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Vertical integration or specialisation: producing and commercialising cotton goods (1815-1913)

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Abstract: This article describes the ways in which cotton goods were commercialised during the nineteenth century and the first third of the twentieth. Several national cases are analysed: Britain, as the Workshop of the World; France, Germany, Switzerland and the US, as core economies; and Italy and Spain as countries on the European periphery. The main question that we address is why some cotton industries vertically integrated their production and commercialisation processes, but others did not. We present a model that combines industrial district size and product differentiation to explain why vertical integration was present in most cases and why there was vertical specialisation in Lancashire and Lowell.

JEL Classification: L22, L81, M31, N60, N70, N80

Keywords: Cotton Industry, Commercialisation, Vertical Integration, Vertical Specialisation, Industrial Revolution, Transaction Costs, Industrial Organization.

Resum: Aquest article descriu com es comercialitzaven els teixits de cotó durant el segle XIX i el primer terç del XX. S'analitzen diversos casos nacionals: la Gran Bretanya, com a "taller del món" que era; quatre economies centrals com França, Alemanya, Suïssa i els Estats Units; i dos països europeus perifèrics, Itàlia i Espanya. La principal pregunta que es planteja és per què algunes indústries cotoneres integraven verticalment la producció i la comercialització, i en canvis d'altres no. Es proposa un model que combina la dimensió del districte industrial i la diferenciació de producte per explicar per què hi havia integració vertical en la majoria dels casos i per què hi havia especialització vertical al Lancashire i a Lowell.

Paraules clau: indústria cotonera, comercialització, integració vertical, especialització vertical, revolució industrial, costos de transacció, organització industrial.

This article addresses one of the most important questions in Industrial Organization: whether the firm or the market represents the better choice. In 1937 Ronald Coase asked why firms existed, and why all the assignments of resources were not produced via the market, which is, in theory, the most efficient form[1]. His answer was that negotiations in the market bore a cost, and that when this cost was too high the firm represented a better option. Within a few years of Coase's initial intuition, transaction costs had become the subject of a vast body of literature which aimed to explain the existence and the functioning of firms and institutions as market substitutes. Inside this trend, Oliver Williamson has tried to account for the phenomenon of vertical integration: why, in certain cases, the same firm carries out the various phases of the productive process and why, in other cases, these tasks are carried out by different firms.

This article aims to analyse the different ways in which cotton fabrics were commercialised during the nineteenth century and the first third of the twentieth. The main issue at stake is the choice between vertical integration and vertical specialisation: that is, in which cases, and why, did manufacturers play a part in the commercialisation of their fabrics, and in which others did they concentrate solely on production, leaving commercialisation to specialised firms?

The sector chosen for the study, the cotton industry, is particularly interesting for two reasons. First, cotton was the main consumer good in the first Industrial Revolution. Second, its commercialisation has received less attention than its production; although the importance of commercial aspects in the success of an industry (especially a consumer goods industry) is universally acknowledged today, and although distribution and commercialisation very often represent more added value than production, the processes of commercialisation have often been overlooked by economic history studies.

This paper is divided into two parts, one descriptive and the other analytical. In the first we present case studies from several countries, comparing and contrasting the ways in which cotton industries commercialised their products. This descriptive part will take up the first three sections of the article. The first section will be devoted to Great Britain, the world leader in cotton for more than a century. The second focuses on four industrial countries: France, Germany, Switzerland and the US, and the third looks at two countries on the European periphery, Italy and Spain. In the fourth section we then construct a model to explain the cases studied and to obtain some general rules on the choice between vertical integration and vertical specialisation in the commercialisation of consumer goods. The final section presents our conclusions.

I

Lancashire, the main British cotton district, has been regarded as the paradigm of perfect competition and market coordination. The existence of many suppliers competing in each of the phases of the productive process made the victory of the vertical specialization possible. All the markets at which the company had to participate were efficient: raw cotton market, thread, crude fabric, machinery, labour markets, financial and commercial services... The external economies of the industrial district permitted the British cotton industry be the most competitive throughout the nineteenth century[2]. Therefore, specialization also characterized the marketing of the fabrics. But before this model succeeded, there were some transformations.

In the British case three stages can be distinguished: control of the marketing by London wholesalers; manufacture and marketing integration under the figure of the merchant-manufacturer; definitive victory of specialization between manufacture, marketing and financing of the sales.

According to M. Edwards[3], during the first two thirds of the eighteenth century, the dominant figure in the marketing of the fabrics was the London wholesaler. This city was an important centre of the silk industry and a place of calicoes' printers, clothes' cutters and designers. It was the main consumer market of Great Britain and the centre where fashion was dictated. Big wholesalers of this city controlled the fabrics trade of the whole country and exerted much influence on the production of the manufacturers of the Northern areas.

According to S.D. Chapman[4], in the 1770's, coinciding with the modernization of the textile productive structure, manufacturers of the North were facing unsuitable commercial structures. This caused that many manufacturers to become involved in marketing their products, mainly in distant markets. The blockade of the European market during the wars with France caused some manufacturers to finance expeditions to put their products in North America and even South America. The cycle of the circulating capital was lengthened because of distance and   collection difficulties. Those markets -especially South America- were little known. Therefore supply often failed to meet the demand, i.e. fashion or needs, of this region. In order to sell their fabrics, manufacturers had sometimes to be paid in kind, thus having to trade in products that were not their speciality. These things contributed to lengthening the cycle of circulating capital and prevented banks from finance such operations. Liquidity problems very often brought about the ruin of these daring or desperate merchant-manufacturers.

As in many cases the integration of production and commercialisation was a traumatic experience, this system was changed. From 1800, according to M. Edwards, or from the end of the French Wars, according to S.D. Chapman, merchant-manufacturers became only merchants or only manufacturers. The division of functions triumphed: industrialists were devoted only to production. Commission agents (merchants with a little capital that were established in the final markets) were devoted to the seeking of clients. Sales were financed by accepting houses, which were companies with a large amount of capital. Then although London remained the financial centre, it was no longer the distribution centre, the later moving to Manchester and Liverpool, especially in the export business.

The system of specialization between production, commercialisation and financing lasted until the twentieth century. In Whittam (1907) we find a concise description of how the distribution system worked in the British cotton industry at the beginning of twentieth century. I quote a very illustrative paragraph:

"It is a magnificient system for economizing in expense of distribution. Consider an example: The representative of a shipping house wishes to fill an order for, say, printed calicoes. On'change he finds many weavers of this class of goods. The goods are purshased in the gray. He next finds a printer and bargains with him as to price, pattern, and delivery. The weaver then turns to the spinner and purchases the yarn to make the order, which, when completed, is shipped by the weaver to the printer, who in turn delivers it finished to the shipper's warehouse, were the lot is examined, labeled, folded, packed,etc., by men who thoroughly understand the tariff requirements of the purchaser abroad. So far as spinners and weavers go, Manchester business is done on practically a cash basis, terms being 2 ½ per cent off fourteen days. It is safe to say that not 5 per cent of the English cotton manufacturers are directly engaged in foreign trade, and these are firms of long standing, making fancy goods and specialties. The shipper, with his established connections in and salesmen covering many countries, buys from the manufacturer on the usual terms. Leaving the maker of merchandise to attend to his particular duties, the shipping firm shoulders the long credits, packing, invoicing, and all details which make a manufacturer shudder when explained to him. Many of these firms have their headquarters in foreign countries, having come to Manchester simply because there they can most advantageously buy every kind of cotton product needed, made to meet the tastes, uses, and pocketbooks of their customers".[5]

This paragraph makes it quite clear that specialization continued, each activity being carried out by a different economic agent, and that the shipper, that is to say, the merchant involved in the export trade, coordinated the whole process[6]. He gathered orders from customers abroad, and found the gray cloth and someone to finish it. He then tested the quality and prepared the product to be sent. He also had a financial function, paying the manufacturers quickly and giving credit to their clients. But in doing so, he received the inestimable help of banks:

"Consider for a moment the convenience to a shipper who has taken a note at, say, three, four, or six months in payment for his merchandise. He accepts or indorses the note, and

then, whatever country his costumer may reside in, the exporter can discount the paper in London and at once turn the cash into his business again".[7]

It is thus clear that the manufacturer has no other function than producing the fabrics (yarn or cloth). He had nothing to do with distribution and he did not give any credit. The merchant coordinated supply with demand and brought the products to the costumers. He gave them credit, with the financial help of the banks. Whittam (1907), as well as Pratt (1917), are US Government Reports. From the American point of view, this system was the best for manufacturers, especially for selling abroad. In their descriptions of the Lancashire distribution system, Mass and Lazonick both underline its flexibility, which they regard as one of the main factors in British success in the nineteenth century. However, they also claim that the inability of the system to adapt to new technology (for instance, automatic looms and ring frames) caused it to lose competitiveness in international markets after the First World War.[8] In contrast, Broadberry and Marrison argue that the system actually slowed the region's decline, because it was specially suited for high-quality goods.[9]

In spite of these differences in opinion, there is a broad consensus among scholars and contemporaries about how British cotton goods were marketed in the hundred years or so until the First World War. Manufacturers kept out of the commercialisation process; the merchant (the shipper) had a central role, with support from the banking system to finance sales.

II

Unfortunately the case of France is less clear. This is perhaps a problem of less available information or - and this is not necessarily bad- the reality was more complex. Patrick Verley (1997), speaking about textiles in general, compares France with Britain and arrives at the conclusion that the French system was better for manufacturers: they exerted more control over the commercial channels; they were more involved in the marketing of their products; they decided what to produce whereas in Britain merchants told manufacturers what they had to do.

Claude Fohlen (1956) explains the evolution in textile trade during the nineteenth century. He describes the decadence of local institutions. For instance, *Les Halles* in Rouen was the central textile market –first of linen cloth, then of cotton- of the Normand industrial district until the 1840s. Then, when weaving became mechanized, firms set up their own storehouses and warehouses in Rouen. Trade was done from the official institution, which was more suitable for the rural and scattered firms than for those concentrated in towns. The emergent figure at that time was the commissioner, who sold by commission or who at the same time sold his own goods and played an important credit role. The commissioner could be a firm from Paris as well as from the industrial cities.

The textile trade traditionally was carried out at fairs, annual meetings where textiles were traded at regional or national level. One of the most important was the Beaucaire Fair.[10] The fairs had progressively to compete with other mechanisms: the storehouse, the commercial traveller and the consignation. Before the 1830s some industrial firms established their own stores in certain cities, as a way of bringing the merchandise closer to consumers. Connected with these storehouses were the commercial travellers, who sold the storehouse's fabrics within a certain radius from their storehouse. Storehouse employees also visited the fairs. The leading mechanism in this period was, however, consignation. This consisted in giving in trust fabrics to a merchant, *le consignataire*, who sold them when he had a good opportunity. He usually advanced money to the manufacturer before their fabrics were sold, playing an essential credit function.

The system changed in the middle of the nineteenth century. The number of storehouses decreased, until they could be found only in Paris and in certain European capitals, and at the same time they became less a place where merchandise was stocked and more an office were orders were made. The *consignateur* lost his central position as creditor with the appearance of the *comptoirs d'escompte* and the warrants, another source of financing manufacturers' working capital. The commercial traveller became more important, being the middleman between the industrial firm and the clients. Originally closely connected with the storehouse, he became more and more independent. With the improvement in communications, stocking near the consumer became less important because fabrics could be brought quickly from the factory. The importance of storehouses thus decreased and the traveller became the central player of marketing. Information and products flowed more quickly and this had positive consequences in the capital needs of the selling process.[11]

At the same time, another mechanism reduced the intermediation between the industrial firm and the consumer: *les Grands Magasins* appeared in the third quarter of the nineteenth century, bridging middlemen, increasing the scale of the retail business and reducing the margin of commercial intermediation.

In short, Fohlen gives us an image of modernisation of textile marketing from the middle of the nineteenth century and an increasing proximity of manufacturers in this function, within the process of the home market integration and improvement in communications.

For the beginning of the twentieth century we have a British testimony of the French cotton industry: R. B. Forrester.[12] He gives us a mixed image of how cotton cloth marketing was done. He says that some of the industrial firms sold their products directly to the retailers, while others sold them through agents in the main cities, earning a commission of between 0.5 and 1 per cent. He confirms the strength of the large-scale departmental storehouse, by-passing middlemen. The most interesting thing is the relation between the type of product and how it is commercialised. Cloth that was finished by the manufacturer, like stripes and fancies, was sold directly by the manufacturer himself, while cloth that had to be finished, bleached or dyed, was passed on to the merchant who had control of the distribution and coordinated the process. In cloth that had to be printed, printers controlled the process, buying the fabrics. The paragraph below is very illustrative:

"The nature of the goods determines to a certain degree whether the merchant function will be a distinct and independent business from that of the manufacturer; where the goods are sufficiently gradable to be bought for finishing in different ways, for printing, dyeing, and

so on, the merchant steps in, but for special classes of goods and for goods which have the mark of a firm, private markets may be made by private salesmen".[13]

In short, the person who controlled the product differentiation controlled the distribution channel because he had to have direct information of consumers' tastes. This is an interesting idea that can be generalised.

To sum up, the French case appears less clear than the British one. Vertical specialisation does not appear to be the only form of relation between manufacturers and merchants and French manufacturers perhaps exercised more control over the marketing of their products than the British ones.

For Germany we only have information for the beginning of the twentieth century. Two foreign reports, one American[14] and the other British[15] give a description of how German cotton goods were sold at this time. The American one stresses the German ability to penetrate foreign markets with certain cotton products – laces, hosiery – thanks to the flexibility of the industry, its quickness in adapting to the consumers' tastes and its availability to accept small orders. The high performance of German travellers and the long-term credits they offered – especially in Turkey and Egypt- were also powerful tools. In the first decade of the twentieth century, the Germans were following more and more the British pattern of relation between bankers and merchants. The German banks were establishing branches abroad in order to help the financing of exports.

From the British point of view banks involved with sales financing were still fewer in Germany than in Britain:

"...the German manufacturer has to give credit to a far greater extent than is customary in England. The facilities afforded by the banks in the shape of overdrafts, which play such an important part in the commercial and perhaps to a less degree in the manufacturing branches of the industry in Lancashire, are far superior to similar facilities afforded by German banks."[16]

German banks, on the other hand, were more involved in financing industrial undertakings.

Dehn underlines the geographical dispersion of the German cotton industry and the absence of a centralised market for yarn, grey cloth and finished fabrics like Manchester in Britain. In Germany yarn and cloth manufacturers dealt directly with their local clients and used agents for selling out of their region. Some of these yarn and cloth agents were very important firms that had a network of other agents in the main centres and were often financially interested in mills whose products they sold. Other mills, however, maintained their own agents in these centres.

In Dehn's description there again appears the relation that we have already seen in France between the type of product and the way it is commercialised. Manufacturers of coloured goods and fancies sold the goods in their finished state directly to wholesalers and very large retailers by means of travellers or agents. The biggest firms also reached small retailers by means of travellers. Most of them stocked merchandise in the main markets in order to supply their clients' small orders quickly. They also conceded credit to their clients. The manufacturers of staple cloths, on the other hand, had less control over the distribution channel because they were not involved in the last phases of the production process (bleaching, dyeing, finishing and printing). Nevertheless, some of the largest firms that integrated all the processes, from spinning to printing, also maintained the commercial function, selling the products to retailers through travellers.

To sum up, the German cotton industry, at the beginning of the twentieth century, had a more complex way of commercialising their products than the British one. Here, as in the French case, specialization is not always the rule. Manufacturers used their own structures as well as other economic agents in order to bring their products to the retailers. The commercial channel chosen depended on the type of product and the firm size.

A British report of the Swiss cotton industry at the beginning of the twentieth century[17] underlines the main differences in commercialisation between Britain and Switzerland. In

Switzerland the borderline between production and commercialisation was less clear. There was no centre such as Manchester where goods were warehoused and trade concentrated. In Switzerland, in contrast, goods were warehoused in the factory and sold directly from there. Moreover, unlike the British system, the grey cloth agent did not interpose himself between the manufacturer and the wholesaler. Manufacturers employed travellers to visit the wholesale houses and large retail firms and, less frequently, agents in the main cities. In grey cloth the wholesaler was the person who had the cloth dyed or bleached before it was distributed, while cloth for printing and embroidering was marketed by the calico printer or embroiderer.

When exporting abroad, manufacturers sold directly to European countries, while to Turkey, the Balkans, India and the Philippines trade was done mainly through shipping houses in Zurich, Paris, Genoa, London and Manchester, although direct trade was also carried on to these countries. Practically all exports to South America went through shipping houses. The printing and embroidering firms sold directly to foreign importers, giving long credits –between six and twelve months- mainly to India and Turkey.

In short, we find more involvement of the manufacturers in the marketing of their products than in the British case.

The American cotton industry has been seen as the counterpoint to the British case. Whereas Lancashire was known for its vertical specialisation, with the market as coordinator, a qualified labour force and a flexible industrial structure able to produce a wide range of cotton goods for the world market, the American cotton industry was vertically integrated; coordination took places at the level of the firm, labour-saving technology was adopted, and standard goods were produced for the home market.

Vertical integration was the rule in the production process, but not in the commercial phase. Though most American industrial sectors adopted vertical commercial integration in the second half of the nineteenth century (as Alfred Chandler has explained) in the cotton industry manufacturers were hardly involved at all in marketing until 1950s. This was true both in the case of the oldest American cotton centre, in northern Massachusetts, and in the industry that emerged in the South after Civil War, but not in the case of Philadelphia, which represented an exception in the US context.

The first commercial structures were established by British merchants, who until 1815 sent British cotton goods to New England through American agents. These sales were financed by British merchants or by British discounting houses. Around 1830 American commercial houses began to work on their own, but they still received British financial support because US legislation on international banking remained quite restrictive until 1914.

After 1820 the cotton industry grew fast in northern Massachusetts. *Boston Associates*, a group of eleven powerful merchants, built an integrated industrial complex with roads, channels, factories and houses in Lowell, alongside the great waterfalls. Establishing a modern industry in a virgin land required strong links between industry, infrastructure and banking, and *Boston Associates* was the visible hand in Lowell. The group also created selling agencies, but independent selling agencies soon appeared and became the main intermediaries between cotton firms and retailers. Each selling agency sold textiles from several manufacturers, but a cotton firm usually sold all its production through the same selling agency. As these agencies supplied credit to manufacturers, they had a strong bargaining hand and exerted an influence over what was to be produced and at what price. Because most of the production sold through these agencies was grey cloth, converters also played a prominent role, sending cloth to be bleached, dyed, printed or finished and, later on, selling it to wholesalers and retailers. Selling agencies and converters were progressively concentrated in New York, which became the commercial centre from where cotton goods were sold all over the country.

To sum up: American manufacturers were not involved in marketing; selling agencies and converters exercised some influence on the production process from outside, but did not coordinate spinning and weaving, which were vertically integrated inside industrial firms. The situation was similar in the South.

In Philadelphia, however, the manufacturers played a larger part in commercial matters. This textile district resembled the Lancashire model more than Lowell: it had smaller firms, a qualified workforce and vertical specialisation. External economies of scale were more important than internal ones and flexibility was the main reason for the industry's success. However, the Philadelphia district was much smaller than Lancashire. Big firms relied on outsourcing to small workshops in order to adjust to fluctuations in demand and the district became progressively specialized in high-quality, differentiated goods[18]. Moreover, after the Civil War many firms switched from cotton to wool. In the 1870s and 1880s Philadelphia became famous for its knitted wool, carpets and worsted goods, and for mixed fabrics combining wool and cotton.

With an industrial structure so unlike the Lowell model, it is not surprising that the commercial structures were also very different. Phillip Scranton has shown that Philadelphia firms had to be able to supply any product from a wide range in a very short time. As it was vital for them to obtain direct information from the market and from consumers, they had a strong incentive to take part in the process of commercialisation. Therefore, they did not rely on selling agencies to market their goods, but on their own travellers sent twice a year to New York – the country's fashion centre – and on jobbers, who placed large orders and informed them about new styles.

By the end of the 1880s many firms were in direct contact with retailers, building up their own commercial structures all over the US. Their salesmen travelled around the country by train for several months a year and sent their orders to headquarters by telegraph. Manufacturers also paid for buyers from the West to visit factories in Philadelphia, and built up a central textile market – the Bourse – where small merchants could buy their goods themselves. In 1893 only 16 per cent of textile firms in Philadelphia (employing a third of the workers in the sector), sold their goods through selling agencies, whereas in Lowell selling agencies organized the sales of the vast majority of firms (80 per cent, calculated in terms of number of workers). As Scranton says:

"Flexible production, direct selling, and partial-process manufacturing went hand in hand in Philadelphia's urban textile districts in the 1890s, just as a bulk orientation, commission agents, and integration were complementary elsewhere".

To sum up, whereas in northern Massachusetts and the southern States cotton manufacturers relied on selling agencies to market their goods and there was vertical specialisation between manufacturing and commercialisation, in Philadelphia manufacturers were much more involved in the commercial and financial spheres.

III

Valerio Castronovo, speaking about the Piedmontese cotton industry before the unification of Italy, and Roberto Romano, talking about the Lombard cotton industry before and after that event, report a high level of involvement of cotton manufacturers in the marketing of their goods. The comparison with Britain is, as in other cases, explicit. The authors take up the complaints of the businessmen of that time. The lack of a commercial sector as developed as the British one was regarded as a painful toll for manufacturers, who had to invest more money and time in selling their products. Their greater commercial involvement was considered to be a disadvantage of the backwardness of the country.[19]

During the second half of the nineteenth century the Italian market became integrated, thanks to the political unification and the improvements in communications, mainly in railways. Within this process the commercial effort of cotton manufacturers from the North was essential. Romano explains, in a Lombard cotton firm monograph,[20] how this firm progressively extended its market to the South of the country thanks to the enlargement of its own commercial structure. While originally one of the firm's owners would travel through Lombardy, Veneto, Emilia Romagna and le Marche visiting the clients, obtaining orders and collecting payments, when the market area was enlarged to the South the firm had to use other people as sellers. Therefore in the 1880s the firm embraced all the national market with a network of agents that worked at 2 per cent commission, selling to retailers as well as wholesalers. Another Lombard cotton firm in the 1870s reached to retailers through three storehouses in Milan, Florence and Naples, two agency offices in Rome and Genoa and four travellers. This commercial structure was reinforced in the 1880s.[21]

Agents and travellers were the main instrument used by the cotton firms to bring their goods to a huge number of small clients and, at the same time, to obtain quick information about the consumers' tastes and the state of the market. It is quite clear that in the second half of the nineteenth century the Italian cotton firms were far more commercially involved than were their British counterparts.

The portrait for the beginning of the twentieth century changes little. An American observer, Ralph M. Odell, stresses in 1912 the important role that manufacturers played in marketing:

"The sale of cloth in Italy is effected by a method different from both the English and the American system. While goods are sometimes sold through agents, the manufacturer looks to the buyer and not to the agent for payment. Large commission houses handling the product of many mills, as in the United States, are unknown in Italy. The leading firms sell direct through their own selling agents or traveling salesmen, not only in Italy, but in the Balkans and the Levant, where many companies maintain branch houses, and in South America".[22]

A British report,[23] two years earlier, gives a more balanced view: wholesalers played an important role buying from the manufacturers and selling to the retailers. In some cases the trade between manufacturers and wholesalers was carried out directly, while in other cases it was carried out through agents. Wholesale houses also played a coordination role in plain cloth, buying it in the grey state and sending it out to be finished, although in many cases manufacturers integrated the finishing process. In figured goods, on the other hand, manufacturers always controlled the finishing process. The reporter stresses, however, that many manufacturers used travellers to visit their customers.[24]

The export business needs special attention. Although the Italian cotton industry was a new-comer in the second half of the nineteenth century, at the beginning of the First World War it exported around one quarter of its production. Foreign observers look to the commercial structure, among other factors, to explain this success. Graham Clark, an American observer, stresses the good performance of Italian travellers, the flexibility of the firms in adapting to the consumers' tastes and their availability to accept small orders and late payments.[25] Odell stresses the manufacturers' involvement in marketing abroad and also the help that Italian banks gave them in order to concede long-term credits to the foreign customers.[26] Although some big industrial firms exported directly to the Levant and were represented in London, Manchester and New York, [27] the export houses played a very important role in taking the Italian clothes abroad, especially South America.[28] The commercial firm created by Enrico Dell'Acqua, described by a young Luigi Einaudi,[29] is the best example of the Italian commercial effort abroad. Therefore merchants as well as manufacturers deserve credit for the export success.

Contemporaries as well as historians have explained the important presence of Catalan textile manufacturers in the marketing of their products[30]. Catalan hegemony in the Spanish market has been possible through protection against foreign fabrics and through Catalan industrialists' commercial and financial effort. According to some authors, the characteristics of the Spanish market, poor and fluctuating, mean that the manufacturers also had to be involved in the marketing. They had to organize their own sale structures. Moreover, there was no flowing and regular payment system. The clients' refusal to sign any documents that assured payment prevented the banks from granting discounts[31]. This lack of "bankable matter" has been suggested as the cause of the relative banking underdevelopment of Catalonia[32]. The industrialists had to integrate functions that, in more developed countries, -the British case is always the reference- were accomplished in a specialized way. This brought about financial and organizational problems.

Next to this pessimistic approach, other authors have indicated the Catalan commercial dominance in the eighteenth century as a key factor in explaining the industrialisation process of this region in the nineteenth century[33]. The development process of the Catalan economy during the eighteenth century generated a “mercantile diaspora” that scattered Catalan traders through Spanish roads and ports. According to Jaume Torras[34], the “mercantile diaspora” is typical of backward economies, with difficult communications and little integrated markets. The ethnic or religious minorities have advantages when trading in an environment where the State does not guarantee the fulfillment of private contracts, where information is scarce and there is much uncertainty. Traditionally, trade in Spain had been in foreign hands, and this had facilitated the breakthrough of foreign products. The novelty of the eighteenth century was that a new national minority appeared, the Catalans, who seemed foreign – they spoke a different language and until 1714 had been part of another kingdom - but were not so. The Catalans’ presence in the peninsular trade helped the fabrics breakthrough of this region[35].

In any case, both visions agree in describing the deep involvement of Catalan cotton manufacturers in the marketing of their goods. Some contemporaries and scholars have stressed the main characteristics of the Catalan cotton district: it was twenty times smaller than Lancashire; firms were also smaller; but the degree of vertical integration was higher and each firm produced a wider range of goods than in the British case.[36]

The systematic analysis of several industrial firms, textile traders and legal sources that we describe here suggests that cotton manufacturers were keen to take part in the distribution process. Before the establishment of the railway network, they did so in a variety of ways; becoming partners in trading firms, opening warehouses in Spanish cities, signing exclusivity contracts with a merchant, and so on. A rough estimation for the period 1840-1866 indicates that between 45 and 65 per cent of cotton goods were sold through vertically integrated commercial structures.

From the mid 1860s onwards, with the establishment of a national railway network, cotton manufacturers used their own travellers and fixed agents to cover the Spanish market. This new system allowed manufacturers direct access to the market through a small sales team – between 4 and 7 men – and was progressively adopted by most firms during the last third of the nineteenth century. However, in both the old and the new system, large commission houses played an important role as middlemen. They always sold a substantial share of the cotton goods production and resisted the manufacturers' efforts to deal directly with retailers. Manufacturers built their own commercial structures because they needed to have a foothold close to consumers, but not because of a lack of merchants.

IV

After this overview of the international situation we now build an interpretative model or framework to explain why the processes of production and commercialisation of cotton fabrics tended to be separated in some countries but integrated (that is, performed by the same firm) in others.

As we have seen, the British case is the paradigm of vertical specialisation. In fact, when Alfred Marshall defined the concepts of industrial district and external economies of scale, the model he had in mind was Lancashire, the world's largest cotton district until the first third of the twentieth century[37]. The concentration of a large number of economic agents made vertical specialisation possible and established the market as the best coordinator of economic activity. The size of the district meant that for any of the markets of factors and intermediate products there were a great many suppliers and customers, with the result that each one of these markets was perfectly competitive.

In smaller districts, the fact that there were fewer participants in some of these intermediate markets was likely to create a certain market power for the suppliers or customers, that is, a problem of *asset specificity*. For a particular type of thread, for example, the size of the district might not allow more than two or three spinners. Obviously, these spinners might be able to establish an oligopoly over all the producers who needed their type of thread, and impose very strict conditions once the producers had specialised in the fabrics that required it. Or the reverse might be the case: spinners who had invested in specialised machinery might find themselves at the mercy of the few weavers who consumed their product. In this situation, as Oliver Williamson has noted, vertical integration is the best choice.

What I mean to stress here is that the smaller the industrial district, the more likely the problem of *asset specificity*, since it will have more markets of intermediate products with few participants. For example, a cotton district like Catalonia, twenty times smaller than Lancashire, had many more intermediate markets that were inefficient and were therefore likely to be better coordinated from inside the firm. That is, the smaller the industrial district, the more likely it was that the different stages of the productive process would be vertically integrated. Joan R. Rosés demonstrated this tendency in the case of Catalonia in the period between 1830 and 1861,[38] and the other cases studied provide evidence that vertical integration was more frequent than in Britain. Lancashire, the largest district and the one with the highest level of vertical specialisation, was the paradise of any supporter of the "invisible hand".

What relation did this have with commercialisation? Was the commercial function, or the relation between producers and traders, one of those markets that was inefficient if the industrial district was small? It is hard to answer in the affirmative. The commercialisation of fabrics did not require a particularly high level of specialisation; a trader who distributed one type of cotton fabric could distribute others, since the retailers were the same. In fact many traders sold cotton, wool, and other fibres. It cannot be claimed that a textile district like Catalonia or Lombardy, comprising hundreds of firms, was too small to support a large group of traders distributing fabrics in a situation of perfect competition. So a possible integration of production and commercialisation cannot be put forward as a way of solving the problem of *asset specificity* in the context of an excessively small district.

However, district size and the way in which production was coordinated may indeed be related to the degree of vertical integration. The interpretation I propose is that whoever coordinated the production process needed to be in touch with demand and be well informed regarding the needs and tastes of the consumers. In Britain, due to the size of the industrial district, vertical specialisation was the best system. It was the merchant-converters or shippers who coordinated the various stages of the production process, from the outside; it was they who ordered a particular type of product from the weavers, and it was they who contacted the bleachers or printers to finish the product in accordance with the design required.

The merchant-converters were ideally placed to track the fluctuations in demand and the changes in their consumers’ tastes, since, as traders, they were in charge of the channels of distribution and received direct information through them. So the people who had direct access to demand were the same people who coordinated production, even though they were not directly involved in it.

Significantly, this control from outside was only possible due to the large number of firms operating at each stage of the process, which permitted the efficient functioning of each of the markets involved in the production of cotton fabrics. A Manchester trader could accept an order from anywhere in the world with complete confidence; whatever thread was required, whatever fabric, whatever design, he knew that he would find more than enough manufacturers competing “perfectly” with each other who would be willing and able to produce it.

The smaller the industrial district, the fewer the firms participating in the intermediate markets, and the greater the likelihood that some of these markets would be inefficient. In these circumstances, firms might act as substitutes for the inefficient markets and take on some of the stages of the production process. We have seen that vertical integration was more frequent in small districts than in Lancashire. In the cases of vertical integration, it was the manufacturers who coordinated the productive process; as a result, they needed a firm foothold in the market in order to keep in touch with demand and to respond swiftly to fluctuations and changes in taste.

To sum up, whoever coordinated the productive process needed strong links to the demand side. If it was the trader, these connections could be taken for granted. If it was the manufacturer, he had to participate, in some way, in the commercialisation. This explains why in districts that were not as large as Lancashire the manufacturer had greater commercial involvement.

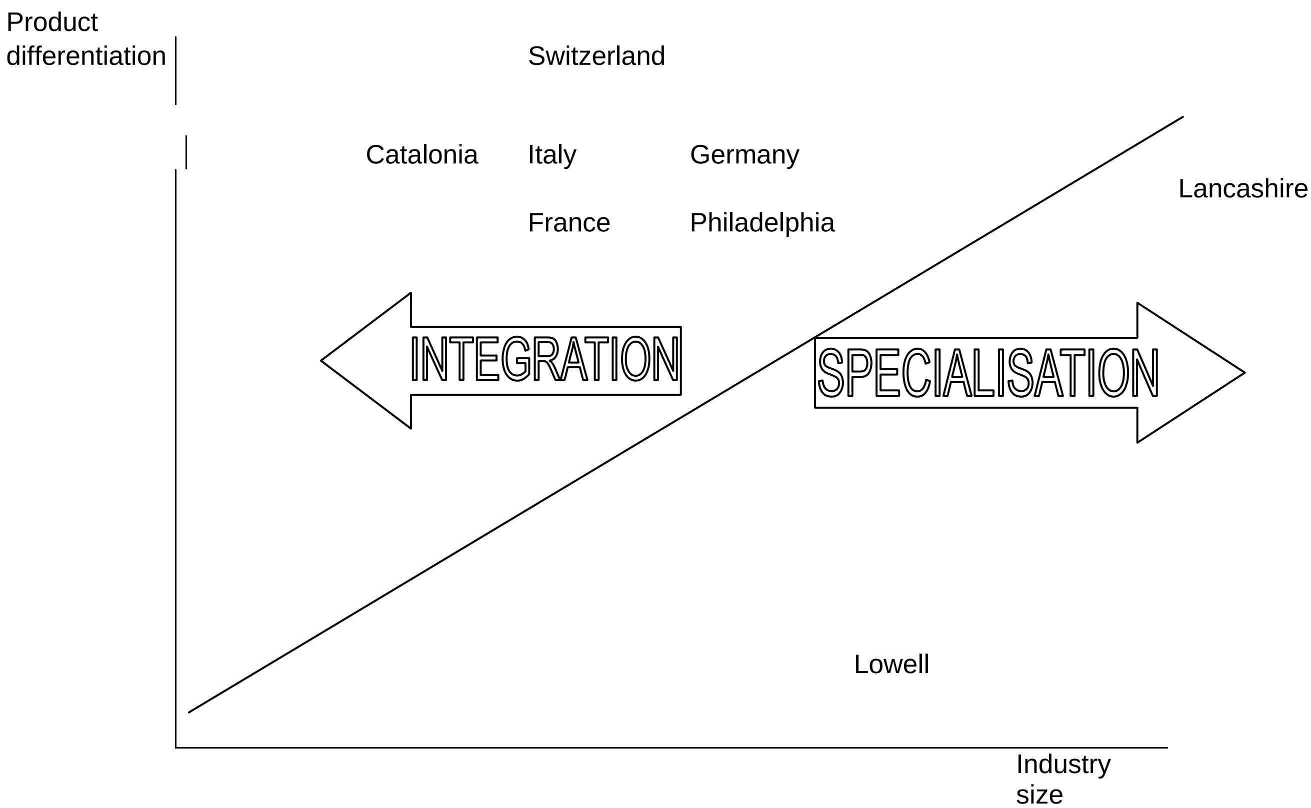
Was this connection between production and demand always necessary? The more differentiated the product, the more necessary it was. The commercialisation of a highly standardised product, in which the design of the finished product was of little importance, could be carried out without the need for a real link between production and commercialisation. It is this feature that explains the apparently exceptional nature of the Lowell model in our interpretation.

Indeed, vertical integration was predominant in northern Massachusetts, and the productive process was coordinated by the manufacturers. However, we have seen that the manufacturers, except at the initial stage, were not heavily involved in the commercialisation of their fabrics. Since the type of product they made was highly standardised and designed for mass consumption, the need for feedback between producers and consumers was not great; a simple regular contact between trader and manufacturer sufficed to channel the orders of a series of products which were always the same.

However, when the product was differentiated, direct communication with consumer tastes was vital. In the fabrics that were heavily influenced by fashion trends, or in the ones in which design played a key part, whoever took the decisions regarding production had to be very well informed regarding the wishes of the market. Manufacturers could only produce large quantities if they were sure that the designs would be well received and they had to be able to react swiftly to changes in demand. Feedback from customers was vital, and this obliged firms to secure a foothold in production and another in commercialisation. In fact, in the textile district of Philadelphia, with highly diversified products and a flexible industrial structure, the manufacturers constructed their own sales networks, and in the bibliography on other national cases the connection between product diversification and the involvement of manufacturers in commercialisation are recurrent features.

Figure 1 summarizes this argument. The x axis represents the industrial district size, and the y axis shows the degree of product differentiation. The cases studied are positioned in the quadrant in relation to these two characteristics. Lancashire, the largest cotton district and the one with the highest degree of product differentiation, is at the extreme upper left. According to our model, the degree of integration of production and commercialisation is higher in districts that combine product differentiation and small size, that is, those in the upper left part of the graph, above the imaginary diagonal line dividing the quadrant in two. As we can see, this was the case in most of our location. The two exceptions which opted for vertical specialisation were Lowell and Lancashire, for different reasons: the former because it produced highly standardised fabrics and did not need feedback from customers, and the latter because of its size and because its markets worked so well that traders could coordinate supply and demand without being directly involved in production.

Figure 1



This does not mean that vertical integration was absolute in the districts where it was present. As we saw in our analysis of the different cases, both channels of distribution might co-exist: the channel controlled by the manufacturers, and the one controlled by independent traders. Firms' choice of one or other option depended on a range of factors, among which the type of product and the size of the firm were the most important. The manufacturers who made differentiated products, more influenced by design and fashion, were more likely to vertically integrate their commercial structures. Since establishing their own commercial structure produced economies of scale, the large-scale manufacturers were better placed to integrate commercialisation than small ones. This highlights an interesting paradox: vertical integration between production and commercialisation was necessary when the district was not large enough for vertical specialisation, but it was only possible in firms that were not excessively small. In other words, size bore an ambivalent relation to integration, acting against it at the level of the district, but in favour at the level of the firm.

V

Through the study of the commercialisation of cotton fabrics during the nineteenth century and the first third of the twentieth, this article looks at the reasons that lead firms to opt for vertical integration or specialisation.

The comparison of a range of cotton industries in different countries adds further support to the conclusion that, in the processes of the Industrial Revolution in Europe, Britain was the exception rather than the rule. Although many non-British contemporaries and historians have regarded the processes of industrialisation in their own countries as anomalous or unorthodox with respect to the British paradigm, there is increasing evidence that the countries following Britain bear far more resemblance to each other than to the Workshop of the World. If we refer specifically to the structures of the commercialisation of cotton fabrics, it is clear that Lancashire, due to its size, achieved much larger district economies than any other region, and that the degree of specialisation of its firms was unparalleled, allowing traders to coordinate the productive process from outside. Nowhere else do we find this kind of industrial structure and organization of production, even though there may have been district economies.

Different industrial structures gave rise to different forms of commercialisation, because of the necessary interaction between production and demand. Consumer goods such as cotton fabrics, which on many occasions were differentiated and in which the design and colour of the print were vital, required very close and fluid contact between the productive system and the consumer. Consumers' wishes were transmitted through the structures of commercialisation, and so in most of the cases studied, the manufacturers, who controlled production, needed to be involved in these structures. Only in Britain, with an idiosyncratic productive structure controlled from the outside by traders, was this integration of functions unnecessary. Vertical integration was much more frequent in all the other cases in which there was product differentiation.

Today, when most consumer products are differentiated, no one questions the importance for firms of having first-hand information on consumers' tastes. Firms must have feedback from their customers if they are to remain competitive. The study of the commercial structures of the main consumer good industry in the first period of industrialisation shows how important the relation with the consumer had already become and how, depending on the sector's industrial structure, it affected the choice between vertical specialisation and integration.

Notes

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[1] Coase (1937).
[2] See Marshall (1920 a and 1920 b) and other authors like Chapman (1904), Sandberg (1974) or Farnie (1979).
[3] Edwards (1967)
[4] Chapman (1992)
[5] Whittam (1907), p. 31.
[6] Although here we are speaking about foreign trade, the same can be said for the home trade. See Pratt (1917), p. 14.
[7] Whittam (1907), p. 36.
[8] Lazonick (1981 a), (1981 b), (1986) and (1987); Mass and Lazonick (1984) and (1990)].
[9] See Broadberry & Marrison (2002). For another criticism of Mass and Lazonick's view, see Leunig (1996) and (1997).
[10] Fohlen (1956), p. 148.
[11] Fohlen (1956), p. 151.
[12] Forrester (1921), pp. 61-63.

[13] Forrester (1921), pp. 62-63.
[14] Clark (1908 b).
[15] Dehn(1913).
[16] Dehn (1913), p. 64.
[17] Besso(1910).
[18] In fact, after the Civil War, production of woollen and worsted goods increased in Philadelphia and many firms produced mixed fabrics [Rose (2000), p. 166; Scranton (1983), p. 212, 280-8.
[19] Castronovo (1965), p. 362 and Romano (1992 a), p. 359.
[20] The firm was *I Caprotti*, Romano (1980), Ch. 6, specially pp. 180-182.
[21] The firm was *Il Cotonificio Cantoni*, Romano(1992 a), pp. 363-364.
[22] Odell (1912), p. 25.
[23] Besso (1910), p. 178.
[24] Only the work of Francesca Bova gives the view that Italian manufacturers were less involved in marketing than the British ones, but she deals with a very specific company -"J & P Coats" and its Italian branch- in a very specific sector, yarn for sewing. [Bova (1993)], pp. 341-351.
[25] Clark (1908 a), pp. 74-105.
[26] Odell (1912), pp. 47-53.
[27] Besso (1910), pp. 178-179.
[28] Romano (1980), p. 172; Romano (1992 a), pp. 360-361; Romano (1992b), pp. 42-43; Besso (1910), p. 179; Clark (1908 a), pp. 74-76.
[29] Einaudi (1900).
[30] Vicens and Llorens (1958), Nadal (1985), Cambó (1915), Tallada in Sudrià (1982), Rahola, Graell et al. in Societat d'Estudis Econòmics (1908). Both Lluís Castañeda and Xavier Tafunell have described how the raw cotton market in Barcelona worked and the importance of cotton merchants as credit givers [Castañeda and Tafunell (1999)]. See also Soler (1997).

[31] J.M. Tallada (1944) and Nadal (1985).
[32] Cambó (1915) and Sudrià (1982).
[33] Vilar (1968), Torras (1987), (1989) and (1995) and Muset (1993)
[34] Torras (1987), (1989) and (1995)
[35] Two cases fit perfectly in the model of manufacturers that, in order to conquer new markets, also became merchants, avoiding the traditional distribution mechanisms. The first is a wool-dresser family of the eighteenth century, the Torelló, which managed to avoid guild structures [Torras (1987), (1989) and (1995)]; the second is a printed calico manufacturer of the end of the eighteenth and the beginning of the nineteenth century, Joan Rull, who reoriented his production -moving from the printing of linens into printed calico manufacturing- and built a commercial structure of his own when the colonial market was blocked [Sánchez (1989a) and (1989b)]. Francesc Valls shows the strong connections between commercial capital and the origins of Catalan cotton industry in the eighteenth century [Valls (2004)]. Many studies about the Catalan 'diaspora' across Spain are included in Pérez Picazo et al. (1996).

[36] There are several studies of the structure of the Catalan cotton industry, though their findings do not always coincide: Maluquer de Motes (1976), Rosés (1997) (1998) and (2000), Calvo (2002).
[37] Marshall (1931 [1920])
[38] Roses (1997) and (1998), chapter 8.

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