cement Manufacturers. This enterprise, according to its members, was nothing more than a 'friendly gathering'. The Union, which had been fixing prices in various business areas and establishing sales quotas and a system of compensation between partner companies, brought a complaint against one of its members for non-compliance in 1918. The transfer of information within the cartel greatly discouraged the appearance of new mavericks. In 1931, the Cement Manufacture's Group, currently called OFICEMEN, was founded.

Transport costs are one of the main obstacles to competition in the cement industry, and therefore a cement factory was set up in almost in every province in Spain. For this reason, only companies operating in the same geographical area tended to sign agreements not to compete.

During the period under study, which spans almost the entire Franco regime (1939-1975), the cement industry operated as a price-leading cartel in which the six largest industry companies acted as an 'umbrella' consortium that set prices and production quotas for the entire sector through the Ministry of Industry. This can be demonstrated by calculating the Lorenz index for 1944-1980, which shows that these six companies maintain a similar level of production over time suggesting that the smaller companies were no more than price takers. The price of cement in Spain was only liberalised in 1980.

In both industries, the cartels come under the umbrella model described by Stigler (1964). The sugar industry requested intervention by the state to guaranteed beet production and the SGA (the biggest company and the leader) obtained tariffs to protect sugar, but could not prevent 'non-associated' companies from taking advantage of this privilege. The cement industry requested access to quarries (on farmland that had to be expropriated), and the six largest companies acted as leaders and allowed the smaller factories operate.

This article examines how 'the capture of the Spanish State' was achieved by the use of influence and political negotiation. The resulting legislation (trade, market regulation, curtailing the expansion of factories, etc.), mostly favoured the cement cartel and the sugar cartel led by the SGA. In fact, an analysis of the sugar industry between 1900 and 1936[1] and of the cement industry between 1942 and 1980[2] shows how state-industry collusion was perpetuated by reciprocity, in which the public authorities protected the industries from foreign trade while passing legislation that guaranteed prices and provided aid, subsidies, and other interventions. The companies, for their part, collected taxes and exchanged positions of responsibility with politicians through a system of revolving doors.

In Spain, the cartelisation of the two industries under study is a matter of historical record and scholarly debate. The main Spanish sources of analysis of the cement industry, its specific characteristics and how the cartel was created come from Palomar (1940), De la Sierra (1953), Gómez Mendoza (1987), Pueyo (1996) and Rosado-Cubero (2011) This last study included a detailed analysis of how the market was shared between the incumbents between 1946 and 1996 and the price agreements between the cement cartel and the Ministry of Industry during the same period. The sugar sector and its organisation at the start of the twentieth century in Spain has been studied by Donoso (1912), Martín Rodríguez (1987, 1988, 2009), Jiménez Blanco (1986), Germán Zubero (2003), and Rosado-Cubero and Martínez-Soto (in presss), This last article introduced the role of the Association named SGA to manage the sugar cartel as a whole.

[1]The Spanish civil war lasted from 1936 to 1939.
[2]The Franco dictatorship until 1975 and the beginnings of democracy.

2. The role of the state in creating a cartel: the sugar industry in Spain, 1900–1935

The establishment of sugar factories in Spain, following the loss of the colonies, was aided by draconian customs duties on imported sugar; profits were initially extremely high because consumption outweighed production. Driven by the promise of high profits, a further wave of poorly located, badly managed factories began. This situation that give rise to the idea of creating a trust represented by the Sociedad General Azucarera. The company was created by an association of 46 factories and never managed to control the entire spectrum of factories and so did not achieve the results envisaged by its founders, as it could not control the entire market. Its constant struggles to influence other firms meant it had to be rescued by the Spanish State. The rescue, however, was designed to safeguard the interests of the SGA, not the sugar industry.

At the end of 1901, a newly created group of business interests funded a feasibility study on a proposal to create a new sugar company. The result was the foundation in 1903 of the 'trust'2F2F[3] known as the Sociedad General Azucarera, which controlled approximately 98% of the overall sugar country's production capacity (Martín Rodríguez, 1987, p. 303), but only 60% of sugar beet production. The latter element eventually proved to be the most important ingredient in sugar production.

Officially, the SGA was founded merely as an association of sugar manufacturers run by the managers of the member factories and a few financiers who saw a good business opportunity. Most member factories were large, and although some of the smaller ones were closed once the SGA had been set up, some survived and maintained their decision-making power in the SGA. One of the aims of the SGA was to provide its members with an area of influence, where new factories were barred, thus preventing any increase in the sugar beet prices they paid to farmers. In these areas, it was all but impossible to build new factories, and the existing enterprises, with no threat of competition and protected by excessive rights, were able to sell sugar at whatever price they liked, and in an inefficient way, without perfecting the product or the means of producing it. This caused irreparable damage to subsidiary businesses, trade, and consumers alike.

From the start, the existence of the SGA was opposed by a number of so-called 'non-associated' companies that refused to be absorbed into its business structure. The governments of the time resorted to regulatory protectionism, in the form of tariffs, to control the situation.

The large companies in the sector managed to capture the domestic market with the help of tariffs between 1900 and 1935, as Table 1 shows. Import was above 10% of the market in only 7 of the 35 years; and this was because of short term volatility in the tariff rates and previously signed agreements between sweet and biscuit makers and sugar producers in Germany and France. Overall, the level of tariff protection afforded Spain's sugar companies meant they only needed to produce for the domestic market.

The first attempt to regulate the sugar industry took place in 1899 with the Act of December 19, which imposed a new tax on sugar, glucose, honey, molasses and saccharine. The new tax was a single rate of 25 pesetas per 100 kg of cane or beet sugar. The customs tariff was also changed to 85 pesetas for every 100 kg of imported sugar – which meant a protective tariff of 60 pesetas per 100 kg sugar. The Government considered this more than enough to prevent foreign sugar imports.

The minister's real aim was to raise 25 million pesetas to reduce the budget deficit, leaving the domestic market to set domestic production at around 100,000 tonnes per annum. This was estimated to cover sugar consumption for the next few years. However, he did not realise that these reforms would create imbalances in existing factories and in the territorial redistribution of beet production, leading to overproduction in the following years (Gallego, 1982, p. 490) and effectively derailing the system he had put in place. The protective tariff led to a sharp increase in the number of sugar factories in Spain. While in 1900, there were 15 sugar beet factories, by 1902, there were 44 and by 1904, there were 57 factories distributed across much of the country. The production capacity

[3]This was the original term given to the *Sociedad General Azucarera* at the time of its constitution. It gives a clear nod to the Sherman Antitrust Act of the United States of 1890.

Table 1. Effects of protective legislation on sugar imports, 1900–1935.

Years	Imports (kg)	Imports as percentage of real consumption	Tariff rate (pesetas/100 kg)	Legislation
1900	457,687	0.48	85	Law of December 19, 1899
1901	95,873	0.11		
1902	64,094	0.08		
1903	136,635	0.12		
1904	101,704	0.10		
1905	34,385	0.04		
1906	32,541	0.03		
1907	32,837	0.03		
1908	38,631	0.03		
1909	62,235	0.06		
1910	37,779	0.03		
1911	42,308	0.04	80	Law June 12, 1911
1912	25,125	0.02		
1913	37,171	0.03		
1914	14,958	0.01	60	Law July 15, 1914
1915	42,743	0.03		
1916	18,330,672	13.54	25	Royal Order January 30, 1916
1917	39,171,628	23.30		
1918	15,194,216	9.47	35	Law July 30, 1918
1919	29,711,540	18.59	60	Royal Order of May 24, 1919
1920	51,644,623	35.93		
1921	47,263,513	24.19		
1922	37,501,000	21.38	85	Law of July 17, 1922
1923	736,599	0.33		
1924	26,299,300	12.80		
1925	925,200	0.43		
1926	414,600	0.18		
1927	6,444,500	2.79		
1928	4,836,900	1.99	60	Decree-Law of March 28, 1928
1929	653,000	0.25		
1930	138,000	0.05		
1931	128,600	0.05		
1932	3,000	0.00		
1933	15,800	0.01		
1934	35,900	0.01		
1935	50,700	0.02		

Source: Compiled by the author, Asociación General de Fabricantes de azúcar de España (1941), pp. XXXVII–XXXVIII. Legislation: Gazettes of Madrid.

of the new factories alone was over 11,000 tonnes/day in 1900. This meant that annual consumer demand would be exceeded after only 100 days without taking into account the output of existing factories. By 1903, this excess supply led to a 20% decrease in the price of sugar when compared to 1899 and threw the industry into crisis. It was this economic downturn that prompted several beet sugar factories to join forces in 1903 and create the SGA.

The same year, the chairman of the Commercial Association (círculo mercantil), the chairman of the Spanish Chamber of Commerce, and two representatives from the Barcelona and Madrid sugar industries petitioned the Minister of Finance to block the creation of the 'trust'. Their main arguments were that the sugar trust would put small family-run factories out of business, ruin farmers, cause mass unemployment, and increase sugar prices. This, they said 'would be good business for the kings of money and a disaster for the rest of the country' (*El trust azucarero*, 1903, p. 11). For these reasons, they asked the minister to either outlaw the trust or compensate them with tariffs. Unsurprisingly they asked for free domestic trade and protection from imports. In a counter-argument, one of the major shareholders of the SGA, Marquis of Guadalmina, called the trust a free association of sugar producers, and claimed that the small producers were selling sugar made with saccharine (*El trust azucarero*, 1903, p. 7).

Although the aim of the SGA was to corner the lion's share of the market, it did not have enough members to achieve this goal, and it was forced to resort to collusive strategies and dumping to gain almost total control. It also purchased beet at above-market prices to corner the market and force the independent factories to capitulate (Ceballos Teresí, 1914, p. 20). The first battle, the purchase of sugar beets at above-market prices (the arrogant SGA was willing to pay up to 40 pesetas a tonne above the regular price which in former years had been around 25 pesetas a tonne), left the trust with a large debt and led to a surplus of sugar beet that exceeded the capacity of the factories. The second strategy, dumping, involved lowering prices to such an extent that the trust again suffered serious financial losses (Ceballos, 1916, p. 38). The result of these operations was very negative for the SGA, and with the exception of a few years (1906–1907 and 1913) it failed in its attempt to control Spain's sugar market.

The problems of overproduction and industrial chaos that plagued the sector from 1903 to 1906, and the inability of the SGA to control the market, prompted the trust's directors, following the lead of other European countries, to call on the government to regulate the industry.[4] The SGA was not alone in its demands; other Spanish industries (steel, shipbuilding, textiles, etc.) also lobbied for new tariffs and state regulation that would benefit their businesses. The government's economic agenda was geared towards protecting domestic industries.

Following further lobbying for regulatory protection the Act of 1907 (known as the Osma Act), raised the tax on sugar to 35 pesetas/100 kg, and in return placed a 3-year moratorium on building new sugar factories or expanding existing enterprises. In addition, existing factories were protected because no new factories could be set up within 80 km of current factories. The only new factories the government authorised were cooperatives set up by sugar beet and sugar cane producers, but only in areas where a factory had previously been closed.

The SGA factories were the hardest hit by overproduction; the 'non-associated' companies had few problems and paid out dividends. The poor performance of SGA companies was due to the unusual conditions under which the SGA was created when it had overestimated the value of its member factories and assumed their capital worth at 250 million pesetas when their 1904–1905 production could have been met with 50 million pesetas of capital. Its administrative overheads were also excessive, it was over-staffed, and the directors' salaries were extremely high. As a result, the SGA factories suffered the most from the crisis, due to poor management and an excess of capacity out of all proportion to real consumer demand. Figure 1 reveals the large variation in total revenues that accrued to SGA members over three decades and reflects the difficulties of the company encountered in attempting to stabilise income for its members.

2.1. The 1907 Osma Act and its repeal in 1911

The 1907 Osma Act failed to curb the emergence of free riders in the sugar industry, and did nothing to mitigate its existing problems. Competition from 'non-associated' factories continued to disrupt the stability and control intended by the SGA, and the Act failed to regulate fully the sugar campaigns. As a result, conflicts between farmers and manufacturers, between sugar cane and beet farmers, and between production areas continued unabated, and sugar continued to be over-produced.

In 1907, the SGA sold its shares at 50% under par value. In 1914, prior to the appointment of Joaquín Sánchez de Toca to revive the SGA's fortunes, the government's stake in the company exceeded 300 million pesetas (Ceballos Teresí, 1914, p. 15). The stakeholders' mistrust in the company's management and the large amount of capital to be repaid drove the SGA to the verge of bankruptcy, and the government seriously considered nationalising the trust (Ceballos Teresí, 1914, p. 15).

The Osma Act was intended to maintain the industrial status quo by prohibiting the construction of new factories. The SGA looked for another way to re-establish control over the sector: friendly agreements with other factories and with sugar beet producers to fix prices. In 1911, the Government repealed the Osma Act.

[4]The Brussels Convention of 1903 attempted to curb the practice in many European countries of granting bonuses and subsidies for sugar exports, in order to promote the development of what was considered a highly beneficial industry. *Ministère des Affaires Étrangères* (1902).

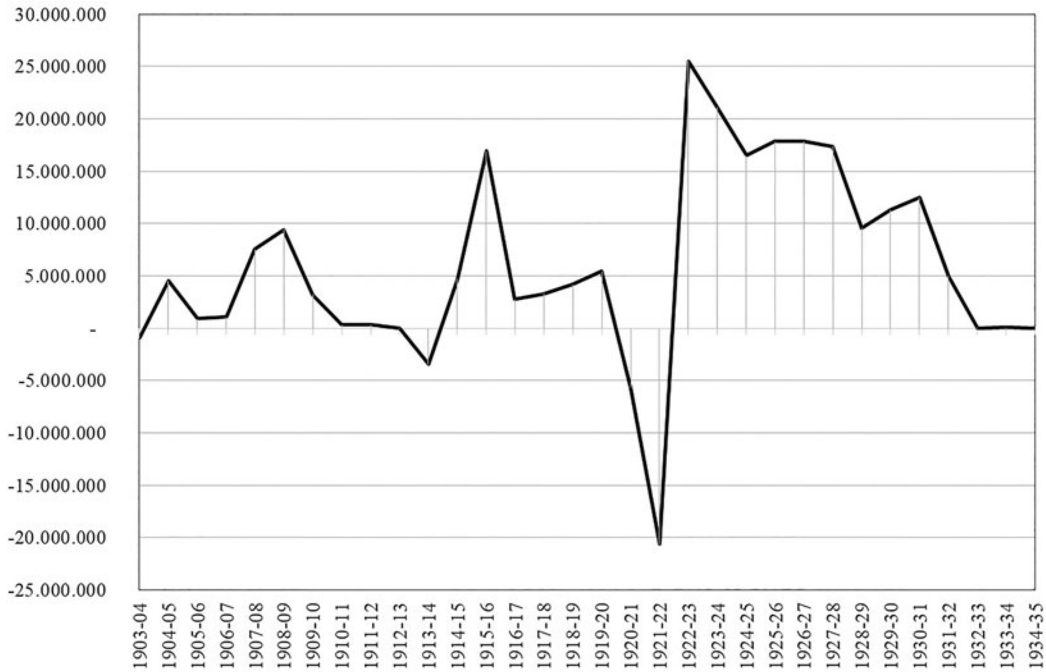


Figure 1. Total value of benefits and losses of the SGA, 1903–1935 (current pesetas). Source: Prepared from the Annual Reports of the SGA.

2.1.1. Economic nationalism and corporatism: the sugar industry from 1914 to 1923

The veritable maze of institutions created over these years reveals how extensive was the State's intervention in all industries including the sugar industry. The Central Supply Board, tariff policies, mixed arbitration commissions, joint committees and arbitration commissions, the Mixed Agricultural Arbitration Commission, etc. were all created at this time. The producers in any industry struggled to survive in this controlled economic environment.

The years between 1914 and 1923 were the most complex for the sugar industry. The period was characterised by the entrenchment of economic nationalism and by a rise in economic interventionism, often at the behest of pressure groups from the leading, mostly oligopolistic industries. In the case of sugar, prices on the world market increased three-fold in just five years[5], but the Spanish industry was unable to take advantage of this export opportunity. As can be seen in Figure 1, reducing the import tariffs in 1919 meant huge losses to the SGA, revealing the difficulty of SGA to compete on the international market.

Between 1914 and 1918, the SGA abandoned any hope of monopolising the Spanish sugar market and continued to lose market share to the independent factories springing up all over the country. Some of these, such as the Ebro Sugar and Alcohol Company and the Agrarian Industries Company, grew to a considerable size and became critical elements in the sugar oligopoly.

2.2. The Spanish Association of Sugar Manufacturers: a coordinated oligopoly

In this context of increasing State intervention in the sugar market, Joaquín Sánchez de Toca, chairman of the SGA and of the recently created Spanish Association of Sugar Manufacturers (1914), drew up a programme designed to protect the sugar industry by restructuring it around a global

[5]Report of the Federal Trade Commission on Supply and Prices (1923) and FAO (1960).

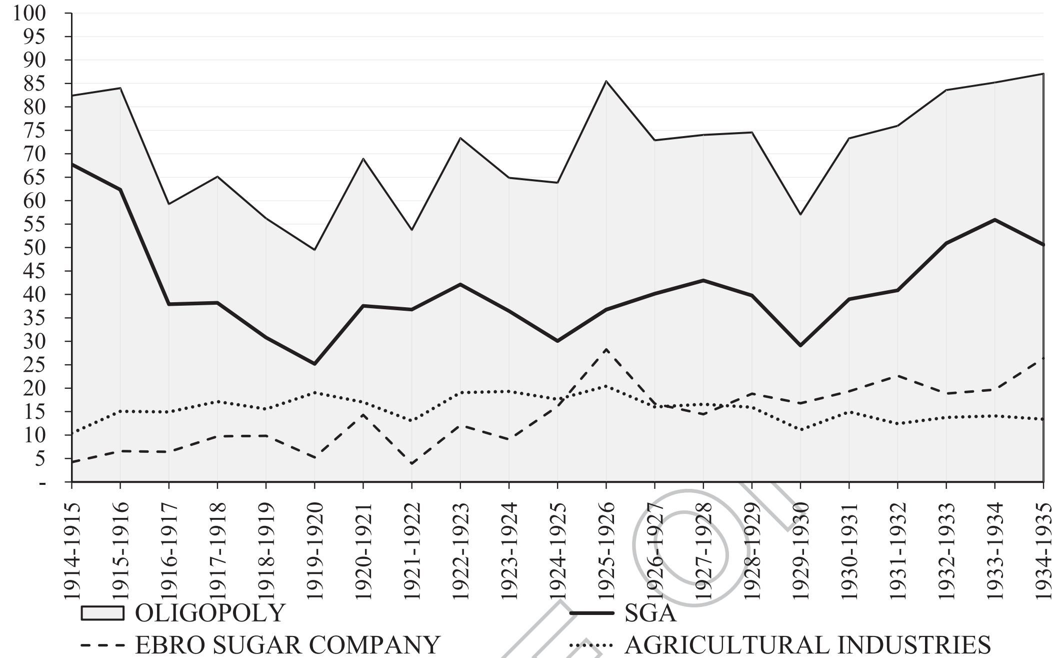


Figure 2. Market share of the oligopoly (SGA, Ebro Sugar and Agricultural) 1914–1935 (percentage of total sugar production). Source: Compiled by author. Anuarios Financieros de Bilbao de 1917–1935 y Dirección General de Aduanas, Producción y circulación de azúcares, achicoria y alcohol, 1900-1935.

partnership of manufacturers, and introduced a framework for dealing with third parties, such as farmers, wholesalers, and subsidiary industries (sweets, pastries, biscuits, etc.).

The first goal of the new association was a resounding success, it signed a quota agreement to adjust sugar supplies to demand, establishing the amount of sugar that each producer could sell, and the price at which they could sell it. The agreement was enforceable for three years, at the end of which it could be extended annually. This measure promoted by the industrialists themselves was the first serious attempt to organise a sector in which, owing to its structure, supply continually outstripped demand. The aim, in short, was to create a coordinated oligopoly headed by the SGA (formed in 1903), jointly with the Ebro Sugar (and Alcohol) Company, and the Agricultural Industries Company; a leadership position that was soon challenged.

Figure 2 shows the percentage of the Spanish sugar production processed by the three main companies between 1914 and 1935, the shaded area shows the sum of the percentage of the three firms (the Oligopoly's leaders). After 1914 when the first agreement between the large companies in the sector took place, they gained more control of the market, indicated by their increasing market share. The agreement also caused an increase in the price of sugar. The Government implemented interventionist measures in the sector, which increased the manufacturing shares for 'non-associated' factories between 1917 and 1920 and, consequently, the fall in the market share of the oligopoly from 65% to 50%. The ups and downs of the following years were the result of the oligopoly's negotiations with farmers to purchase beet, competing with the 'non-associated' companies, since international trade was not relevant.

From 1914 to 1923, the oligopoly was fully functional, and the Government's response to the new association' agreement was to lower sugar prices and guarantee domestic consumption; indeed, the Government lowered the sugar tax to 25 pesetas/100 kg and the customs duty to 60 pesetas/100 kg. This was a step in the right direction for the oligopoly as it would help solve their stock problems. State regulatory intervention continued with the increase of the sugar tax again to 35 pesetas/100 kg, and a further increase in the tax to 45 pesetas/100 kg (needed because of a permanent deficit in the Treasury) and it set a new tariff of 85 pesetas/100 kg.

2.2.1. State interventionism: regulatory chaos and market dislocation, 1923–1935

Between 1923 and 1935, burgeoning economic nationalism would be joined by increased state interventionism and the development of a complex corporate system based on arbitration boards and mixed commissions formed by representatives from the ministries, sugar manufacturers, wholesalers, consumers, farmers and workers. The authorities tried to guide the precarious relationships between these boards, and from the start, they were configured as corporate bodies in charge of managing all aspects of sugar production.

With the protective tariffs that the industry relied on for its survival under constant threat from numerous market-driven changes, and with a rates policy designed to guarantee supply at low prices, the Government effectively destroyed all hope of establishing a stable regulatory framework that would promote balanced development. The industry responded to this precarious situation with agreements between manufacturers and relentless pressure on the regulatory bodies from the cartel. The oligopoly was aiming for clarity and regulatory stability so that they could know what the State expected of them.

The collusion between cartel members was not entirely conflict-free; the target of all criticism was the SGA, which still harboured ambitions of creating a single dominant sugar manufacturer6l6?.[6] The SGA unintentionally exposed the need to organise the Spanish sugar industry in order to minimise risks and uncertainties (Martín Rodríguez, 2009, p. 135).

In 1935 the Government determined the quantity of beet to be produced annually and how it should be distributed among the different industrial zones; the beet quota for each zone, and how this would be allocated to each factory; the price of raw material, taking into account the sugar content of the beet produced in each zone and advertising campaigns to boost sugar consumption.

The 1935s Act raised awareness among farmers and manufacturers alike of the need to regulate and organise sugar campaigns and provided a solution to a hitherto ill-conceived and badly resolved problem. It did not regulate distribution according to sugar-producing regions and sugar factories. In this distribution, there would always be winners and losers, regardless of market allocation. Then, in 1936, the Spanish civil war began.

Regulating harvest, processing, allocation, price and distribution the sugar cartel managed to grow, but under the burden of gradually increasing and ever more complex regulation over time. The Spanish industry was not competitive with those in Germany or France; an argument repeated in 1998, when the CNMC (Comisión Nacional de Mercados y Competencia, the Spanish competition regulator) allowed the merger of the three companies into a single sugar firm.

3. The legal framework and development of the cement cartel in Spain

The cement cartel period analysed in this article include the period of autarky from 1939-1959, until the end of Francoism regime in 1975. As argued above for the sugar industry, the autarky strengthened the clientelist system even further as very clear political limits had been established for the national companies regarding their sectoral and regional expansion (Carreras & Tafunell, 1993, p. 136). These constraints had negative consequences on efficiency and technical change, which meant that the country's economic growth was slow. This type of limitation has been identified by several authors in studies on key industries (iron and steel, cement, electricity, etc.).

After the 1960s, with the introduction of indicative planning, mechanisms other than traditional clientelism had to be used. The main idea behind planning was for the State to help industry and coordinate the activities of businesses (Castañeda, 1958). The Minister of Economy in 1962, Alberto Ullastres, said that the state could not and did not want to compel individuals to participate, however, if the Plan was well designed, they would wish to take part. However, critics argued that concerted actions could not be established by sector, but rather through a series of individual agreements, company by company, which was arranged to provide support for the most powerful,

[6]This was achieved in 2013.

(Tamames, 1965, p. 37). Others suggested that economic intervention took place when it was convenient for the groups with social influence (Gámir, 1972, p. 169), or that the companies in the country colluded with each other and with the State to avoid foreign competition in the domestic market, generating oligopolistic structures and adopting strategies that allowed rents to be captured through non-market paths (Fraile, 1991).

In the sixties and part of the seventies, Spanish companies were subject to state price controls, which removed any price information from the product and production factor markets. Gunther uncovered the largely discretionary nature of the decisions, and revealed the planning process allowed for the Q5 extensive involvement of individuals representing the private sector (Gunther, 1980, p. 181). The complex and changing protectionist and interventionist regulations only benefited companies that knew the legal mechanisms and generated great uncertainty for most economic agents.

3.1. The cement cartel in Spain 1942–1980

The configuration of the Spanish cement industry from 1942 can be explained largely on the basis of the Mines Act of 1944. This Act, and the subsequent minor amendments passed in 1973 and 1980, ensured that quarries could be exploited under favourable conditions, given that cement was considered an asset of national interest and its raw materials were classified under the mineral's (section A) of the Act. Under the terms of this law, quarry owners (which included cement manufacturers) were only required to pay a fee for using the resource but were not required to compensate for resource depletion or environmental degradation. It also permitted the expropriation of farmland[7] if required to open or expand a cement factory (Rosado-Cubero, 2011, p. 145). The Mines Act prohibited the sale of cement mines and quarries to foreigners and favoured the vertical transfer of exploitation rights. In fact, the exploitation rights expired if they were not taken up by the owner's heirs, which is why most Spanish cement companies were passed from parents to children.

The cement quarry is one of the main elements of the cement factory and is closely related to production. In fact, the factory and the quarry are part of a vertically integrated industry.

Transport costs are one of the main obstacles to competition in the cement industry, and therefore a cement factory was set up in almost every province in Spain. For this reason, companies operating in the same geographical area tended not to compete (see Table 2 and Figure 3).

The cement industry as a whole operated as a price-leading cartel in which the six largest industry companies acted as an 'umbrella' consortium that set prices and production quotas for the entire sector through the Ministry of Industry. This can be demonstrated by calculating the Lorenz index[8] for 1944–1980. The Lorenz index can be used to give a measure of the degree of concentration of cement production among the six largest cement companies. Values close to zero indicate a relatively equal size of production by each firm while a value close to one indicates higher concentration (and market dominance) by one or a small number of firms. Figure 3, which shows that the top six companies maintained a similar level of production over time, the value close to zero suggests relatively similar market share among the top firms and also, that smaller companies were no more than price takers.

The Lorenz index provides a useful insight into this industry's cartel, since when the large companies in an industry are roughly equal in size, the cohesion of the cartel is likely to be more stable. In the Spanish case, the cartel also guaranteed that the price negotiated in the ministry by the top companies would allow for the survival of the smallest firms. This also advantaged the large companies because cement's high transport costs, meant supplying the product nationally from a few big producers would have been very expensive.

[7]Expropriation is still in force: in 2003, farmland was expropriated by Morata Cement, a subsidiary of Cemex. The latest (2010) amendment of the Mines Act has not changed this, and in 2012, Cosmos Cement obtained a quarry licence that is still being disputed in court.

[8]See Rosado-Cubero (2011, p. 188) and following for additional information.

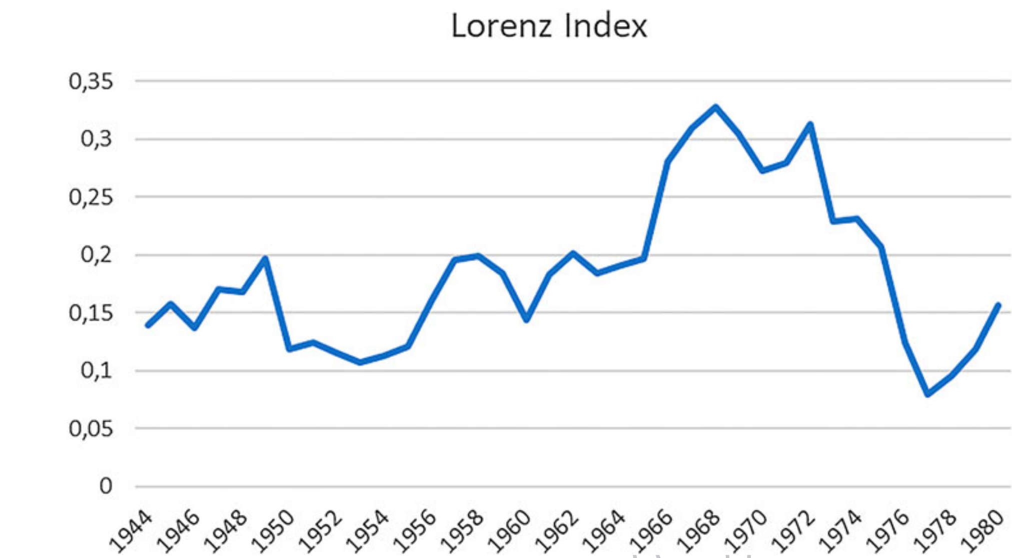
Table 2. Spanish portland cement factories 1980.

Company	Factories	Production capacity Tns.
Asland	+Moncada, Valencia	696.717
	+Puerto de Sagunto, Valencia	1.367.136
	+Niebla, Huelva	445.302
	+Córdoba	299.048
	+Villaluenga de la Sagra, Toledo	834.471
	+Meco, Madrid	271.444
Cementos Turia, S.A.	+Burjasot, Valencia	259.745
	+Contreras, Valencia	99.280
Cementos Alfa, S.A.	+Mataporquera, Cantabria	208.991
Cementos Cosmos, S.A.	+Toral de los Vados, León	631.000
Cementos Hispania	+Yeles, Toledo	428.461
Cementos Portland de Lemona, S.A.	+Lemona, Vizcaya	473.130
Cementos Molins, S.A.	+San Vicente dels Horts, Barcelona	1.334.455
Cementos Portland, S.A.	+Olazagutia, Navarra	524.077
Portland Valderrivas, S.A.	+Vicálvaro, Madrid	1.230.081
Compañía Valenciana de Cementos Portland, S.A.	+San Vicente del Raspeig, Valencia	1.308.885
	+Buñol, Valencia	1.621.832
La Auxiliar de la Construcción, S.A.	+San Feliu de Llobregat, Barcelona	755.011
Portland Iberia, S.A.	+Castillejo, Toledo	974.000
Cementos Portland Morata de Jalón, S.A.	+Morata de Jalón, Zaragoza	371.593
Cementos Portland de Aragón	+Monzón, Huesca	150.257
	+Muel, Zaragoza	151.338
Cementos Alba, S.A.	+Torredonjimeno, Jaén.	299.048
	+Gádor, Almería	643.803
	+Jerez de la Frontera, Cádiz	597.283
	+Lorca, Murcia	459.251
Sociedad Anónima Tudela-Veguín	+Aboño, Asturias	410.204
Sociedad Financiera y Minera, S.A.	+La Cala del Moral, Málaga	739.398
Cementos Rezola, S.A.	+ Arrona Gris, Guipúzcoa	35.580
	+ Añorga, Guipúzcoa	241.924
	+ Arrigorriaga, Vizcaya	345.694
Cementos Uniland, S.A.	+ Vallcarca, Barcelona	664.285
	+ Monjós, Barcelona	1.364.593
Cementos Hontoria, S.A.	+Venta de Baños, Palencia	560.632
Cementos del Mar	+ Alcanar, Tarragona	1.493.070
Hornos Ibéricos	+ Carboneras, Almería	689.200
Atlántico	+Morón de la Frontera, Sevilla	328.240
	+Alcalá de Guadaíra, Sevilla	730.303
Cementos la Robla	+La Robla, León	321.214
Cementos del Noroeste	+ Oural, Lugo	412.000
Portland de Mallorca	+ Lloseta, Mallorca	394.188
Cementos Especiales, S.A.	+Arguineguín, Las Palmas de Gran Canaria	464.782

The analysis of other state interventionism in the cement sector can be divided into two stages: the first, from 1942 up to the introduction of indicative planning in 1963 and the second from 1963 to 1980, when the price of cement was liberalised.

State intervention in the cement industry from 1942 to 1963 left entrepreneurs with little capacity to produce, improve, expand or sell their products.[9] In addition to the need to apply for authorisation to expand a factory and to obtain the materials needed to repair factory machinery, factory owners also had to negotiate to obtain the currency needed to purchase or repair their foreign machinery. This could be construed as State interference in a private enterprise[9], although in exchange, the State could be called on to facilitate compulsory expropriation of adjoining land if the expansion involved the exploitation of minerals. The expropriation of land was legalised under Act 152/1963, but little use was made of this regulation until 1968, when applications for expropriation rights increased significantly. The rise of civil works because of the Spanish economic development increased the demand for cement and more quarries were needed.

[9]It was controlled much like a medieval guild.



Colour online, B/W in print

Q6 **Figure 3.** Source: Compiled by author. Data: MINER, Cement industry annual reports.

By the end of the 1960s, the Spanish State owned two small cement factories (ENHER and the Guadalquivir Hydrographic Federation), even though Spanish society had been calling for a big state-controlled company to meet market demands for almost a decade. In 1964, with indicative planning in full swing, calls for state-controlled cement production were again raised to cover shortages 'deliberately' caused by private industry, and justified by the fact that cement was sold on the black market at double the official price.

3.2 . The Office of the Government Delegate to the Cement Industry (1941–1960): the control of distribution, price and production

Beginning in 1941, the Office of the Government Delegate to the Cement Industry acted as an inspectorate for the distribution, price and sale of cement. In 1960 the Office was eliminated, but production continued to be State-controlled until 1963 and government price controls remained until 1980.

3.2.1. The control of cement distribution 1942–1960

From 1942 until 1960, when production was liberalised, the distribution of Portland cement was regulated by government quota. The government determined the price of cement for the year, and required that cement warehouses could not be located in the same district as the factory. In the case of official orders, contracts exceeding 200 tonnes per month,[10] and the quota assigned to wholesalers,[11] the cement was supplied from the factory, and transport costs could not exceed the normal price charged by the railway company.

The cement supplied by the manufacturer or the wholesaler to the consumer was classified into two types: regular supplies, which were governed by annual contracts for over 50 tonnes per month; and all other supplies. In the first group, 5% was added to the factory sale price, plus taxes, packaging, and the cost of transportation from the factory to the warehouses; for the second group, 15% was added.

[10]This refers mainly to concrete mixers and other construction companies that use cement as raw material.

[11]Wholesalers are the companies that supply local construction companies. They were allocated a 20% quota of the production, and the Government Office retained the difference between the quota and what they actually sold. Cement factories did not supply wholesalers with their quota.

Table 3. Cement production distribution, 1942–1954 (thousands of tonnes).

Year	Civil works	Absolute priority	Official orders	Private companies with priority	Wholesalers	Free disposal	Absolute national need	Private companies without priority	Subsidised housing
1942	530							791	
1943	686							212	
1944		30	741	245	289	240	30		
1945		55	726	220	266	194	55		
1946		47	724	279	284	163	175		
1947		44	648	260	260	187	304		
1948		39	643	271	245	158	356		
1949		31	605	311	233	137	393		26
1950		31	630	316	240	151	535		97
1951		32	713	355	249	175	548		
1952		27	740	383	235	203	623		113
1953		20	838	412	242	185	800		92
1954		19	1021	554	204	348	821		99

Source: Compiled by author. MINER, Cement industry annual reports, 1942–1954.

Government established the rules governing ‘private-preferential’ cement orders; these rules affected private companies undertaking works deemed to be of national importance or public interest. When placing these orders, the recipient company had to describe in detail the reason for the construction project, the amount of cement required, the delivery schedule, the collection site (factory or wholesale warehouse), etc.

The Syndicate of Construction, Glass and Tile Companies obtained a quota of 20% of the cement produced for construction, placing the Syndicate in charge of allocating this quota. All the works included in these categories had to be carried out for either private companies or the public sector, and the cement, which was supplied directly by the Office of the Government Delegate to the Cement Industry, was included in the official quota. Public works carried out by private companies were included under the ‘private-preferential’ heading. The Provincial Syndicate, in charge of monitoring allocations for civil works entitled to a cement quota, divided these works into different categories, ranging from urgent constructions to projects undertaken by small construction companies, mosaic manufacturers, and others. In 1950, under a new regulation, 10% of production could be sold freely.

Table 3 shows the official distribution of Spanish cement production between 1942 and 1954. This reveals that very little cement was allocated for free sale or to non-preferential companies. The State assigned cement to official civil works, to works of national importance, and private-preferential companies. Given the level of control in the distribution of cement, it is not surprising that a parallel market arose supplying cement at non-regulated prices. This was further aggravated by the high degree of production and price control described below.

In 1954, existing procedures were simplified, mainly to allow some orders to be distributed freely, once the supply to projects of national importance had been assured. At the same time, priority activities were considered by the State to be works and housing related to national defence or water and sewage installations, tourist-related constructions sponsored by the State, provincial government offices and city councils.

The percentage of the total cement production allocated to each of these activities was established annually at the highest government level, such as the Ministry of Industry, in consensus with the different ministerial departments. During this time, regulations that further aggravated the arbitrary nature of cement quota allocations continued to be approved. An example of this is contained in the additional rules: excess cement from a particular quota, even if it had been allocated to a ‘preferential’ activity, could be sold provided all the recipient’s details were provided. In addition, supplies to ‘private-preferential’ activities (companies run by privileged social classes and politically closer to the regime) and quotas for wholesalers were abolished as both speculated with prices.

The inevitable response to such stringent control of an economic sector is the creation of a black market to meet the needs of consumers who have not been allocated a quota. The first article denouncing this situation and confirming the existence of the black market was published in 1953.[12]

> Around 10% or 15% of 'private-preferential' orders are filled by factories; however, let us be generous, and assume 20% of orders are delivered […] Is this an adequate supply for a market in which the 'black' price is 200% higher than the official price? (Gutiérrez Barquín, 1953, p. 139)

3.2.2. The control of cement prices and production 1942–1980

Cement prices were regulated in Spain for many years. In fact, between 1942 and 1951, the State established the prevailing price for the year, and from 1951 to 1960 the price was calculated using a parametric formula.[13] Between 24 June 1960 and December 15, the price was liberalised, but the State intervened again and continued to control prices until 1980, when prices were finally liberalised.

In 1942 regulating the distribution of cement set the sale price at 126.50 pesetas per tonne. This, the Government argued, was due to profiteering on the part of producers and intermediaries to set the price and commercial distribution rules. The parallel black market that set its own prices was in operation until 1960, as shown in Table 4.

The parametric formula remained in force until 1960, when the price, distribution, and sale of all types of domestically produced cement were liberalised on the condition that the manufacturers' price per tonne did not exceed 620 pesetas. But in 1960 new regulation on the price of Portland cements was published in the Official State Gazette. After this date, the Ministry of Industry again set the maximum price per tonne of cement until 1980.

3.2.3. Control over repairs to existing machinery, implementation of new technology, and plans to increase production capacity

Between 1945 and 1957, the Ministry of Industry, was in charge of approving applications to repair installed machinery, to install new machinery, and to increase production capacity; between 1958 and 1960, these powers were passed to the General Directorate of Mines and Fuel.

A better idea of the extent of these control measures can be gained from a review of some of the orders issued by the Ministry of Industry and the resolutions passed by different bodies. For example, a Ministerial Order was issued approving the transfer of machinery from the Asland Cement Factory in Basurto (Vizcaya) to its factories in Córdoba and Moncada (Barcelona). In other words, Government control of the industry was so tight that the company was unable to transfer machinery between its own factories without first gaining permission. Cement manufacturers had to obtain authorisation to replace their furnaces, install new machinery or buy materials to repair existing machinery, because they needed the currency necessary to purchase these elements abroad (Rosado-Cubero, 2011). To expand factories, the companies needed currency to acquire new equipment. The problem was that even if the company had sufficient funds, the Bank of Spain was unable to exchange this for the currency they needed to purchase the equipment from the main suppliers, which were based first in Denmark, and later in Germany.

In Spain, a vast number of control regulations were abolished in 1959 (at the end of the autarky period) with a Stabilisation Plan and other measures to liberalise the economy. The abolitions included the cement distribution controls and the removal of regulations controlling corporate spending and investments in technology. The control of production remained until 1963.

[12] In Spanish estraperlo, the term used to describe any trade taking place outside official state channels. It was illegal and heavily penalised.

[13] The Order of 30 May 1951 (Spanish State Gazette, June 9, 1951) approved a parametric formula for calculating the factory sale price of Portland cement. The formula weighed up various costs, including wages, coal and electricity, transportation, and the overall industrial price index.

Table 4. Comparison of cement prices in Spain, 1941–1960 (price per ton in current pesetas).

Year	Regulated price (BOE)	Wholesale price (INE)	Price Variation current pesetas	Price Variation (%)
1941	94.5	113.82	19.32	20
1942	126.5	125.2	−1.3	−1
1943	126.5	132.83	6.33	5
1944	126.5	132.83	6.33	5
1945	126.5	132.83	6.33	5
1946	183	170.46	−12.54	−6
1947	183	183	0	0
1948	224	206.06	−17.94	−8
1949	224	224	0	0
1950	313	285.81	−27.19	−8
1951	329	497.24	168.24	51
1952	329	566	237	72
1953	329	565.91	236.91	72
1954	363	597.17	234.17	64
1955	363	600	237	65
1956	480	609.75	129.75	27
1957	480	717	237	49
1958	480	717	237	49
1959	480	717	237	49
1960	480	753.6	273.6	57

Source: Compiled by author. National Institute of Statistics and Official State Gazette.

3.3. Indicative planning 1963–1975

In Spain, although indicative plan began in 1963, price controls on cement and all energy sources used in its manufacture continued.[14] The distribution of raw materials was regulated by the Mines Act, salary control was in force, and the industry was further controlled by a veritable web of non-regulatory interventions (packaging, the price of rail transport, etc.). The Spanish economy at this time, like any other planned economy saw industry production, together with inputs and outputs under the control of the state; the major difference in the Spanish case being its clientelism. For instance, cement supplies were controlled by a cartel, supply still outstripped demand, and the prospect of free competition benefited neither the industry nor the State. In 1962, the Spanish cement industry had a production capacity of 6.585 million tonnes. Increasing the production capacity of cement factories was expensive and could only be achieved in the long term. All these factors led to the start of indicative planning in the cement sector.

In 1963, the Ministry of Industry16F16F established the technical specifications and the minimum size required for factories in certain sectors, in order to remove restrictions on setting up new factories.[15] The same year, foreign investment above 50% was allowed in some sectors.[16] Despite these changes, neither Spanish nor foreign private investors were willing to take the initiative. This prompted the Government to resort to announcements such as: 'private companies are informed of the need to establish in the central-western zone, preferably in the provinces of Cáceres or Salamanca, factories with a capacity to produce 300,000 metric tonnes of artificial Portland cement per year'.[17]

Another new law introduced that year was Act 152 on industries of 'national importance'.[18] This is yet another example of the use of administrative discretional powers. Under the terms of this Act, certain industries could expropriate land, obtain right-of-way to construct transport and energy lines

[14]From 1951 to 1960, the price of cement was government-controlled, based on negotiations with industry companies. The Ministry of Industry allowed manufacturers to obtain marginal revenue from packaging; thus, the net price of cement was based on the price of the cement itself plus the manufacturer's mark-up on packaging, and the wholesaler's mark-up on the product.

[15]Official State Gazette, Decree 157/1963, 26 January.

[16]Official State Gazette, Decree 701/1963, 18 April.

[17]Order of 24 November 1964.

[18]This classification was granted by Decree by the Council of Ministers, following a proposal made by the Ministry of Industry, which was backed by reports from the Ministry of Finance on the granting of tax benefits, from the ministries of Work and Commerce, from the Trade Union, and from the Economic Development Plan.

and liquid and gas pipelines, obtain port concessions, and benefit from reductions of up to 95% on various taxes, as well as financial aids, such as the freedom to set their own repayment schedule on capital invested during the first five years. Cement companies were also allowed to divert river channels, for the purpose, for example of generating electrical power.

The first Economic and Social Development Plan occurred between 1964 and 1967. The Ministry of Industry considered that some of the equipment installed was outdated; 39% was inadequate, 20% renewable in the short term, 25% in good condition, and 16% completely modernised. Under the Plan, production must exceed expected demand from other industries by at least 2 million tonnes, and companies were allowed to raise money from the capital markets.

During the second Plan, which lasted from 1968 to 1971, the State again intervened in the industry, recommending take-overs or mergers as a way of overcoming problems that were beyond the means of small and medium enterprises. Cement prices were still controlled, but the cement manufacturers agreed to respect the price ceiling imposed. Cement was free from tariffs, the turnover tax (now VAT), at 3%, was extremely low, and the Juan de la Cierva Trust fee was only 0.75%.[19] At the start of the third and last Plan, from 1972 to 1975, production outstripped demand by a healthy 28%, and it was not necessary for the National Industry Institute to intervene.[20] There was no foreign investment or foreign companies in the sector, and prices were still regulated in consultation with industry companies. In 1973, the industry pledged to expand capacity by 40% within three years to 9.8 million tonnes if the administration raised the price by 3% that year, and by 4% in 1974.

In 1977, following the transition to democracy and the end of indicative planning, Spain applied for membership of the European Union. One of the first measures taken to bring the economy into line with the European open market was the Order of 14 October 1980, liberalising the price of cement. Nowadays the Spanish market of cement is controlled by Lafarge, Holcim and Cemex, under the careful eye of CNMC due to the sanction proceedings that occurred in the first decade of the 2000s.

4. Conclusions

Following the pioneering works of Roldán, García Delgado, and Muñoz (1973), it is now common to find the Spanish economy described as a series of oligopolies. The consolidation of economic nationalism after the First World War was characterised by growing State interventionism. In this way, the State protected the domestic market for domestic products, built up Spanish industry and embarked on a programme of market regulation in collusion with business organisations. In the autarchic atmosphere of the first decades of Franco's dictatorship (1939-1959), these policies were taken to the extreme. Spanish companies colluded with each other and with the State (Fraile, 1991) to keep foreign competition out of the domestic market and create oligopolistic structures that sought to control and enrich themselves by regulatory, instead of market, strategies. These structures were detrimental to efficiency and technological change, and slowed down the country's economic growth.

Within this context, we have highlighted that the institutional framework created around the sugar and cement sectors in Spain, which was based on a *quid pro quo* of tax collector in exchange for privileges (much like a medieval guild or the Spanish clientelism model), was detrimental to market efficiency. The industries operated in an uncertain atmosphere and devoted their energies to maintaining lobbies to influence the State's decision-making processes to their own advantage. Both cartels survived for decades. The leading companies divided the market amongst themselves and prices were agreed on 'between friends'.

No new sugar or cement companies were founded in the periods under study, and there was no influx of foreign capital; the tangled web of legislation and regulations effectively closed off the industry to competition.

[19]The trust was a Board of Scientific and Technical Research.
[20]A public body similar to the Italian National Industry Institute. It was responsible for the management of development plans.

We have attempted to shed light on the problems of the Spanish sugar industry, the beet farmers and sugar manufacturers from the late nineteenth century up to the Spanish Civil War in 1936. The sugar sector faced the same fate in Spain as in other European countries – cartelisation. The situation in Spain, however, was unique. The SGA as the sugar industry leader gained privileges from State intervention mainly by tariffs of sugar imports and the right to act as a tax collector. That allowed each company to access all the information about its competitors, and this guaranteed the stability of the cartel.

Cement is a key component in construction, and that in turn is central to economic growth, making the industry very sensitive to the economic cycle. Cement, on the other hand, is also a special product, its price is almost irrelevant, and the price is passed on to the end consumer, who will only protest when it becomes exorbitant. There is practically no substitute for cement. After explaining the legislative framework, which included belonging to the Advisory Board of the Ministry of Industry, we used the Lorenz concentration index to show that the industry operated under a price-leading cartel, as defined by Stigler. The six biggest industrial companies exercised complete control over cement production and distribution between 1942 and 1960, and over prices until 1980.

In any cartel, each partner must keep the rest of the partners informed of its activities. This ensures that all abide by the agreements reached, particularly with regard to market share. If any of them reneges on their promise and changes prices, the others will go after the traitor that did not maintain their quota (or lowered their prices to attract more clients), and this may create an irreparable rift within the cartel. The industries studied made every effort to thwart this kind of movements by creating producers' associations that defended their rights and provided arbitration between the partners.

Sugar and cement cartels have existed in all European countries and some have had an even stronger position. Studying these in Spain is important because it is representative of a broader debate in the twentieth century: support and protection for domestic industry. The unique feature of this study is that no public companies operated in either of the two sectors analysed, so aid and protection turned into a power struggle between those benefiting from them and those harmed by them. In legal terms, any concession received by companies in these industries caused both 'upstream' and 'downstream' damages, and ultimately damaged the domestic Spanish economy.

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