
The behaviour of Spanish industry in international markets (1890–1913)

● PABLO DELGADO

University of Zaragoza

<https://orcid.org/0000-0001-5891-4671>

Introduction

During the nineteenth century and the beginning of the twentieth century, there was a period of strong expansion in international trade coupled with the spread of industrialisation. Global trade grew twice as fast as production between 1870 and 1913 and world manufacturing production multiplied four-fold between 1860 and 1913 (Estevadeordal, Frantz, and Taylor 2003, p. 395; Bairoch 1982, p. 274). The comparative advantages of the different regions implied that the developed countries specialised in producing and exporting manufactured goods in exchange for importing primary products from peripheral regions (O'Rourke and Findlay 2007, pp. 365-425).

Spain, a developing country and still mainly agricultural, also expanded its foreign trade and developed its own line of specialisation. Both its exports and its imports grew significantly and its most successful products in the international markets were those in which it had a comparative advantage: Mediterranean agriculture products and minerals (Prados 1986, p. 102). At the same time, the country initiated a path of industrialisation and economic convergence during the second third of the nineteenth century (Carreras and Tafunell 2010, pp. 121-168).

However, due to the “acutely protectionist” tariff of 1891 (Carreras and Tafunell 2010, p. 183), the Spanish economy began to shift towards nationalism. On the one hand, its degree of trade openness began to decrease, so internal production grew more than exports, which lost weight in global markets (Tena 2005). On the other hand, the rate of industrial growth decelerated and, as a result, the industrialisation process in Spain was not completed (Nadal 1975; Carreras 1984).

These two facts have generated intense debate in the literature related to foreign trade and the problems with Spain's industrialisation (Catalan, Sudrià and Tirado 2001, pp. 16-18; Sánchez-Albornoz 1985, pp. 19-20; Tena 1992a, pp. 321-359; Prados 1985, pp. 119-165; Bajo-Rubio 2020; Herranz and Tira-

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do 1996; Pollard 1982, p. 290; Tortella and Núñez 2011, p. 114; Tafunell and Carreras 2010, p. 209; Valdaliso 2004). A significant part of the literature attributes this to industry, which would have opted to direct its sales to the domestic market instead of specialising and competing internationally (Prados 1988; Prados 1997). Therefore, Spanish protectionism disconnected the industrial sector from the competition and industry lost weight in global markets (Fraile 1991; Tena 2010; Carreras and Tafunell 2010, p. 193; Rosés 2001).

In general, economic history studies the behaviour of international trade using aggregate values, comparative advantages and competitiveness via prices. However, the most recent theories of international trade show that the reality can be much more complex (Bernard et al. 2007). Trade costs, which vary by product and destination, can open a gap between productive leadership and export success (Betrán and Huberman 2016, p. 259). In other words, an increase in the export of industrial products does not necessarily go hand in hand with an increase in industrial productivity (Tena and Ayuso 2020, p. 8).

This is explained by the existence of a sunk cost (fixed) when beginning to export, which only the most productive companies can assume (Melitz 2003). When trade costs plummet, which occurred in the First Globalisation, the level of productivity at which it is profitable to begin to export is lower. Therefore, companies with a lower level of competitiveness can begin exporting and be successful in certain products and destinations.

Thus, as well as analysing the aggregate value of exports by country or sector (intensive margin), it is necessary to do so taking into account the number of exported products, the number of exporting companies and the number of countries to where the exports are sent (extensive margin).

Along these lines, a new current in economic history has emerged in recent years, studying international trade from this point of view (Alexander and Key 2019; Betrán and Huberman 2016; Blancheton, Becuwe, and Meissner 2018; Charles 2018; De Bromhead, et al. 2017; 2019; Huberman, Meissner, and Oosterlimck 2017; Hungerland 2018; Tena and Ayuso 2018; Timini 2018; 2020). This literature highlights the idiosyncrasy of trade costs and the need to analyse international trade based on disaggregated data and at the margins. In this way, complementary explanations have emerged other than the comparative advantage and competitiveness to interpret the relationship between international trade and industrialisation. As far as we know, this methodology has still not been used to analyse Spanish exports during this period.

Within this context, we will attempt to respond to a question related to industrialisation and Spanish exports between 1890 and 1913. Given the competitiveness of the industrial and manufacturing sector in Spain: to what extent did Spanish industry try to compete in foreign markets? In other words, we question whether, as affirmed by part of the literature, industry opted to reserve the domestic market instead of searching for new markets.

To respond to this question, we have constructed a database with the value of Spanish exports disaggregated by product and country in 1890 and 1913. Furthermore, we have analysed the growth of exports, distinguishing between the intensive margin and extensive margin.

The article offers two principal contributions. First, the granularity of the data provides a broad vision of the export sector. In general, when analysing Spanish industry, there is a tendency to focus mainly on the cotton textile and iron and steel industries (Catalan, Sudrià, and Tirado 2001, p. 18). With our data, we can extend the number of industrial sectors and products studied to better understand industry as a whole.

Second, we consider a complementary hypothesis in terms of the behaviour of Spanish industry abroad during the period studied: the manufacturing companies were highly dynamic in the export of new products with low added value to new destinations (extensive margin). The implication of this is that, contrary to what has been indicated by the literature, industry did not avoid competing internationally. However, the new destinations had a very low potential demand. Therefore, in addition to supply factors (low competitiveness), demand factors, such as the potential income of destinations, also limited industrial development.

The article is structured as follows. After the introduction, Section 2 analyses the database and methodology applied (this section is expanded upon in the Appendix). In Section 3 we review the export structure between 1890 and 1913 and the debate surrounding Spanish industrialisation. Section 4 studies total exports in terms of their margins and technological value. The following section considers an additional explanation for the low dynamism of industrial exports. Finally, the article ends with some brief conclusions.

Sources, data and methodology

Sources and data

The principal sources used are the official foreign trade statistics in Spain between 1890 and 1913. We constructed a database with all of the values of each product and destination exported in both years.¹ We then incorporated each product in the Standard International Trade Classification Revision 2 (hereafter SITC). Due to the nature of the official statistics, the classification

1. See Section 1 of the Appendix for a more detailed introduction of the database and how the official data have been corrected.

is presented at the 3-digit level.² Even though this is a high degree of aggregation, other studies analyse foreign trade with the same number of digits (Tena and Ayuso 2020; Meissner and Tang 2018). Consequently, although during the rest of the article we use the term “product” for each good classified at the 3-digit level, in reality the categories are broader. Therefore, the SITC classification and our degree of aggregation has limitations in terms of representativeness, but we consider that the benefits are greater, as they enable us to compare all of the products over time and between countries.

As our interest resides in providing a comparative vision between agriculture and industry, we have applied the classification used in Lall (2000) to classify production according to technological value.³ The principal advantage of this classification is that it allows us to differentiate more specific categories, such as agro-industrial products, which had considerable importance in the Spanish export structure. The principal disadvantage is that it was constructed at the end of the twentieth century and, therefore, established for the technological level of said classification. For example, the classification includes more elaborate textiles (tullies, laces, knitted fabrics, etc.) and less elaborate textiles (spun fabrics) in the same category, even though their value added is different. In order to minimise this limitation, we refer to specific products whenever possible and adapt some categories to the technological level of the period studied. However, it is also true that the classification is designed for developing countries, which, although with significant differences, could be similar to Spain at the end of the nineteenth century.

According to Lall, products at the 3-digit level can be classified into primary products (PP), resource-based manufactured products (RB), low-tech manufactured products (LT), medium-tech manufactured products (MT) and high-tech manufactured products (HT).⁴ The resource-based manufactured products (RB) include the agro-industrial products (RB1) and other resource-based products (RB2). The low-tech manufactured products (LT) are divided into those that are mainly based on textile products (LT1) and other types of low-tech products (LT2). In the medium-tech manufactured products (MT) we can differentiate between those related to vehicles (MT1), the chemical metallurgic industries (MT2) or the engineering industries (MT3). Finally, the high-tech manufactured products (HT) include machines, electrical apparatus and telecommunications equipment⁵ (HT1) and other types of high-tech products (HT2).

2. See Section 2 of the Appendix for a more detailed description of the classification, modifications and assumptions made.

3. See Table 1 of Section 3 of the Appendix to consult which 3-digit product corresponds to each of Lall's categories.

4. This paragraph is based on Lall (2000, pp. 340-343).

5. The original HT1 category of Lall (2000) refers to electronic engineering products. However, we have replaced it so as to better adapt to the historical context.

In order to differentiate between agriculture and industry, in general terms, we use the primary products (PP) as representatives of agriculture and the other categories (RB, LT, MT and HT) as representatives of industry, taking into account that, particularly agro-industrial products (RB1) can be included in both categories.

In order to classify the destinations according to their income, we have differentiated between those that have a high potential income (HI), medium potential income (MI) and low potential income (LI). To do this, we have followed the same criterion used in Betrán and Huberman (2016, p. 274).⁶

Methodology

In order to disaggregate the growth of exports considering the margins, we have used the methodology carried out in Bernard et al. (2009):

$$\Delta X_t = \sum_{f \in N} X_{ft} - \sum_{f \in E} X_{ft-1} + \sum_{f \in C} \Delta X_{ft} \quad (1)$$

Thus, the increase in total exported value between t and t-1 (1913 and 1890 in our case) can be broken down into the value of all of the products exported in t but not in t-1 (f ∈ N), the value of all of the products exported in t-1 but not in t (f ∈ E) and the growth (degrowth) of the value of all of the products exported in both years (f ∈ C). Similarly, the last term of equation 1 can be disaggregated in the following formula:

$$\Delta X_{ft} = \sum_{j \in A_f} X_{fjt} - \sum_{j \in D_f} X_{fjt-1} + \sum_{j \in G_f} \Delta X_{fjt} + \sum_{j \in S_f} \Delta X_{fjt} \quad (2)$$

where the increase in the value of the products exported in t and t-1 can be broken down into the value exported to new countries (j ∈ Af), the value that decreases due to products that lose countries between the two years (j ∈ Df) and the growth and degrowth due to the value of the products exported to the same countries in both years (j ∈ Gf and j ∈ Sf). The first two terms of equation 1 and 2 refer to the extensive margin (new products, products that disappear, the same products to new countries, the same products that lose countries), while the two latter terms of equation 1 allude to the intensive margin (same products to the same countries which gain or lose value).

Studying the extensive margin is important because the classical theories of international trade (comparative advantage, the Heckscher-Ohlin model and Krugman's intra-industrial trade) do not allow us to explain why all companies do not export to all countries (Mion and Muuls 2014, p. 16). In other

6. See point 4 of the Appendix for a detailed explanation of the destinations and their classification according to income.

words, these theories do not enable us to understand why in any international trade database there are products that are not exported and destinations that do not receive exports.

The underlying idea is that trade costs influence the direction of trade. As we have explained in the introduction, when trade costs fall, the productivity threshold at which it is profitable to export is lower, as the fixed cost of initiating exports also decreases.

Consequently, new companies can begin to export without there necessarily being an increase in their productivity. Therefore, although a company cannot compete through prices, it could be successful in a specific market if its fixed costs are relatively low.

The case of Japan is useful for better understanding the importance of the study of margins. During the nineteenth century, this Asian country had a low-skilled labour-intensive factor endowment, a comparative advantage in raw material (silk), it was located far from the industrial core (high transport costs) and it did not have an autonomous trade policy. In spite of this, Japan saw its manufactured products gain considerable weight in its export structure between 1880 and 1913. Meissner and Tang (2018) argue that part of this success resided in the capacity to find new markets. In other words, analysing the extensive margin, the authors find a shift of its manufactured products towards low-income countries and in the Asian continent. In this way, Japan was able to develop its manufacturing sector. During the inter-war period, Japan developed its industrial sector of higher value added by exporting to the countries of its empire. In other words, it exported to countries where its fixed costs were relatively lower due to its political dominance (Tena and Ayuso, 2020). Only studying the aggregate value of Japanese exports does not explain an important part of Japan's success.

Export structure and the debate on Spanish industrialisation

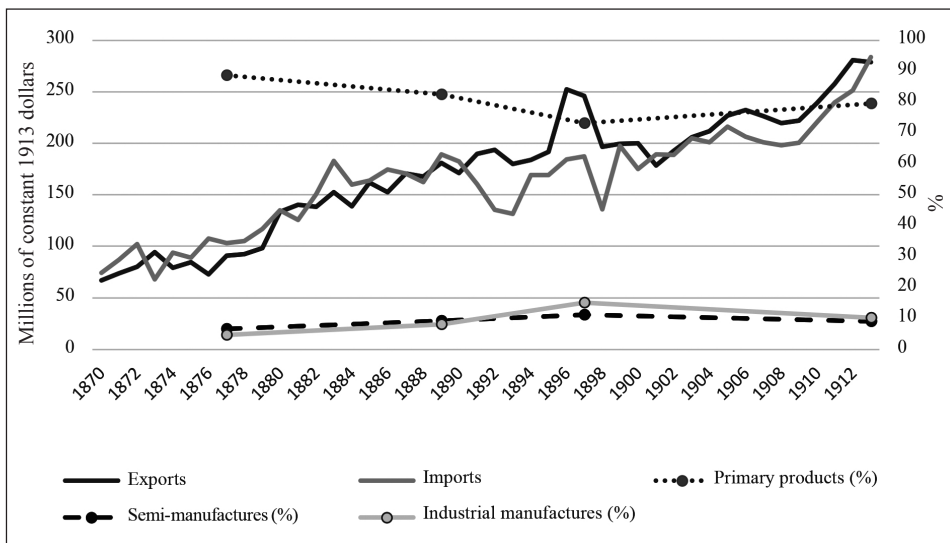
Structure of Spanish exports

During the final decades of the nineteenth century there was a change in the growth patterns of the Spanish economy. The tariffs of 1891 and 1906, the loss of the last colonies and the failure of Spain to join the gold standard led to a certain degree of international isolation. Despite continuous growth in the export and import value (see Graph 1), Spanish exports lost weight with respect to European exports from the last decade of the nineteenth century. Thus, in 1890, Spanish exports represented 4.2 per cent of European exports, but in 1913 they represented 2.65 per cent.⁷

7. Data calculated based on Federico and Tena (2019) in constant 1913 dollars.

Furthermore, the growth of industry exhibited signs of exhaustion from 1890. Therefore, after several decades of growth and convergence, this fall led to a divergence in Spanish industrialisation with respect to the developed countries (Carreras 2005, p. 396). This was also reflected in exports. As we can observe in Graph 1 (right axis), semi-manufactured goods and industrial goods gained weight in the export structure (in detriment to the primary products) between 1877 and 1890. On the other hand, from the 1890s the process reversed, showing signs of a reprimarisation of the export structure.

GRAPH 1 • Value of Spanish exports and imports



Source: Own work based on Federico and Tena (2019) and Tena (2005, p. 611).

TABLE 1 • *Export value by technological level*

Category	1890 (millions of pesetas)	1913 (millions of pesetas)	Relative growth rate	1890 (%)	1913 (%)
PP	174.0	478.5	175.0	21.5	37.9
RB1	368.2	326.1	-11.4	45.5	25.8
RB2	188.1	304.9	62.0	23.2	24.1
LT1	50.5	85.3	68.9	6.2	6.8
LT2	15.2	43.9	188.8	1.9	3.5
MT1	0.0	5.0	n/d	0.0	0.0
MT2	11.8	15.0	27.1	1.5	1.2
MT3	997.0	5.7	-99.4	0.1	0.4
HT1	0.0	5.6	n/d	0.0	0.0
HT2	252.2	2.9	-98.8	0.0	0.2
Total	809.1	1,263.4	56.1	100	100

Source: Own work based on Spain's foreign trade statistics.

Notes: Corrected values based on Tena (2005) and expressed in millions of 1913 constant pesetas. The relative growth is the growth rate: $((\text{export value in 1913} - \text{value exported in 1890}) / \text{value exported in 1890}) * 100$.

PP=primary products, RB1=agro-industrial products, RB2=other resource-based goods, LT1= low-tech manufactured goods (mainly textiles), other low-tech goods, MT1, MT2 and MT3=medium-tech manufactured goods related to the automobile industry (1), the chemical and metallurgic industries (2) and engineering industries (3), HT1=high-tech manufactured goods such as machines, electrical apparatus and telecommunications equipment and HT=other high-tech goods.

Table 1 reflects the absolute and relative weight according to the technological level of Spanish exports in 1890 and 1913. It shows that, even with significant changes, the export structure was mainly based on primary products (PP) and resource-based goods (RB) both in 1890 and 1913. Specifically, the three primary categories accounted for 90.2 per cent in 1890 and 87.8 per cent in 1913. On the other hand, the low-tech products (LT) gained weight, while the products with the highest value added (MT and HT) remained with insignificant absolute and relative values. Therefore, if we understand the export structure as a reflection of domestic production, Spain's industrialisation process did not culminate during this period.

However, if we conduct a more disaggregated analysis, we find a certain degree of restructuring in the export structure. Tables 2 and 3 show the 10 products that grew and contracted the most respectively in absolute and relative values between 1890 and 1913. We can observe that both minerals (iron and copper) and agricultural exports (fish, fruit and oil) grew significantly. The success of agricultural exports was due, on the one hand, to the fact that they were highly competitive products and, on the other, to them having a positive income elasticity, enabling them to gain market share in countries of the industrial

TABLE 2 - Ten products at the SITC 3-digit level with the highest growth in export value (1890–1913)

Product	Digit	Category	Absolute growth (millions of pesetas)	Relative growth (%)
Iron ore and concentrates	281	RB2	+102.3	+168.9
Fruit and nuts, fresh, dried	057	PP	+101.3	+142.6
Copper	682	PP	+45.9	+7787.4
Fish, crustaceans and molluscs, prepared or preserved, nes	037	RB1	+37.9	+417.5
Cork, natural, raw and waste	244	PP	+36.7	+163.7
Vegetables, fresh or simply preserved; roots and tubers, nes	054	PP	+31.1	+363.5
Wool and other animal hair (excluding tops)	268	PP	+24.3	+300.0
Fixed vegetable oils, soft, crude refined or purified	423	RB1	+22.0	+183.6
Ores and concentrates of base metals, nes	287	RB2	+18.9	+20.9
Cotton fabrics, woven (not including narrow or special fabrics)	652	LT1	+17.7	+97.4

Source: Own work based on Spain's foreign trade statistics.

Notes: See notes for Table 1.

core (Pinilla and Ayuda 2010; Gallego and Pinilla 1996, p. 403). Other products, such as wool, cork or textile goods also gained weight in exports. With respect to the products that lost the most weight, first we can highlight wine (alcoholic beverages). After being the product with the highest weight in the export structure of 1890, the tariff increase of France (and other countries) and the emergence of new competitors, such as Algeria, explain its poor behaviour in foreign markets (Pinilla and Ayuda 2002). Furthermore, cereals and their derivatives (in this case, flours), lost weight between the two years, with a particularly large fall in their growth rate. This is explained by the fact that it was not a competitive sector, due, among other factors, to the agro-climatic conditions (Ayuda and Pinilla 2020). Animal feed, iron and steel ingots, articles of wood, other textile products and soap also lost weight abroad. Therefore, despite an intra-sectoral reorganisation of the different products, the export structure was similar on an aggregate level between 1890 and 1913, as shown in Table 1.

Table 4 shows the 10 countries with the highest weight in Spanish exports in 1890 and 1913. We can observe an apparent degree of diversification between the two years. In 1890, the two principal destinations (France and Great Britain) accounted for 67 per cent of total exports. In 1913, the weight of

TABLE 3 • Ten products at the SITC 3-digit level with the greatest degrowth in export value (1890–1913)

Product	Digit	Category	Absolute growth (millions of pesetas)	Relative growth (%)
Alcoholic beverages	112	RB1	–117.0	–66.4
Non-ferrous base metal waste and scrap, nes	288	RB2	–19.3	–238.8
Wood manufactures, nes	635	RB1	–11.2	–93.5
Meal and flour of wheat and flour of meslin	046	RB1	–9.4	–31,974.5
Knitted or crocheted fabrics (including tubular, etc., fabrics)	655	LT1	–4.1	–2,975.1
Ingots and other primary forms, of iron or steel	672	MT2	–3.7	–253.7
Feeding stuff for animals (not including unmilled cereals)	081	PP	–3.4	–43.6
Soap, cleansing and polishing preparations	554	MT2	–3.3	–275.9
Lead	685	PP	–3.2	–283.0
Wood, simply worked, and railway sleepers of wood	248	RB1	–2.6	–53,112.1

Source: Own work based on Spain's foreign trade statistics.

Notes: See notes for Table 1.

these two countries fell to approximately 45 per cent. Another indication of the improvement in the diversification can be found in the Herfindahl Index. This fell from 0.26 points in 1890 to 0.12 in 1913 on a destination level.⁸ However, it should be noted that the fall in wine exports to France probably explains a significant part of this diversification. Moreover, although countries such as the United States or Argentina gained weight among the principal destinations, a good part of the export value was still bound for Europe. The case of Cuba, the Philippines and Puerto Rico are also noteworthy. The loss of the last colonies meant that sales to these destinations reduced considerably, particularly in the cotton goods sector (Sudrià 1983).

Finally, Graphs 2 and 3 show the weight of each Lall category in the two principal export destinations: France and Great Britain. In line with total exports, we can observe that in both years the primary products and resource-based products (PP and RB) made up the majority of exports to both destinations. The weight of Mediterranean agricultural products, such as preserves, oranges and lemons increased considerably, particularly in the United Kingdom. For example, in 1913, the products “Fruits and nuts, fresh or

8. To calculate the Herfindahl Index, we have used all of the destinations, not only the 10 countries with most weight.

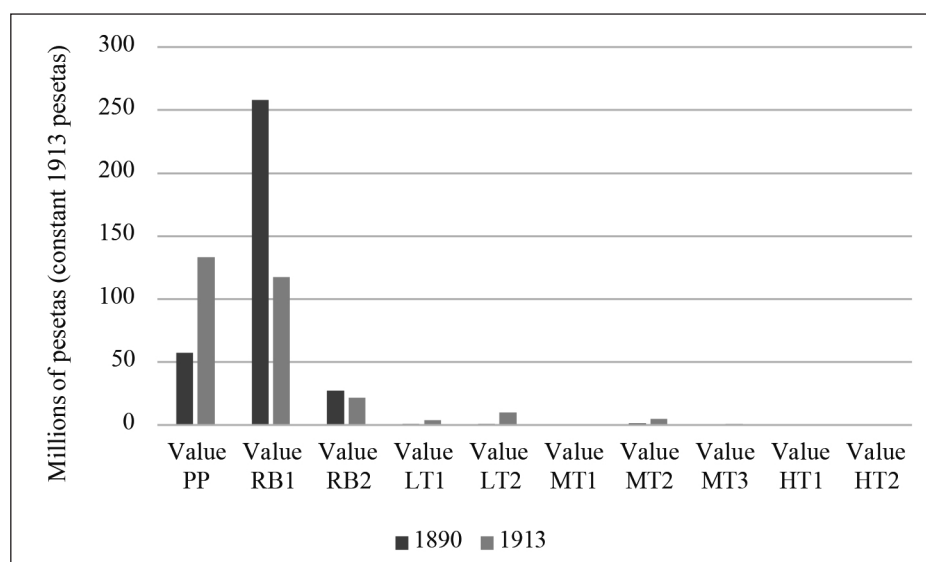
TABLE 4 • Destinations with the greatest weight in Spanish exports

Country	Export value in 1890 (%)	Country	Export value in 1913 (%)
France	42.81	France	23.16
Great Britain	25.06	Great Britain	21.79
Cuba	10.04	Germany	6.98
Portugal	3.01	The United States	6.85
The United States	2.84	Argentina	6.71
Puerto Rico	2.58	The Netherlands	6.02
Belgium	2.48	Cuba	5.55
Argentina	1.76	Belgium	4.23
The Netherlands	1.60	Italy	3.14
Germany	1.36	Portugal	2.78

Source: Own work based on Spain's foreign trade statistics.

Notes: See notes for Table 1.

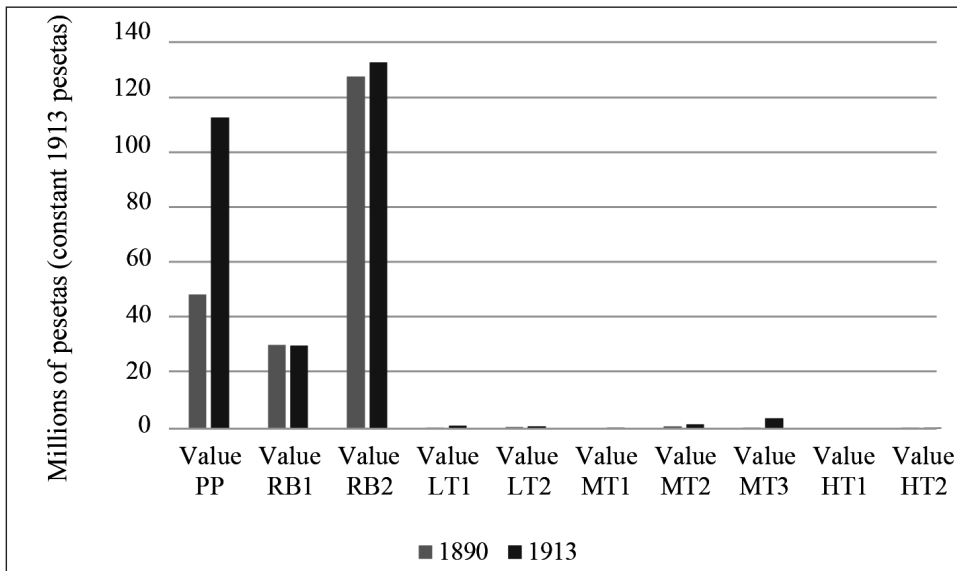
dried”, and “Vegetables, fresh or simply preserved; roots and tubers, nes” were concentrated in Great Britain and France, accounting for 56 and 77 per cent respectively of the total exported value. Consequently, agricultural exports

GRAPH 2 • Value of exports to France according to the 3-digit Lall category

Source: Own work based on Spain's foreign trade statistics.

Notes: See notes for Table 1.

GRAPH 3 • Value of exports to Great Britain according to the 3-digit Lall category



Source: Own work based on Spain's foreign trade statistics.

Notes: See notes for Table 1.

found important destinations in Europe where they gained market share. In this way, it was able to compensate, at least partly, for the strong reduction in wine exports to France (which can be observed in the large fall in RB1). On the other hand, the weight of products with a high value added (LT, MT and HT) in France and Great Britain was minute. This would indicate that, unlike manufactured goods, the Mediterranean agricultural products and minerals found large markets where they could grow intensively.

The debate on Spanish industrialisation

The problems of the export sector and the lack of consolidation of the industrial process in Spain has generated much debate in the literature. This debate has revolved around Spain's economic backwardness. According to Nadal, the problems of industry and the lack of presence in international markets were explained by the backwardness of agriculture. In other words, the low wages due to an unproductive agriculture implied a lack of demand by the industrial sector. This lack of demand constituted the principal obstacle for industry to compete internationally (Nadal 1975; Nadal and Sudrià 1993). On the other hand, there is a vision that is less critical of the agricultural development. Unlike Nadal's point of view, it claims that agriculture

was relatively dynamic and behaved similarly to that of the countries of southern Europe. However, environmental, social and trade factors, together with the lack of dynamism in industry, limited both economic development as a whole and the expulsion of the workforce towards the industrial sector (Gallego 2001; Silvestre 2005).

Other authors attribute the inability to compete internationally to industry itself. That is, with a relatively low domestic demand, the manufacturing-industrial sector directed its sales towards the domestic market instead of specialising and competing globally. As a result, the weight of industrial exports in Spain was lower than that of countries with a similar domestic demand (Tena 2010). Therefore, Spain's economic backwardness would not have been a problem of demand, but supply. The literature also points to the behaviour of the exports of manufactured goods after the loss of the last colonies to explain the lack of export dynamism. The reasoning behind this is that, as they could not openly compete, they attempted to place their goods in the colonies (Prados 1999). Therefore, when political dominance was lost in the Antilles, industry opted to seek protection rather than compete internationally.

Focusing on these supply arguments, we will analyse the extent to which industry behaved in a conservative way or sought to compete in external markets.

Spanish export margins

The analysis of the value of exports on a product and destination level confirms two facts. First, the comparative advantages of the Spanish economy were based on Mediterranean agricultural products and minerals. Second, it corroborates the absence of industrial products in foreign sales. As previously mentioned, some authors attribute Spain's economic backwardness to supply. They argue that the manufacturing sector did not seek to compete internationally and used the protectionist policy as a tool to reserve the domestic market.

At this point, we will attempt to respond to the main question contemplated in this study. To what extent did manufacturing companies in Spain seek to sell their products in foreign markets? In order to respond to this question, Table 5 breaks down the growth of exports between 1890 and 1913 using formulas 1 and 2, in absolute values (millions of pesetas) and relative values (relative contribution of each margin).

As we can observe in the last column, total export growth was mainly based on the intensive margin. Of the growth of 454 million between the two years, 354 is explained by the intensive margin (651-297) or, in other words, the net contribution of this margin to total growth was 77.7 per cent $((651.07 - 297.88) / 454.37)$. The extensive margin grew principally due to products that were exported in both years to new destinations (17 per cent) and, to a lesser

extent, due to new export products (7.4 per cent). On the other hand, in general, the negative extensive margin (products or countries that disappear) was hardly significant.

In order to determine the behaviour of industry in foreign markets, we have compared the margins in the different technological sectors.

TABLE 5 • Breakdown of Spanish exports in margins (1890–1913)

	PP	RB1	RB2	LT1	LT2	MT1	MT2	MT3	HT1	HT2	Total
New products (extens +)	0.00	17.46	0.24	14.5	0.03	0.50	0.00	0.11	0.56	0.00	33.40
Products that disappeared (extens -)	-0.01	-0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.14
Same products to new countries (extens +)	19.57	21.54	18.21	8.40	6.83	0.00	2.11	0.15	0.00	0.24	77.06
Same products that lost countries (extens -)	-2.82	-3.06	-0.47	-2.16	-0.61	0.00	0.02	0.00	0.00	0.00	-9.14
Same products to same countries (intens +)	309.12	120.83	142.81	33.99	27.12	0.00	9.96	4.81	0.00	2.44	651.07
Same products to same countries (intens -)	-21.35	-198.82	-43.93	-19.97	-4.64	0.00	-8.76	-0.38	0.00	0.00	-297.88
Total growth	304.52	-42.17	116.85	34.75	28.73	0.50	3.26	4.69	0.56	2.68	454.37
Net contribution of product extensive margin %	0.00	41.3	0.20	41.72	0.11	100	0.00	2.32	100	0.00	7.32
Net contribution of country extensive margin %	5.5	43.83	15.18	17.95	21.63	0.00	64.25	3.19	0.00	9.03	14.95
Net contribution of intensive margin %	94.5	-184.94	84.62	40.33	78.26	0.00	35.82	94.49	0.00	90.97	77.73

Source: Own work based on Spain's foreign trade statistics.

Practically all of the primary products (PP) grew based on the intensive margin (94.5%). Products such as eggs, fruit, legumes, potatoes, dirty and clean wool, fresh meat, etc., significantly increased their value to the same countries. The behaviour of agro-industrial products (RB1) was highly conditioned by wine. On the one hand, the loss of sales to France implied that the net contribution of the intensive margin was negative (-184.95%). However, wine exports also diversified towards a large number of new countries. Furthermore, new agro-industrial products emerged, such as preserved Mediterranean fruit and vegetables or unworked wood, which increased the extensive margin. As we have seen, these same Mediterranean agricultural products, together with olive oil, considerably contributed to the intensive margin, exporting particularly to high-income countries (France and Great Britain). However, this was not enough to prevent overall negative growth in agro-industrial products (-42.7 million).

Other resource-based goods (RB2) also grew, mainly due to the intensive margin (84.62%). The increase in iron ore exports and, to a lesser extent, those of copper, accounted for practically all of the growth of this margin (also to high-income countries). With respect to textile goods (LT1), we can observe that the extensive margin represented the majority of total growth (practically 60 per cent). The product that most contributed to the extensive margin on a product level was the export of t-shirts and trousers, while on a country level, white, dyed and printed cotton fabrics accounted for the majority of the growth of this margin. In turn, the latter, together with spun fabrics, increased their value in the same countries, positively contributing to the intensive margin. Other fabrics with a higher value added (tulles, leather gloves, plain-weave pure silk fabrics, etc.) did not have a significant weight in either of the two margins. With regard to medium-tech products (MT1, MT2 and MT3), the extensive margin also contributed to a good part of total growth. Chemical products, such as glycerine or turpentine and metals and alloys or iron worked in different ways, explain most of the growth of the extensive margins on a country and product level. On the other hand, turpentine and other chemical products (not expressed) grew intensively. Finally, we can observe how new, more technologically advanced products (HT1 and HT2), such as telegraph and phonograph apparatus or electric arc and other types of lamps, made the extensive margin grow, while pharmaceutical products grew intensively. Products with a high value added, such as more advanced machinery or automobiles had an insignificant impact on the margins.

If we order those products that were sent to the most new destinations between 1890 and 1913, we can see that the majority were goods with a low value added. For example, the product that was exported to the highest number of new countries was preserved vegetables (37 new destinations), followed by dresswear (36), preserved fruit (29), leather (22), iron ingots (21), etc. Other manufactured products, such as footwear, cork products, cotton fabrics, medicinal and pharmaceutical products, articles of wood, paper and cardboard, printed matter, baby carriages, toys, musical instruments, spun fabrics, etc., were sent to between 10 and 20 new countries. On the other hand, primary products were systematically found in the last positions, revealing their lack of dynamism when finding new markets.

Therefore, in response to the question: to what extent did Spanish industry try to compete in foreign markets?, an analysis of the margins reveals that while the intensive margin explains most of the growth of primary products (PP) and raw ore (RB2), textile and chemical products (of low value added), other manufactured products, processed metals or even relatively sophisticated apparatus, such as telegraphs or lamps grew extensively. Therefore, we cannot affirm that there was an “accommodating” process of the manufacturing sector towards the domestic market during this period, but, both on a product and country

level, the extensive margin of the manufactured products behaved more dynamically than that of primary products. In fact, on an aggregate level, the behaviour of the margins of Spanish exports was very similar to that observed in Japan. Japan was characterised during that period by its highly dynamic manufactured goods export sector (Meissner and Tang 2018). Another way to show that Spanish industry as a whole did not simply seek to reserve the domestic market is to analyse the evolution of the margins, comparing the domestic market and foreign markets. If the hypothesis of “accommodation” of the Spanish manufactured goods towards the domestic market is correct, we should observe a more dynamic extensive margin within the country than outside. In order to carry out this comparison, we have used the territories of the Canary Islands, Ceuta and Melilla as a representation of the domestic market. This implies that we should interpret the data with caution because probably part of the “exports” to these territories were subsequently re-exported internationally. Given that we are interested in analysing the industrial sectors, we have only included the categories LT, MT and HT. Furthermore, as the domestic market is a single destination, we have only analysed the extensive margin on a product level.

In line with aggregate exports, the growth in industrial sales as a whole, both in the domestic market and internationally, was dominated by the intensive margin. However, the extensive margin (value of new exported products) was more than 20 times higher in the foreign market than in the domestic market. In fact, the extensive margin in the domestic market was negative, due to the fact that sales of products such as iron and steel or carved marble were discontinued. Therefore, manufactured goods were more dynamic in international markets than in the domestic market.

Finally, we will examine the behaviour of industrial exports with respect to the loss of the colonies. Focusing on the textile sector, the literature has shown how the Catalan industrial sector was able to expand nationally, de-

TABLE 6 - Breakdown of industrial Spanish exports in margins (1890–1913)

	Domestic market	Foreign market
New products (extens +)	0.09	15.70
Products that disappeared (extens –)	–0.13	0.00
Same products (intens +–)	4.84	59.47
Total growth	4.80	75.17
Net contribution of extensive (%)	–0.90	20.90
Net contribution of intensive margin (%)	100.90	79.10

Source: Own work based on Spain's foreign trade statistics.

Notes: The domestic market is represented by the sum of sales to the Canary Islands, Ceuta and Melilla.

veloping a trade network and adapting to the needs of the clients. However, on an international level, industry was reluctant to expand, even though it had opportunities to do so (Prat and Soler 2002). Nevertheless, the literature also reveals how, once the colonies had been lost, the Catalan companies contemplated exporting internationally, creating the *Mutua de Fabricantes de Tejidos, reguladora del mercado y exportación* (Mutual Association of Weavers, market and export regulator). This enabled them to increase the sales of cotton fabrics to countries such as Argentina, Turkey and even France (Sudrià 1983). However, the lack of competitiveness hindered a greater international expansion of the Catalan fabrics.

With our database, we can broaden the focus and observe the behaviour of industrial products (LT, MT and HT in our case) that were traditionally exported to the colonies before and after they were lost (that is, in 1890 and 1913). On an aggregate level, the value of the industrial products exported to Cuba, Puerto Rico and the Philippines represented 71.7 per cent of total industrial exports in 1890. After these colonies became independent, the weight of industrial exports to these destinations fell to 27.45 in 1913. In spite of this, the total value in absolute terms of industrial sales grew by 52 per cent (although, as previously explained, the growth in the exports of primary products was higher). The reduction in the export value was compensated by the increase in exports to countries such as Argentina, France, Germany, Uruguay, Great Britain and Belgium. The industrial exports to these six countries grew from representing 13.2 per cent of total industrial exports in 1890 to 42.3 per cent in 1913. However, there were some sectors (products) that were more affected than others. For example, practically 80 per cent of leather gloves sales corresponded to exports to Cuba in 1890. In 1913, their weight in the colonies was a little over 30 per cent, but their absolute value increased between the two years because countries such as Germany, France and Great Britain raised their imports of this product considerably. White, dyed and printed cotton fabrics, thread lace and trimmings behaved similarly, although in this case Argentina and Turkey also became important importers. In addition to textiles, manufactured goods such as toys and playing cards, musical instruments or books, which exported around 30 per cent of their sales to the colonies in 1890, managed to reposition their exports to Latin American countries (Mexico, Colombia, Argentina and Uruguay) and to Europe to continue expanding internationally. Other products, such as soap, empty sacks or blankets did not recover after the loss of the colonies.

Therefore, in general, the exports of manufactured goods traditionally exported to the colonies were dynamic, finding new destinations once the empire had dissolved completely. However, the primary products were more dynamic in international markets than manufactured products, probably because they were more competitive. As we will discuss in the following section, this

leads us to believe that the behaviour of manufactured goods was conditioned by supply factors (competitiveness), trade costs and the structure of the demand of the destinations.

An additional explanation for Spain's slow industrialisation: difficulties in external demand

The analysis of the margins has enabled us to corroborate that the manufactured goods with a low and medium value added found new destinations in which to position their products. In other words, although this was a turbulent period in which Spain lost its last colonies, its protectionism increased and it failed to join the gold standard, the manufactured products continued to reach new destinations and new products were exported. Why did the manufacturing sector not gain more weight in the export structure in terms of value between 1891 and 1913? One possible explanation resides in the demand of the new destinations to where the manufactured products were exported. In order to analyse this question, we have classified the growth in exports in terms of margins in accordance with the income of the destinations, as explained in the methodology.

TABLE 7 - Breakdown of Spanish exports in margins (1890–1913): high-income destinations

	PP	RB1	RB2	LT1	LT2	MT1	MT2	MT3	HT1	HT2	Total
New products (extens +)	0.91	12.06	0.30	1.17	0.00	0.25	0.03	0.10	0.24	0.00	15.06
Products that disappeared (extens -)	-0.01	-0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.12
Same products to new countries (extens +)	5.14	17.84	6.54	0.76	2.72	0.00	1.73	0.02	0.00	0.09	34.84
Same products that lost countries (extens -)	-1.73	-2.31	-0.19	-0.20	-0.01	0.00	0.00	0.00	0.00	0.00	-4.44
Same products to same countries (intens +)	270.77	77.09	131.89	17.59	17.07	0.00	9.64	4.28	0.00	1.10	529.44
Same products to same countries (intens -)	-14.12	-171.18	-43.42	-0.43	-0.70	0.00	-1.75	-0.03	0.00	0.00	-231.62
Total growth	260.96	-66.60	95.12	18.89	19.08	0.25	9.65	4.38	0.24	1.19	343.15
Net contribution of product extensive margin %	0.40	18.30	0.30	6.20	0.00	100.0	0.30	2.30	100.0	0.00	4.40
Net contribution of country extensive margin %	1.30	23.30	6.70	3.00	14.20	0.00	17.90	0.50	0.00	7.40	8.90
Net contribution of intensive margin %	98.30	-141.30	93.0	90.90	85.80	0.00	81.80	97.20	0.00	92.60	86.80

Source: Own work based on Spain's foreign trade statistics.

TABLE 8 - Breakdown of Spanish exports in margins (1890–1913): middle-income destinations

	PP	RB1	RB2	LT1	LT2	MT1	MT2	MT3	HT1	HT2	Total
New products (extens +)	0.17	4.21	1.67	4.19	0.00	0.14	0.00	0.00	0.01	0.00	10.41
Products that disappeared (extens -)	-0.14	0.00	-0.02	0.00	-0.53	0.00	0.00	0.00	0.00	0.00	-0.70
Same products to new countries (extens +)	9.97	2.77	0.43	1.13	2.87	0.00	0.13	0.04	0.00	0.02	17.35
Same products that lost countries (extens -)	-0.03	-0.02	-0.03	-0.06	-0.01	0.00	0.00	0.00	0.00	0.00	-0.15
Same products to same countries (intens +)	15.31	30.30	6.39	7.57	2.80	0.00	0.15	0.09	0.00	0.72	63.33
Same products to same countries (intens-)	-3.18	-18.91	-0.08	-6.33	-1.36	0.00	-5.69	-0.01	0.00	0.00	-35.56
Total growth	22.09	18.37	8.35	6.50	3.77	0.14	-5.42	0.12	0.01	0.74	54.67
Net contribution of product extensive margin %	0.11	22.94	19.75	64.52	-14.09	100.0	0.04	0.51	100.0	0.00	17.75
Net contribution of country extensive margin %	44.99	15.00	4.71	16.40	75.80	0.00	-2.33	32.02	0.00	3.12	31.45
Net contribution of intensive margin %	54.90	62.05	75.55	19.07	38.28	0.00	102.29	67.47	0.00	96.88	50.80

Source: Own work based on Spain's foreign trade statistics.

TABLE 9 - Breakdown of Spanish exports in margins (1890–1913): low-income destinations

	PP	RB1	RB2	LT1	LT2	MT1	MT2	MT3	HT1	HT2	Total
New products (extens +)	0.01	1.21	1.02	9.02	0.02	0.11	0.00	0.01	0.31	0.00	11.71
Products that disappeared (extens -)	0.00	-0.02	-0.01	0.00	-0.00	0.00	-0.00	0.00	0.00	0.00	-0.03
Same products to new countries (extens +)	1.52	0.85	7.79	6.45	1.24	0.00	0.23	0.09	0.00	0.13	18.29
Same products that lost countries (extens -)	-0.89	-0.72	-0.22	-1.83	-0.02	0.00	-0.01	-0.00	0.00	0.00	-3.70
Same products to same countries (intens +)	21.96	12.89	4.53	8.81	7.25	0.00	0.17	0.44	0.00	0.62	56.66
Same products to same countries (intens -)	-4.03	-8.68	-0.44	-13.21	-2.58	0.00	-1.35	-0.34	0.00	0.00	-30.63
Total growth	18.56	5.51	12.68	9.24	5.91	0.11	-0.97	0.19	0.31	0.75	52.30
Net contribution of product extensive margin %	0.03	21.43	8.03	97.58	0.39	100.0	-0.07	3.92	100.0	0.00	22.32
Net contribution of country extensive margin %	3.38	2.25	59.68	50.04	20.59	0.00	-22.34	46.69	0.00	17.47	27.90
Net contribution of intensive margin %	96.59	76.32	32.29	-47.62	79.02	0.00	122.41	49.39	0.00	82.53	49.77

Source: Own work based on Spain's foreign trade statistics.

The three tables show considerable differences in the net contributions of each margin, particularly between the high-income destinations and the middle and low-income destinations. In the high-income destinations (Table 7), the total intensive margin represented the majority (86.8%). Furthermore, this was the case in all of the categories (except for the agro-industrial products (RB1), due to the reduction in the export value of wine to France). On the other hand, the growth pattern of exports was remarkably different in the middle-income destinations and particularly the low-income destinations (Tables 8 and 9). On the one hand, the total extensive margin had a much higher net contribution (around 50 per cent) and, on the other hand, the extensive margin was significantly high in manufactured products, particularly in textiles (LT1). For example, in the low-income destinations, the extensive margin in textile exports contributed practically 150 per cent to total growth and in the middle-income destinations around 80 per cent. The extensive margin in other low-tech goods (LT2) was more than 50 per cent in middle-income destinations and 20 per cent in low-income destinations. The extensive margin of other resource-based goods (RB2) represented the majority in low-income destinations (mainly due to the export of lead to Russia). In products with a greater value added (MT and HT), the intensive margin was also dominant in low and middle-income destinations (except for products related to engineering industries (MT3)).

The different growth patterns in accordance with the potential income of the destinations reveals that the manufactured products, particularly those with a low technological level, were dynamic when exporting to new destinations, but those with a low potential income. Again, this behaviour of the manufactured goods export sector was very similar to that of Japan, where, between 1880 and 1910 the weight of manufactured goods exported to low-income countries grew significantly.

The implications of this are reflected in the fact that, in terms of value, the manufactured products did not gain more weight in 1913. Therefore, as the primary products did find large markets (France and Great Britain) where they grew intensively, the export structure between 1890 and 1913 remained mostly agricultural.

Why did Spanish companies decide to send so many manufactured products to these types of countries despite their low potential demand? While there is no simple answer to this question, one possible explanation resides in the lower fixed costs with respect to other countries.

If we analyse in which countries there was a higher increase in the number of manufactured products, we can find destinations such as Panama, Costa Rica, Santo Domingo, Ecuador, Salvador, Chile, Brazil, Bolivia, Nicaragua, Turkey, Honduras, etc. In other words, mostly countries where Spain shared colonial ties, which implied lower fixed costs due to factors such as diplomatic relations, the advantage of sharing the same language, or emigration.

Furthermore, we know that the diplomats and commercial agents sent by Belgium constituted an important factor in explaining the trading success of the country during the First Globalisation (Huberman, Meissner, and Oosterlinck, 2017). Similarly to Belgium, Spain had also established a network of diplomats in different countries in around 1911, who drew up trade reports in each destination and identified possible market opportunities. It is illustrative to observe that countries such as the United States, France and Great Britain had less Spanish diplomats per inhabitant (0.0002, 0.002 and 0.001 diplomats per 1,000 inhabitants, respectively) than Panama, Argentina, Uruguay, Guatemala, Puerto Rico, Cuba, Peru, El Salvador and Bolivia (between 0.02 and 0.003 diplomats per 1.000 inhabitants).⁹ Although it is merely a hypothesis, greater diplomatic relations (reflected in a higher number of diplomats) in countries of the industrial core could have bolstered manufactured goods exports to these destinations, as in the case of Belgium.

With respect to emigration, we know that during this period, the majority of Spanish emigrants went to America and Europe was a residual destination (Sánchez-Alonso 2015, p. 13). Furthermore, the literature reinforces the connection between exports and emigration. For example, in the Italian case, emigration played an important role in the demand for national products (Timini 2020). For North America, immigration was also important for the import of finished and differentiated goods (Dunley and Hutchinson 1999). For the Spanish case, although in more recent times, emigration fostered exports from the extensive margin (Peri and Requena-Silvente 2010; see also, on this topic, the historical analysis by Fernández 2004, Pinilla and Serrano 2008, and Ramon-Muñoz 2009). Diplomatic reports in the years prior to the First World War also indicate Spanish immigration as an important factor in exports. One Spanish diplomat located in Panama highlights the importance of the large colony of Spaniards to explain the success of Spanish imports in 1910 (where the sending of new manufactured products is remarkable) (*Memorias Diplomáticas* 1912a). Another diplomat posted in New York in 1912 indicates the lack of Spanish immigrants with respect to other countries as an obstacle to exports (*Memorias Diplomáticas*, 1912b).

However, it is also true that Argentina had a significant number of diplomats and also accounted for the majority of Spanish emigration. In spite of this, the growth in the number of new manufactured goods was low (although some goods, such as spun fabrics, printed material or glass grew intensively, but the majority of the growth of the value exported to Argentina is explained by wine, oil and fish).

9. The number of diplomats per person has been obtained from the *Anuario de Comercio* (1911) and the number of inhabitants per country from Bolt et al. (2018).

Therefore, we cannot rule out the hypothesis of the lack of competitiveness to explain the absence of manufactured products in the export structure between 1890 and 1913. Goods with a low and medium value added were probably exported to low and middle-income destinations because they could not compete in more developed countries. In other words, there were two opposing forces. On the one hand, the lower fixed costs in countries with colonial ties implied that the manufactured goods grew extensively towards these destinations. Given that they were low-income countries, this hindered a greater presence of manufactured goods in Spanish exports. On the other hand, the low competitiveness of these products hindered their growth in high-income countries. In any case, what is questionable is whether the lack of a presence of manufactured goods in the export structure between 1890 and 1913 was due to a lack of attitude or business culture. Either due to a lack of competitiveness or to lower trade costs, manufactured products were dynamic from the extensive margin. As affirmed by Nadal and Sudrià when comparing business attitudes between Spain and the world powers: “men, in the end, are alike everywhere” (Nadal and Sudrià, 1993, p. 199).

Conclusions and future research

The shift towards nationalism constituted a period of economic divergence in Spain with respect to Europe. According to Carreras and Tafunell, although there is no consensus about the causes underlying this process, the data do not leave room for doubt (Carreras and Tafunell 2010, p. 207). The analysis of disaggregated exports and in terms of the margins has enabled us to complement, discuss and add certain causes for Spain’s economic backwardness. Furthermore, this methodology is a way to connect microeconomic and macroeconomic explanations (Valdaliso 2004) in order to understand the behaviour of companies in international markets.

We have observed that the manufacturing companies were able to find new destinations in which to place their products. Therefore, we cannot confirm a process whereby industry reserved the domestic market. Moreover, we can observe a different behaviour between the industrial and agricultural sectors: the Mediterranean agricultural products and minerals found large markets (France and Great Britain) in which to grow intensively, which explains why the export structure continued to be based on primary products. On the other hand, manufactured products were exported to low-income countries, due to the relatively low trade costs and the lack of competitiveness.

However, the greater diversification of manufactured goods with respect to primary products could explain the lack of consolidation in international markets. This behaviour could have occurred in emerging sectors (Tena and

Ayuso 2020). In other words there could have been a reverse causation. For this reason, future research should investigate in depth the causes that explain the different behaviour between agricultural exports (and that of certain minerals) and the exports of manufactured goods. This would help us to understand the weight of competitiveness and trade costs in determining the entry of each exported product. As described in the final part of this study, the roles of emigration and of diplomatic relations (among other factors) in exports should be quantified.

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Appendix. General considerations regarding the database

In this study, we have selected two years of reference for analysing the first globalisation: 1890 and 1913. The reason why we chose these dates is because 1890 was the year prior to the passing of the protectionist tariff of 1891 and 1913 was the year before the outbreak of the First World War. We have not

included returned goods and temporary exports. Furthermore, we have also eliminated the export of gold and silver coins.

With respect to the correction of the official values, we have followed exactly the same methodology as that used by Tena (2005, p. 600-606). First, the biases of the official series have been corrected by multiplying the values of each product exported in 1890 and 1913 by the coefficients 0.94 and 1.3, respectively. Second, pesetas have been converted into gold pesetas with the coefficients provided by Tena: 1.0524 for 1890 and 1.0836 for 1913. Third, again using Tena's series, prices have been converted into constant 1913 prices. In order to estimate the latter, Tena uses the series provided in Prados de la Escosura (1988), that is "deflating the export and import series in 1913 pesetas-gold by the respective price indices of the series".

One limitation generated by this rectification of the official series is that it is applied to each of the products, despite the fact that they were made for aggregate values. In other words, it is likely that not all the products had the same bias as the total aggregate bias. However, precisely for this reason, this limitation does not affect the differences between agricultural and manufactured products (which is the most relevant aspect of this study), because, as we have seen, all of the products are multiplied by the same coefficient.

One may believe that the increase in the number of products does not correspond to a real increase but to the fact that the official source contemplates new products as variations of the same. For example, in 1890, the official source could include the item "motor vehicles" and in 1913 this could be disaggregated into "cars", "tractors" and "lorries", but, in reality, these products could already be included in 1890 in the item "motor vehicles". In order to clarify this point, we have used as an example all of the real products exported within digit number 7. In 1890, there were only two products in this digit: "Machinery" and "Carriage with two and four wheels". In 1913, digit number 7 included: "Other machines", "power machines", "phonographs, gramophones and other similar apparatus", "Telegraph and telephone apparatus", "Electric arc lamps", "All types of lamps and chandeliers", "Automobiles", "Carriages and sedans with four seats", "All other carriages for ordinary roads" and "Carriages for railways and trams". Although it is possible that certain new products were, in fact, an "accounting illusion", it is more probable that, due to our degree of aggregation (3 digits), the opposite is true. That is to say, that there were many new products that were not counted as being new as they were classified at the 4 or 5 digit level and, therefore, "disappeared" when the 3-digit level was introduced.

SITC Classification: modifications and assumptions in the 3-digit level classification

As previously explained, the classification has been made at the 3-digit level. This means that, of the 275 “real” products exported in 1890 in the official classification there are 108 at 3 digits. In 1913 they decreased from 384 to 120 at 3 digits. Therefore, each good at the 3-digit level includes several “real” goods. For example, the export of all types of wine, which had a lot of weight in Spanish exports, are classified in “Alcoholic beverages”, corresponding to digit 112. This means that within this digit other alcoholic beverages are also included, such as beer and cider.

We have also found some products in the official statistics that could only be classified at the 1-digit level. Therefore, we have had to carry out assumptions. For example, in the official statistics of 1890, there is an item called “machinery” which can only be classified at 1 digit. An attempt has been made to correct this by using English imports in 1890 (as a reflection of Spanish machinery exports) in order to determine whether machinery imports from Spain were disaggregated any further. However, it was not possible to correct this using this method because the machinery imported from Spain is classified in the English statistics as “Other articles”. The same was attempted with the imports of France, with the same result. Finally, we opted to assume that the item “machinery” was classified in the digit 714: “Engines and motors, non-electric; parts, nes; group 714, item 71888”.

The elimination of all of the items that contain currency also constituted a problem for the SITC classification. This is because in 1890 there was an official item called “silver paste and coin” and “silver paste”. When the item of 1890 “silver in paste and coin” was eliminated as it contained currency, the item “silver paste” of 1913 appeared as a new product with a high value, thereby modifying the extensive margin in an illusory way, as it was not a new product. We decided to separate the item “silver in paste and coin” of 1890 into two different items, distributing the value of each in a similar way to the items “silver paste” and “silver in coin” of 1913. Subsequently, the item “silver in coin” of 1890 was eliminated.

Classification of products in terms of technological value (Lall)

The following table shows all of the products at the 3-digit level which have been used in the study together with their corresponding Lall category.

TABLE A 1 • *SITC products at the 3-digit level in 1890 and 1913 classified according to technological value (Lall)*

Telecommunication equipment, nes; parts and accessories, nes	764	HT1
Electrical machinery and apparatus, nes	778	HT1
Medicinal and pharmaceutical products	541	HT2
Leather	611	LT1
Manufactures of leather or of composition leather, nes; etc.	612	LT1
Textile yarn	651	LT1
Cotton fabrics, woven (not including narrow or special fabrics)	652	LT1
Textile fabrics, woven, other than cotton or man-made fibres	654	LT1
Knitted or crocheted fabrics (including tubular, etc., fabrics)	655	LT1
Tulle, lace, embroidery, ribbons, trimmings and other small wares	656	LT1
Special textile fabrics and related products	657	LT1
Made-up articles, wholly or chiefly of textile materials, nes	658	LT1
Floor coverings, etc.	659	LT1
Outerwear knitted or crocheted, not elastic nor rubberized	845	LT1
Clothing accessories, of textile fabrics, nes	847	LT1
Articles of apparel, clothing accessories, non-textile, headgear	848	LT1
Footwear	851	LT1
Paper and paperboard, precut, and articles of paper or paperboard	642	LT2
Iron and steel bars, rods, shapes and sections	673	LT2
Universals, plates, and sheets, of iron or steel	674	LT2
Rails and railway track construction materials, of iron or steel	676	LT2
Manufactures of base metal, nes	699	LT2
Printed matter	892	LT2
Baby carriages, toys, games and sporting goods	894	LT2
Office and stationary supplies, nes	895	LT2
Works of art, collectors' pieces and antiques	896	LT2
Gold, silver ware, jewelry and articles of precious materials, nes	897	LT2
Musical instruments, parts and accessories thereof	898	LT2
Other miscellaneous manufactured articles, nes	899	LT2
Gold, non-monetary (excluding gold ores and concentrates)	971	LT2
Passenger motor vehicles (excluding buses)	781	MT1
Alcohols, phenols etc., and their derivatives	512	MT2
Pigments, paints, varnishes and related materials	533	MT2
Soap, cleansing and polishing preparations	554	MT2
Explosives and pyrotechnic products	572	MT2

(Continued on next page)

Miscellaneous chemical products, nes	598	MT2
Pig and sponge iron, spiegeleisen, etc., and ferro-alloys	671	MT2
Ingots and other primary forms, of iron or steel	672	MT2
Trailers, and other vehicles, not motorized, nes	786	MT2
Railway vehicles and associated equipment	791	MT2
Fertilizers, manufactured	562	MT2
Armoured fighting vehicles, war firearms, ammunition, parts, nes	951	MT2
Engines and motors, non-electric; parts, nes; group 714, item 71888	714	MT3
Other non-electric machinery, tools and mechanical apparatus, nes	745	MT3
Gramophones, dictating machines and other sound recorders	763	MT3
Watches and clocks	885	MT3
Live animals chiefly for food	001	PP
Meat and edible meat offal, fresh, chilled or frozen	011	PP
Eggs, birds', and egg yolks, fresh, dried or preserved	025	PP
Fish, fresh, chilled or frozen	034	PP
Wheat and meslin, unmilled	041	PP
Rice	042	PP
Barley, unmilled	043	PP
Maize, unmilled	044	PP
Cereals, unmilled	045	PP
Vegetables, fresh or simply preserved; roots and tubers, nes	054	PP
Fruit and nuts, fresh, dried	057	PP
Coffee and coffee substitutes	071	PP
Cocoa	072	PP
Spices	075	PP
Feeding stuff for animals (not including unmilled cereals)	081	PP
Margarine and shortening	091	PP
Hides and skins, excluding furs, raw	211	PP
Cork, natural, raw and waste	244	PP
Fuel wood and wood charcoal	245	PP
Silk	261	PP
Cotton	263	PP
Wool and other animal hair (excluding tops)	268	PP
Fertilizers, crude	271	PP
Stone, sand and gravel	273	PP
Other crude minerals	278	PP
Crude animal materials, nes	291	PP

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Crude vegetable materials, nes	292	PP
Coal, lignite and peat	322	PP
Silver, platinum and other metals of the platinum group	681	PP
Copper	682	PP
Lead	685	PP
Zinc	686	PP
Tin	687	PP
Tea and mate	074	PP
Tobacco unmanufactured; tobacco refuse	121	PP
Crude petroleum and oils obtained from bituminous minerals	333	PP
Meat and edible meat offal, in brine, dried, salted or smoked	012	RB1
Meat and edible meat offal, prepared, preserved, nes; fish extracts	014	RB1
Cheese and curd	024	RB1
Fish, dried, salted or in brine; smoked fish	035	RB1
Fish, crustaceans and molluscs, prepared or preserved, nes	037	RB1
Meal and flour of wheat and flour of meslin	046	RB1
Other cereal meals and flour	047	RB1
Cereal, flour or starch preparations of fruits or vegetables	048	RB1
Vegetables, roots and tubers, prepared or preserved, nes	056	RB1
Fruit, preserved, and fruits preparations	058	RB1
Sugar and honey	061	RB1
Sugar confectionery and preparations, non-chocolate	062	RB1
Chocolate and other preparations containing cocoa, nes	073	RB1
Edible products and preparations, nes	098	RB1
Non-alcoholic beverages, nes	111	RB1
Alcoholic beverages	112	RB1
Other wood in the rough or roughly squared	247	RB1
Wood, simply worked, and railway sleepers of wood	248	RB1
Vegetable textile fibres, excluding cotton, jute, and waste	265	RB1
Old clothing and other old textile articles; rags	269	RB1
Fixed vegetable oils, soft, crude refined or purified	423	RB1
Other fixed vegetable oils, fluid or solid, crude, refined	424	RB1
Animal and vegetable oils and fats, processed, and waxes	431	RB1
Materials of rubber	621	RB1
Wood manufactures, nes	635	RB1
Paper and paperboard	641	RB1
Special transactions, commodity not classified according to class	931	RB1

(Continued on next page)

Tobacco, manufactured	122	RB1
Iron ore and concentrates	281	RB2
Waste and scrap metal of iron or steel	282	RB2
Ores and concentrates of base metals, nes	287	RB2
Non-ferrous base metal waste and scrap, nes	288	RB2
Briquettes; coke and semi-coke; lignite or peat; retort carbon	323	RB2
Petroleum products, refined	334	RB2
Residual petroleum products, nes and related materials	335	RB2
Animal oils and fats	411	RB2
Inorganic chemical elements, oxides and halogen salts	522	RB2
Other inorganic chemicals; compounds of precious metals	523	RB2
Dyeing and tanning extracts, and synthetic tanning materials	532	RB2
Essential oils, perfume and flavour materials	551	RB2
Starches, insulin and wheat gluten; albuminoidal substances; glues	592	RB2
Lime, cement, and fabricated construction materials	661	RB2
Clay and refractory construction materials	662	RB2
Glass	664	RB2

Source: Own work.

Classification of the export destinations in accordance with income

The countries to which Spain exported at least one product in 1890 or 1913 are the following:

Fernando Po, Germany, Al-Hoceima, Andorra, Algeria, Argentina, Austria-Hungary, Belgium, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Chile, Denmark, Ecuador, Egypt, United States, Philippines, Finland, France, Gibraltar, Great Britain, Greece, Guatemala, Haiti, The Netherlands, Honduras, Italy, Japan, Morocco, Mexico, Nicaragua, Norway, Panama, Peru, Portugal, Puerto Rico, Romania, Russia, Salvador, Santo Domingo, Sweden, Switzerland, Turkey, Uruguay, Venezuela, China, Tunisia, Bulgaria, Siam, French colonial possessions in Africa, French colonial possessions in America, English colonial possessions in Africa, Danish colonial possessions in America, Dutch colonial possessions in America, English colonial possessions in America, English colonial possessions in Asia, English colonial possessions in Europe, Dutch colonial possessions in Oceania, English colonial possessions in Oceania.

As we can observe, the number of destinations is underestimated. This is because the official statistics group the colonies of third countries as a single destination according to the continent. For example, exports to New Zealand

and Australia are classified as “English colonial possessions in Oceania”. Therefore, when we analyse exports as a whole, we consider each group of colonies associated with the colonising country as a single destination. However, when we divided the countries in accordance with demand, we excluded the colonies from the analysis as it was impossible to classify them due to the heterogeneity of the possessions of each colonising country.

The criterion for differentiating between countries of low, middle and high potential income is as follows: we consider countries as having a low potential income if their GDP per capita is below percentile 30 of the world GDP per capital distribution of 1913. The countries with middle potential income are those between percentiles 30 and 70 and the high potential income countries are those above percentile 70. The database of Maddison has been used for the income of each country.

Countries considered to have high potential income (HI): Germany, Argentina, Belgium, Denmark, the United States, France, Great Britain, the Netherlands, Switzerland.

Countries considered to have middle potential income (MI): Andorra, Austria-Hungary, Cuba, Chile, Finland, Gibraltar, Italy, Japan, Norway, Panama, Sweden, Uruguay.

Countries considered to have low potential income (LI): All the remaining countries.



The behaviour of Spanish industry in international markets (1890–1913)

ABSTRACT

The role played by Spanish industry in international markets during the first globalisation has led to deep discussion in the literature. Some scholars indicate that, even though the national demand was weak, Spanish industrial firms chose to focus on the domestic market rather than competing in global markets. We dispute this hypothesis based on a disaggregated analysis of Spanish exports and of their margins in 1890 and 1913. We find that manufacturing firms were dynamic enough in order to find new external markets and to export new products. However, the potential demand of these new destinations was too low to encourage industrial development. Thus, an element of Spain's economic backwardness is explained by a lack of foreign demand.

KEYWORDS: first globalisation, international trade, Spanish industrialisation, exports

JEL CODES: F14, N63, N73, F19



El comportamiento de la industria española en los mercados internacionales (1890-1913)

RESUMEN

El papel que desempeñó la industria española en los mercados internacionales durante la primera globalización ha generado un intenso debate en la literatura. Parte de ella considera que, a pesar de una débil demanda nacional, la industria optó por reservarse el mercado interior en lugar de competir en el exterior. En este trabajo nos cuestionamos esta hipótesis a partir de un análisis desagregado y en los márgenes de las exportaciones españolas en 1890 y 1913. Se pone de manifiesto que las empresas manufactureras fueron muy dinámicas encontrando nuevos destinos donde exportar nuevos productos. No obstante, estos nuevos destinos tenían una demanda potencial demasiado baja como para fomentar el desarrollo industrial. Por tanto, una parte del atraso económico español está relacionado con la falta de demanda exterior.

PALABRAS CLAVE: primera globalización, comercio internacional, industrialización española, exportaciones

CÓDIGOS JEL: F14, N63, N73, F19



El comportament de la indústria espanyola als mercats internacionals (1890-1913)

RESUM

El paper que va tenir la indústria espanyola en els mercats internacionals durant la primera globalització ha generat un debat intens en la literatura. Part de la literatura considera que, a pesar d'una dèbil demanda nacional, la indústria va optar per reservar-se el mercat interior en lloc de competir a l'exterior. En aquest article ens qüestionem aquesta hipòtesi a partir d'una anàlisi desagregada i als marges de les exportacions espanyoles a 1890 i 1913. Les empreses manufactureres van ser molt dinàmiques a l'hora de descobrir nous destins on poguessin exportar nous productes. No obstant això, aquests destins tenien una demanda potencial massa baixa per fomentar el desenvolupament industrial. Per tant, una part de l'endarreriment econòmic espanyol està relacionat amb una falta de demanda exterior.

PARAULES CLAU: primera globalització, comerç internacional, industrialització espanyola, exportacions

CODIS JEL: F14, N63, N73, F19