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Did inward FDI promote Spanish managerial talent?
A study of two companies (Bayer and ITT, 1880-1975)

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Abstract

This paper deals with inward FDI spillovers on host economies. In particular, it explores how multinationals promote talent within and around their subsidiaries, and how local talent might shape the multinational's operations in the country. In order to do so, we first propose our literature-grounded definition of local talent to examine afterwards the operations of two prominent MNEs, Bayer and ITT, in Spain during the second industrial revolution. We pay particular attention to these companies' mode of entry, how they got in contact with their future local partners, how management positions were distributed within their subsidiaries, and which in-company training activities were carried out and how they were organized. Our ongoing research shows, first, that local partners played a key role in MNEs' operations in the country, enabling foreigners to obtain information about the local market and to deal effectively with economic nationalism and other adverse situations. And, second, subsidiaries' local managers contributed to the process of knowledge transfer promoted by MNE's headquarters at least through their educational background and contacts. We argue, to conclude, that this interplay between MNEs' operations and local managerial talent is a key element to understand FDI spillovers in the long term.

FDI spillovers are a long-standing issue in international business and economics literature, which study has lead to both blame and praise multinational enterprises (MNEs). Questions such as FDI contribution to host economies' stock of capital, employment and foreign trade, MNEs potentiality transferring knowledge and technology, and the influence of the economic and political environment in this process, have received great attention by scholarship. However, we still know little about how foreigners interact with locals and, in particular, about how knowledge –or rather, organizational capabilities– are transferred, and evolved, in practice and the effects of such process in the host economy's managerial talent.

This paper explores this issue through a long term, empirical analysis of the operations of two prominent MNEs, Bayer and ITT, in Spain during the second industrial revolution. Both played a leading role in their respective industries for the most part of the 20th century, achieving success thanks, to a large extent, to their local partners' support. Because of the Spanish nationalist law, both extended their activities in the country towards manufacturing during such period and largely employed local people. Our departing hypothesis is that local managerial talent shaped the operations of these firms, local talent being defined here as the stock of knowledge, skills and relationships embodied in the local associates and staff of foreign MNEs that facilitate economic action and the production of economic value. To test this hypothesis, in this ongoing research we look at the top and middle management of these two companies to identify the individuals in charge of managing the Spanish subsidiaries and reconstruct where they came from, how they were recruited and trained and which was their career within and outside the firm. This information will allow us to examine the relationship establish between local and expatriates, and to determine to what extend multinationals promoted talent within and around their Spanish subsidiaries. That is, to what extent inward FDI promoted Spanish managerial talent.

1. Towards an integrative approach to examine MNE and local managerial talent interplay in the long term

International business scholars have paid much attention to FDI spillovers on host economies, emphasizing the role of MNEs in the introduction of tougher competition in concentrated oligopolistic markets, the presence of forward and backward linkages with local firms and the transfer of technology and capabilities. The increase of human capital has been one of the host country effects of FDI identified by economists, among others such as the accumulation of capital, the balance of foreign accounts and the growth of international trade. Despite the fact that all of these approaches deal with the common question of how to improve a nation's stock of knowledge and skills –in other words, the national stock of human capital and productive potential– little effort has been made to integrate them. Economists' approach to human capital has traditionally centered on formal education measures and indirect proxies such as literacy, numeracy and, more recently, income gaps (Denison, 1962; Sandberg, 1979; Buringh and Van Zanden, 2009; Van Zanden, 2009; Prados and Rosés, 2010). Studies framed in the resource-based view of the firm and evolutionary economics usually lack of the empirical and long-term evidence which allows examine how firm capabilities are created and how they evolved over time, despite the fact this process is dynamic and path-dependent in nature. And international business scholars say little about how FDI contributes to transfer and develop capabilities within the local business community, despite the role attributed to the multinational enterprise in transferring these capabilities among countries (Kogut and Zander, 1993) and the impact of affiliates' capabilities on MNE performance identified by some works (Birkinshaw and Hood, 1998; Blomström, Kokko and Zejan, 2000; Ghemawat, 2008). Scholars, in addition, have paid little attention to the contribution of social capital to human capital, despite the role attributed to it and to business networks in improving economic action.

Since Hymer's work (Hymer, 1976), the *reason d'être* of MNEs has relied on the possession of firm-specific advantages that allow firms to overcome the liability of foreignness (Zaheer, 1995). Recently, international business literature has paid great attention to the role of networks in internationalization. If markets are understood as networks of relationships, MNEs need to have access to host market's networks to succeed – that is, overcome the liability of outsidership (Johanson and Vahlne, 2009). As firms are usually engaged in different business relationships, they "operate in networks of connected business relationships", that is, they operate through business networks (Johanson and Vahlne, 2009, p. 1414). In its last version, the Uppsala school has introduce these concepts to its model of internationalization (Johanson and Vahlne, 2009), while the updated eclectic paradigm also includes the role of strategic alliances and being part of "broad network relationships" (Dunning and Lundan, 2008). Literature, however, says little about how these networks are created. Evidence, moreover, is based mainly on supply-clients relationships.

The concept of business networks is not new. Organizational studies have applied it to explain the structure of firms (Nohria and Ghoshal, 1997; Ghoshal and Westney, 2005 [1993]). Economists and business historians, focusing on individuals instead of firms, have observed that networking fosters information and resources among the networks' members, reducing information, transaction costs, and uncertainty (Casson, 2000; Casson and Cox, 1993; Fruin, 2008). Relationships among individuals are also the basis of the social capital theory (Putman, 1995; Portes, 1988), which emphasizes "its role in social control, in family support, and in benefits mediated by extrafamilial networks" (Portes, 1988, p. 1). The concept of social capital, as embodied in the relationships between MNEs and local politicians and business elites in developing countries, was also applied to the study of FDI and MNEs by development economists (Baran y Sweezy, 1966) and international business scholars (Vernon, 1971; Moran, 1974; Evans, 1979). Recent literature on business groups has also pay attention to the relationships establishes by MNEs among local groups in protectionist, developing nations. Thanks to them, foreigners can operate in the host market at the same time as local groups have access to capital and technology, eventually developing their own capabilities (Amsdem and Hikino, 1994; Kock and Guillén, 2000; Guillén, 2001). Neither of the above works, however, gives much information about the genesis and long term workings of those relationships.

Without being exhaustive (although it covers the most well-known, path-breaking works), our review on the economic and management literature dealing with FDI spillovers regarding the creation and transfer of knowledge, shows the need of an integrative approach to examine MNE and local managerial talent interplay in the long term. Based on this review and social capital and business networks theory, we have also developed our own comprehensive definition of local managerial talent: the stock of knowledge, skills and relationships embodied in the local associates and staff of foreign MNEs that facilitate economic action and the production of economic value[1]. We truly believe that the interplay between foreign multinationals and local talent is a dynamic, reciprocal relationship which

[1]Many definitions of talent can be found in management literature, stressing in general management and psychology grounded aspects (Thunnisen et al., 2013; Gallardo, 2013). We do not attempt to contribute to this debate, but we stress those aspects related to managers and staff expertise and skills which, according to our historical evidence, contribute to a better understanding of how MNEs activities encourage, and are shaped by, host economies' stock of knowledge.

can only be properly addressed using the tools and perspective of business and economic history.

2. The research ground: 20th century Spain under foreign influence

Spain has been and still is one of world's largest recipients of foreign capital, as well as net importer of foreign technology. Both the evolution of the international economy and the business policy practiced by the country's government –determinant of the greater or lesser degree of integration in the world economy— have been fundamental to Spain's progress; as a result, the country has stagnated or regressed in periods of low aperture, and advanced in times of greater international integration. The protectionist policies of the late 19th century would intensify over the course of the 20th century, under two dictatorial regimes, until the 1950's, when the failure of the autarky combined with international pressure to bring about a gradual liberalization of the Spanish economy. Foreign capital and firms have played a very important role in this long evolution, marked as it was by two "economic miracles"; the first in the 1960's and the second in the decades after 1986.

Although quantitative data is lacking for the very long past, it is well known that French, British and Belgian capital played a major role in the modernization of the 19th-century banking structure, as well as in most of the great projects of the era, such as the building of the country's railway system, the exploration and exploitation of mineral resources, and some public services (Puig and Castro, 2009). Joining them, as flag-bearers of the Second Technological Revolution, were Germany and the United States. In contrast to those earlier pioneers the economic dynamism of the newer powers was built upon scientifically-based industries, such as the chemical and electricity sectors, marketing knowledge, on highly dynamic and flexible national systems of innovation and the access to huge amounts of capital (Puig and Castro, 2009; Álvaro-Moya, 2011a). These two countries, along with France and the UK, would be Spain's principal business partners and the country's leading foreign investors throughout the 20th century (Puig, Álvaro and Castro, 2008).

Like the French, the Germans were not long in equipping themselves with a financial tool of their own for operating in less-developed regions: once again, it was the industrial bank. Its relationship with the more internationalized companies, such as Bayer, Hoechst and BASF in the chemical sector or Siemens and AEG in electronics, was very close indeed. The institution with the greatest visibility in Spain was the Banco Alemán Translatlántico, a subsidiary of Deutsche Bank. The arrival of US capital and goods became highly visible in the years following the First World War, somewhat later than in the more advanced European countries. American companies operated in a great variety of industries (motor, machinery, electrical, motion picture and petroleum, among others), but, by the volume of capital invested, public utilities prevailed. Indeed, one company alone was responsible for most of the direct investment in the country: International Telephone and Telegraph (ITT), the company granted in 1924 with the monopoly on domestic telephone services.

In 1936, the spread of the second industrial revolution in Spain was far from being concluded. Indeed, over the next twenty years many of the changes that had taken place before came to a halt. Foreign companies struggled to survive in an environment which was extremely complicated for foreign capital, first attempting to do business with both factions during the Civil War, then intensifying their contact with the Franco government during WWII, and finally opposing the autarky of the early regime and its hostility to foreign investment. The nationalization of the country’s telephone monopoly in 1945 illustrates very well the situation at that time.

For the German companies, however, the situation was quite different. During the long war period, German capital was in its "golden age", under the wing of the pro-Nazi attitude of the Spanish government. The longer-standing German companies, originally headquartered in Barcelona, were quick to move their operations to Seville when the military rose against the Republican government. Many German directors returned to their own country. For those that remained, the opportunities were great. It happened, furthermore, that the Spanish conflict coincided with Hitler's preparations for the World War. As a result, German mother companies were encouraged to increase their investments in Spain, which had been officially neutral since 1939, and in some cases quite significantly. This was true of the pharmaceutical industry; the two most important firms, Bayer (since 1925 part of IG Farben) and Schering, would in fact transform their sales subsidiaries into industrial businesses in the early 1940's. Other examples abound.

German resolve was put to the test by the defeat of Hitler's Germany and the adherence of the Spanish government to the Bretton Woods Agreements in 1945. With some delay, the Spanish authorities proceeded to expropriate and nationalize German companies as a result. The owners, however, had wasted no time, and so to camouflage their interests, their participation was already considerably reduced when the process of expropriation began in the second half of the 1940s. Altogether, the expropriated companies represented a substantial part of Spain's chemical-pharmaceutical and electro-technical industries. Although the process of nationalization would until 1958 jeopardize relations between Spain and Germany, in reality it was not excessively damaging to the interests of German industry, whose firms were able to reach remunerative agreements with the new owners as well as regain control of their former subsidiaries in the 1960s and 1970s, using them as a platform for new investments in the context of our country's definitive industrialization (Puig & Álvaro-Moya, 2007).

US investment would accelerate with the liberalization measures initiated, under the guidance of the OECD and the International Monetary Fund (IMF), in 1959 and implemented over the four subsequent years. By the 1960s, the United States would account for 40% to 60% of all foreign investment in Spain, a percentage that was even greater in strategic sectors like petroleum.US investments were concentrated in the petroleum, machinery, chemical, food and transport materials industries, as well as in new activities connected with the provision of services to firms, such as consulting, engineering and advertising. American companies occupied the top positions in their respective sectors, were counted among the great industrial enterprises of the period and, in some cases, maintained a high degree of market power. The rapid growth of the Spanish market, the country's economic, political and financial stability, and the low cost and high availability of manpower explains why the "American challenge" came to Spain.

Partnerships with Spanish companies and professionals also became more and more frequent as an entry mode. Local partners thus seem to have played a central role in both the entry and continuity of foreign firms, whether as shareholders, advisors or general managers who the company with a national image Of the largest American multinationals in the mid-1960s, most of those with operations in Spain had opted for fully-owned subsidiaries until 1957 (Vaupel and Curham, 1969, pp. 384-385). After that, and unlike the rest of Europe, this strategy was combined with joint ventures in which the US enterprise was majority shareholder, to the point where, ten years later, each of these entry modes represented about 40% of the total. Greenfield investments, therefore, had declined in importance, and were even in the minority as an entry mode for large industrial enterprises.

The growing advantage represented by US capital and know-how did not mean that the country's great historical partners were stagnating, although its effects would be felt. In any case, it was Spain's integration into the European Economic Community that would give the decisive push forward to European investment, particularly French and German.

3. Methodology and case studies selected

We ground our argument upon a long term, empirical analysis of the operations of two prominent MNEs, Bayer and ITT, in Spain during the second industrial revolution. The German manufacturer of chemicals and pharmaceuticals Bayer played a leading role in the Spanish market throughout the 20th century. It started to operate in the country in the 1880s, selling dyes and drugs to the local textile industry and public with the assistance of sophisticated and fast growing commercial network with headquarters in Barcelona. Bayer’s development followed the classical stages, first using local independent salesmen, then building its own commercial network and finally creating industrial facilities in partnership with local businesspeople. The combination of a promising market, lack of proprietary technology, rising economic nationalism and non-belligerence status during both world wars in Spain fuelled the growth of the company until the 1940s. At the same time, Bayer led and forged strong ties with the German business community in Spain and achieved influence over Spanish industrialists, doctors, pharmacists and last but not least regulators. Added to the firm’s technological superiority, these ties allowed Bayer to keep control of its Spanish assets during the expropriation and nationalization process that took place after 1945 by establishing a strategic alliance with the private business group Urquijo. In this way, between 1950 and 1970, Bayer remained a highly profitable business as well as a platform and human resources pool for new investments in the context of Spain's second industrial revolution.

The International Telephone and Telegraph (ITT) was one of the largest telecom groups of the 20th century. Founded in 1920, the cornerstone of its accelerated global expansion of the 1920s was, apart from the constitution of the industrial branch of the group (International Standard Electric), the Compañía Telefónica Nacional de España (Telefónica hereafter). Telefónica obtained in 1924 the Spain's telephone monopoly, at a time when state-owned monopolies, tied to the Post Office and Telegraph departments, were the rule in Europe. ITT became then the largest American investor in the country, a position strengthened soon afterwards with other stakes, such as equipment-manufacturing factories (Álvaro-Moya, 2011a). The reasons behind the State's concession of the monopoly to a private, Spain-based but foreign-owned company were closely connected to the contacts developed by ITT among local politicians, engineers and business groups (the Urquijo one, among others). These ties where enhanced through the training of local executives and staff, allowing ITT to preserve its interests in the country in spite of different state's nationalistic attacks and a civil war. In fact, the monopoly's eventual nationalization in 1945 did not dissolve Telefónica's ties with ITT, which at least lasted a decade more.

Regarding methodology, we are conducting our research in the following way:

Step 1. Examining the mode of entry and long term evolution of each MNE, focusing on the strategies displayed to benefit from internationalization forces and accommodate to economic nationalism.

Step 2. Identifying (foreign and local) managers of Spanish subsidiaries of each MNE, focusing on the distribution of roles between foreign and local managers, and the recruitment, training and generation process of local managers.

Step 3. Discussion about MNEs' spillovers at company and institutional level, and the interplay between social and human capital, in the light of existing literature.

In the following sections we summarize our three-step research on the development in Spain of Bayer, between 1884 and 1975, and ITT between 1924 and the 1960s. First, the mode of entry, growth strategy and main operations of these multinational firms are examined. Special attention is devoted, in the case of Bayer, to the long term effects of the expropriation of German assets on the control and management of the main Spanish subsidiaries after 1945 and Bayer's strategy to regain control after 1960. In the case of ITT, to the different situations in which the multinational lost, or could have lost, its control on Telefónica (an unsuccessful nationalization attempt in the early 1930s, the Civil War and its immediate aftermath) as well as the effects on corporate management of Telefónica's ultimately nationalization in 1945.

Second, we look at the organizational structure and human resources management of Telefónica and Bayer's Spanish branches, with a focus on the relationship between local and expatriate managers and the recruitment and professional development patterns. Again, the impact of the Spanish and world wars on this crucial aspect of foreign direct investment requires special attention.

4. The case of Bayer

4.1. Long term development

Bayer began to operate in Spain in 1884 through an agent network (Loscertales, 2002, 264-277). The first, wholly-owned subsidiary, Federico Bayer y Cía, was established in Barcelona in 1899 to sell synthetic dyes. Mounting protectionism and economic growth, however, prompted the German company to extend its activities in Spain further. As a result, two new companies, Unión Química Lluch (a merger between Federico Bayer and BASF's local representative Lluch) and Química Comercial Farmacéutica (a fully controlled subsidiary focused on the rising pharmaceutical business), were founded in 1925.

Following its integration into the IG Farben, in a context of cartelization of the world chemical industry, Bayer designed a joint venture with the largest Spanish manufacturer of synthetic dyes, Fabricación Nacional de Colorantes y Explosivos. This partnership, reluctantly accepted by the IG, was to determine Bayer's operations in Spain until well into the twentieth century.

From the 1930s onwards, Spain's mounting economic nationalism impelled Bayer/IG to change its strategy, reduce its financial participation and increase the number and relevance of local partners and employees, thus creating new opportunities for the Spanish business community. This trend was intensified by the outbreak of the Spanish civil war (1936-1939). The main production facilities were moved to areas controlled by General Franco's rebel troops, such as Seville, Valladolid and Palma, where three new firms were established: Química Española (1936), Productos Químicos J. Rodríguez (1936) and Instituto Behring de Terapéutica Experimental (1938).

Like all other German multinational companies with subsidiaries in Spain, Bayer underwent a process of nationalization between 1945, when German tangible and intangible properties were confiscated by the Spanish government and publicly auctioned among domestic investors, and 1960, when Bayer recovered its patent rights at the same time as the Spanish economy began to open to the world market. The confiscation and allocation process was long and complex. In the end, Bayer's subsidiaries (that is their German share) fell in the hands of either their Spanish partners, its naturalized German managers, or a consortium constituted by Urquijo Bank (Spain's largest private industrial group) and several leading chemical companies.

Although Bayer made other, smaller investments in Spain during the period under consideration, our analysis focuses on the three above mentioned firms.

Unión Química Lluch (UQLL, renamed Unicolor after 1939) was focused on the commercialization of dyes and chemicals and remained wholly owned by the IG Farben when expropriation occurred in 1945.[2] After its nationalization, the control remained in the hands of the German directors along with some instrumental local associates, in particular Fernando Birk (IG's man in Spain, born and educated in Germany but a Spanish citizen since the 1940s and alma mater of the German Chamber of Commerce in Spain) and Josep Pellicer (a Catalan industrialist with excellent contacts in both the Spanish civil and military administration and the German business community in Spain). Pellicer's strong position within the Spanish subsidiary of Deutsche Bank (see below) ensured the smooth running of Unicolor's booming commercial business until Bayer re-acquired it between 1960 and 1969, to found **Bayer Hispania Industrial**.

La Química Comercial Farmacéutica (QCF) was originally devoted to the commercialization of pharmaceutical products (Química Farmacéutica Bayer, 1992; Puig, 2003, chapter 4). However, during the Spanish and world wars (1936-1945) it built manufacturing facilities that came to play a not insignificant role in Germany's war economy. QCF was wholly owned by the IG Farben when the expropriation act was passed in 1945 under Allied surveillance. Regarded in Spain as the jewel of all German assets, this company was sold to the Urquijo Group in 1950.[3] Urquijo was a Madrid-based, dynamic investment bank with three clear advantages (real or alleged) vis a vis its domestic competitors: a long and successful history of international business partnerships (such as ITT, see below), built on its early association with the house of Rothschild; proven contact and project execution capabilities; and a pool of first rate professionals. The fact is that the new owners used Bayer's technical and commercial expertise to build Spain's largest chemical and pharmaceutical group, Productos Químicos Sintéticos (Proquisa), in Madrid and northern Spain. The complex role played by Urquijo is exemplified by the fact that, while the group's legal department effectively resisted Bayer's trademark claims, the bank's vice-president (Luis Urquijo, a Germanophile appointed ambassador to Germany in the late 1950s) helped the Spanish and German governments reach an agreement to put an end to the whole expropriation process in 1958. Such agreement would facilitate German direct investment in the years to come. Not surprisingly, the Spanish group tried to monitor and capitalize on Bayer's new investments, in open competition with Bayer's historical partners, based in Barcelona.[4] QCF was reacquired by Bayer between 1960 and 1981, renaming it **Química Farmacéutica Bayer** in 1972. Bayer's interest in Spain was far reaching. Thus, the firm bought some of Proquisa's struggling firms in northern Spain (one of which, Química de Langreo, became Bayer's only production center of acetylic acid in 2012) while searching for new partners in Catalonia

[2] Archivo del Ministerio de Asuntos Exteriores (hereafter MAE), R-4306/3 and R-4306/4; Unicolor, 1967.
[3] MAE R-9945/2 and R-2188/8.
[4] Bayer Archiv Leverkusen (hereafter BAL), 302/211, "FNCE Probleme".

(which led the German group to engineer a joint-venture with Productos Electrolíticos (PESA), this joint-venture becoming the basis of **Bayer Hispania Industrial** in 1969).[5]

Fabricación Nacional de Colorantes y Explosivos (FNCE), a dye manufacturer, was a joint venture arranged by IG Farben and some local industrial families (Puig, 2003, chapter 3). In 1950 it fell under the control of local partners that sought Bayer's technical assistance to materialize ambitious plans while opposing alliances with other local industrialists. The relationship between the German company and its local partners was very problematic (mainly because of the huge number of Spanish shareholders and their claims to remain Bayer's reference partner in Spain) until Bayer got full control of and liquidated the firm in 1993.[6]

Throughout the period under analysis, Bayer's financial partner was the Spanish subsidiary of Deutsche Bank, Banco Alemán Transatlántico. The expropriation process empowered Josep Pellicer, one of the key partners of Fabricación Nacional de Colorantes y Explosivos, and the visible head of a group of Spanish and German former top managers of the bank.[7]

4.2 Management of human resources

The organization of Bayer's Spanish subsidiaries was highly hierarchical and centralized. The wars and the expropriation process, however, empowered local directors, who introduced relevant changes in QCF and FNCE.

F. Bayer/UQLL/Unicolor.[8] Total human resources grew from Federico Bayer's 29 German employees in 1907 to approximately 1,600 for the three main subsidiaries in 1960 By then, most of the employees were Spanish and the estimated number of university graduates was close to 250. The Civil War was devastating, not just because of the assassination of a number of workers and managers (such as Bayer's historical partner Salvador Lluch), but because of the "purge" of those employees that had allegedly collaborated with the leftist groups during Barcelona's occupation that took place in 1939. The boards of directors and top management became more diverse during and immediately after WWII, with many instrumental Spanish managers and facilitators joining them. The number of Spanish top and middle managers grew spectacularly in the 1940s and 1950s, and the number of professionals increased in the 1960s and early 1970s. Only few of them were transferred to other countries within Bayer's organization.

According to our quantitative reconstruction of the three subsidiaries, UQLL-Unicolor evolved from 29 (four of them "technicians") in 1970 to 286 (30 technicians) in 1939 and 765

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[5] BAL 9/L "FNCE".

[6] BAL 302/211; Puig, 2003, pp. 80-89.

[7] MAE R-4301/5.

[8] Reconstruction based primarily on Unicolor 1967 and Bayer Hispania Industrial Barcelona and Zona Franca (hereafter BHI Barcelona), "Personal".

(99 technicians) in 1966. The figures for the pharmaceutical branch, QCF, grew from 40 in 1925 up to 172 (7 graduates) in 1932, 316 in 1943, and 765 (99 graduates) in 1966. Finally, FNCE's employees rose from 174 people in 1930 to 385 385 in 1950 and 472 in 1963. We have estimated that the aggregated number of board directors and top managers (Spanish as well as expatriates) between 1899 and 1975 was around 150. Our analysis draws on the information gathered about 80 of these individuals (many of which, particularly in the early years, did not have a university degree, but were company-trained) and Bayer's main talent pools and networks in Spain. Due to the complexity of Bayer's Spanish business, we examine the companies separately.

Federico Bayer y Cía followed the organizational model of Bayer's Romanesque Department (Spain, France, Belgium, Switzerland, Italy and Portugal), headed by Willy Gansser.[9] The subsidiaries were typically comprised of two managers, one of them commercial (an energetic individual with organizational talent), the other technical (a sort of technical consultant with some chemical training) plus several agents and representatives for each department (dyes, pharmaceuticals, photography and intermediates). We have a complete list of the directors for the years 1906 (commercial: H. Nobbe , F. Rüggeberg ; technical J. Morin, Dr. Fileti , Capdevila) and 1912 (F. Rüggeberg commercial , technical, J. Morin , R. Trallero). It was a very hierarchical and centralized organization. Leverkusen and Elberfeld (Bayer's headquarters in Germany) imposed standardized accounting methods and strict control for the sake of product quality. The manufacturing and commercial businesses were considered equally important. The Spanish agents were based in Tolosa, Malaga, Madrid , Seville , Valencia and Santa Cruz de Tenerife, although both their number and location varied over time. In fact, agents proliferated during the textile boom linked to the First World War and its aftermath (13 for colors and 7 for pharma in 1921). In 1907 the Barcelona branch employed 29 people: two German directors, three technicians, two reps, 16 clerks, five packagers and a laboratory assistant. The dominant personality was Fritz Rüggeberg (1877-1957), who arrived in Barcelona in 1900 straight from Elberfeld as an assistant and climbed the ladder up to the technical direction of Fed Bayer UQLL. The commercial director, Nobbe, did not stay as long as Rüggeberg, who over time became a prominent member of the German community in Barcelona (he was appointed consul and director of the Chamber of Commerce). This is a pattern we have detected in the Bayer's and other German firms' management.

Unión Química Lluch's organization after 1926 was dictated by the IG, a "community of interests " of the German large chemical firms that created a centralized structure based on directors, agents, delegates and traveling salespeople, a huge network that grew dramatically until Hitler's defeat in 1945. The initial team came largely from BASF's and Bayer's Barcelona subsidiaries. BASF people included the Spanish chemist Salvador Lluch (founder or Anónima Lluch in 1911) and his associates Viñals and Dr. José Ferrán-Serra, plus

[9] BAL 110-1-35.

Paul Sellet, Ernst Asselmann, C. Mittemeyer, F. Asbert, A. Gusi and J. Wittich. Bayer's pharmaceutical branch was managed by Dr. Fileti, F. Rüggeberg, Dr. F. Serra and Dr. Krebs. The first board of directors of UQLL included Dr. Serra's son, Federico Serra-Llunell (president), José Ramón Pascual (vice-president), F. Asbert-Buxens and V. Martín-Arias. In 1929 both Lluch and Schlegel were appointed vice-presidents, and F. Asbert-Buxens, J. Ferrán and J. Maymó-Cabanellas joined the board. The firm was run by S. Lluch-Viñals and Dr. G. Fileti, the later replaced by Dr. H. Schlegel upon his death in 1929. In 1935 Ferdinand Birk Crecelius (1894-1977) was appointed manager. A former employee of Lluch-Meister Lucius, with a commercial training, Birk was to become a central character in the history of German direct investment in Spain for at least three decades: as the IG's man in Spain during the wars and the long expropriation process and as German FDI's facilitator in the 1950s and 1960s. His ability to keep the German community in Spain and the German chamber of Commerce going between 1939 and 1949 explains much of Birk's influence. Dr. Serra, former representative of German dye manufacturers in Barcelona and regarded by the IG as his local partner, was also a key figure in the pre-war period. Other directors and "apoderados" (managers with powers of attorney) include F. Asbert, E. Asselmann , J. Ferrán, A. Gusi , C. Mittemeyer , F. Rüggeberg , Dr. Serra , J. Wittich, A. Bau , F. Birk , W. Fischbach , E. Fischer , A.M. Gallardo, Dr. R. Hüssy , F. Köhler , J. S. Pitter and E. von Steindorff.

The Civil War caused substantial changes in UQLL's personnel. At the time, the firm was the Spanish representative of the IG, Stickstoff Syndikat, and FNCE. Lluch's killing by anarchist assailants prompted the repatriation of all non-Spanish staff. It should be noted that Birk was the last one to leave Barcelona and the first one to return in January 1939. Other German managers moved along with the firm to the new production facilities in Valladolid, Palma and Seville. Meanwhile, the Barcelona headquarters, collectivized by the local government, were left in the hands of M. Reynals-Duran (Stickstoff Syndikat's man in Barcelona), J. Maymó-Cabanellas, P. Romero-Wieden, S. Mayolas and a group of loyal employees. Understandably, the few Spaniards with executive powers over Bayer's Spanish operations were to play a leading role during and after the Second World War.

Upon Birk's return to Barcelona in January of 1939 (the war would end in April), IG's commercial business (renamed Unicolor) began a new era. Asbert had died in 1937, and Wittich and Rüggeberg stayed in Germany. The first team consisted of F. Serra- Llunell (president, soon succeeded by J. Pellicer), J. Maymó-Cabanellas (vice-president), J. Pellicer-Llimona, F. Birk-Crecelius (managing director), P. Romero- Wieden (secretary) and Dr. H. Schlegel (managing director, who retires shortly after). Two German directors, E. Asselmann and E. von Steindorff, monitored Unicolor from the German headquarters. Both Birk and Pellicer (FNCE and Deutsche Bank) were responsible for defending the interests of Unicolor during World War II and the expropriation. In addition to ensuring the ownership and control of the business, they had to find alternative ways to import and keep the commercial network going in the nationalist and corrupt context of post-war Spain. The system was reorganized, creating 13 branches and a network of 20 representatives distributed across the Spanish geography under the supervision of F. Steinhäuser (technical director), Ochs (accounting manager), Asselmann (human resources director) and Steindorff. One of the most interesting effects of the Second World War on Unicolor was an increase of the technical personnel. Steinhäuser played a very active role in this regard, offering courses to Unicolor's technical and commercial personnel as well as to the company's travelling salespeople, agents, representatives and customers, at the headquarters of Unicolor or in collaboration with local institutions (such as the Instituto Químico de Sarrià, an industry-oriented engineering school run by the Jesuits). Interestingly, Unicolor also offered innovative courses in technical and commercial psychology. Under the pressing circumstances of war, a new chemical section was created, along with laboratories and pilot plants to test or experiment with leather, textiles, paints, resins, plastics, rubber, and plant fibers. It was only after the normalization of the relationship between the German and Spanish governments in the mid-1950s, when Bayer's directors dictated courses and conferences at the Barcelona offices. In the 1960s, in the context of Spain's fast industrialization, Unicolor experienced tremendous growth. Upon the renewal of contracts with the represented German companies, the number of customers rose from 6,000 in 1930 to 20,000 in 1966. As the direct result of Bayer's (and temporarily BASF's) acquisition of 50% of Unicolor, a major business reorganization (with divisions replacing markets) was implemented and a new management team was appointed, both under the close supervision of Leverkusen's Otto Quadbeck. The new board of directors included Birk (president and interim CEO), JL. Mila-Sagnier (vicepresident), Quadbeck (CEO), Meyerheim, O. von Nordheim, Schönfeld and P. Sagnier-Costa (secretary). The presence of two members of the Sagnier family (one of FNCE's dynasties) should be understood as a concession to FNCE, that Bayer started to feel as a real drag on its future plans in Spain. The top management relied on a Quadbeck (CEO, temporarily assisted by Birk), four divisional directors (W. Berg, E. Fernandez – Pujol, E. Spieler and E. Tagen) and 24 managers with powers of attorney, 16 of them Spaniards. Two years later, Unicolor became fully integrated into Bayer Hispania Industrial.

FNCE.[10] Founded in 1922 by five companies created during the boom of the Great War by the Sagnier, Pellicer, Marca, Otzet, Belil families, FNCE was reorganized under the lead of Pellicer and Sagnier to create a joint venture with IG Farben in 1926. Except for Sagnier, all partners had a technical background. FNCE was strongly determined by two features: their endogamous and presidential nature (Sagnier, Mila and Belil inter-married in the second generation) and their ambition (based on FNCE's privileged status as "national company" since 1933). These two features complicated FNCE's relationship with Bayer/IG. The IG reluctantly agreed to enter FNCE's capital (IG's directors argued that without the appropriate raw materials, skilled personnel and market size, the chemical industry had no future in

[10] Reconstruction based primarily on Puig, chapter 3; BAL 302/211, "FNCE"; BHI Barcelona, "Personal"; and interview with A. Otzet, 1999.

Spain), but protectionism and pressure on the side of Deutsche Bank's subsidiary in Barcelona made the deal possible. As a result, UQLL became FNCE's exclusive commercial agent, former competitor Dr. Serra-Llunell was appointed CEO, and FNCE was given representation in UQLL (S. Mayolas).

In 1936, following the collectivization of FNCE's factories in Catalonia, their top managers escaped to Germany and Seville. In the city of Seville the bond between FNCE and IG tightened through Birk. In 1940 and 1941 a great opportunity arises for FNCE, as the IG agrees to replace imports (hampered by the laws of 1939) on the premises of the industrial partner. In this context, IG implements changes in the organization and direction of the Spanish subsidiary. In the board of directors, L. Sagnier (d. 1941), S. Lluch and A. Sagnier (both killed in 1939) and F. Serra (in bad health) were substituted by Pellicer (president to 1966), F. Birk (1939-1967), P. Sagnier Costa (1939-1966) and Dr. K. Raeck (IG's technical man, now a Spanish citizen), while J.M. Milà (secretary 1926-1955), A. Otzet Sr.and F. Belil-Roure (Raeck's associate) remained. Note that this team, which had worked closely with the many IG directors travelling to Spain to oversee FNCE's industrial activity during the war, after Germany's defeat fought to keep as much as possible from IG's original plans while competing against Urquijo's attempts to seize IG's stake at FNCE during the blockade. In the end, Pellicer succeeded at controlling 100% of FNCE's capital without having to pay the debt owed to the IG for proceedings and patents. From 1945 to 1955 FNCE experienced great growth, aimed at achieving vertical integration under the supervision of Dr. Raeck and with the assistance of Bayer Leverkusen via Birk-Unicolor. Thus, as in Unicolor, in FNCE the relative isolation of Germany directly affected the scale and nature of its activities and its labor force. In particular, FNCE's brand new engineering department was to expand in collaboration with surrounding scientific-technical institutions, such as Sarrià's chemical institute (both Birk and Pellicer sat on the board, and Bayer became a major sponsor and employer for this rather small school) and the University of Barcelona. Alongside other German firms, FNCE contributed actively to the organization of industrial fairs and collective defense of the interests of the chemical industry. In 1955 Bayer and BASF acquired a 25 % stake in FNCE.

Despite Bayer's obvious interest in FNCE as a platform to re-enter the Spanish market, the founding families continued to dominate FNCE's board of directors. IN 1955 J.L. Milà-Sagnier succeeded his father as secretary of the board (1955-1994). In the 1960s it was the turn of A. Otzet Jr., F. Belil-Palau and J. Sagnier (all of them fluent in German). Otzet and Belil, both engineers, inherited their fathers' seats and roles in FNCE's technical department. As for Sagnier, trained as an economist, he was to play a relevant role between 1963 and 1994, representing the largest group of Spanish shareholders, acting as the firm's last CEO, and relentlessly opposing Bayer's plans to put an end on this Spanish venture. In 1966 Birk and Belil-Palau were appointed president and vice-president of the firm. Although many of FNE's managers were trained in Germany, or had the opportunity to advance their careers within the international organization of Bayer (in Latin America in particular), the available evidence (archival sources and interviews) suggests that the German multinational firm had little trust in the Spanish technicians. So, against the wishes of the Spanish partners, Belil-Palau did not succeed Raeck in the technical direction. Instead, one of Leverkusen's directors, Joachim Naggatz, was sent to Barcelona in 1960-1962 as a vigilant and auditor. Naggatz's final report poured harsh criticism of FNCE organization and human capital, strongly advising to streamline management and adopt Germanic patterns.[11] The equity weight and professional expectations of the founding families explains the large number of family members (graduates) on FNCE's payroll. However, since 1955 it was clear that Bayer wanted to liquidate FNCE and use other platforms for their Spanish investments, in particular Bayer Hispania Industrial, where many FNCE employees were transferred to. Yet the mission could not be accomplished until 1994 (upon J. Sagnier's untimely death). However, while Sagnier (founder Leopoldo Sagnier's grandson) acted as the scourge of the Germans, F. Belil-Creixell, an engineer like his father and grandfather, became a model student: in the late 20th century he was appointed CEO and vice-president of Bayer Hispania Industrial (a position he left to become Siemens's CEO). Notwithstanding FNCE, Bayer's interest in Spain was enormous, because of the Spanish market potential as well as its platform role for Latin America.

Química Comercial Farmacéutica.[12] Although the pharmaceutical subsidiary of Bayer was fully controlled by the German firm, Spanish pharmacist C. Sarrías (replaced in 1930 by A. Serra-Pàmies) oversaw the production of Phenacetin, Aspirin and Cafiaspirine, the core of Bayer's pharmaceutical business in Spain. The staff consisted of 40 people recruited from older subsidiaries (Meister Lucius, Minerva and UQLL) who spread over four sections (Management, Sales, and scientific and popular Marketing). It was a fast growing, essentially commercial business, based on Bayer's pioneering marketing and advertising techniques (targeted at local doctors and pharmacists), implemented by Dr. Scholl. The early board of directors mirrored the dependent nature of the subsidiary: R. Mann (president), R. Krebs (vice-president and managing director 1925-1930), W. Backé , E. Eicke and W. Schmidt.

In 1930, as a reaction to the nationalist offensive Spanish Government, the IG Farben tried to hide the QCF-IG connection while strengthening control over the subsidiary so as to guarantee imports and profit repatriation. The new team included Germans A. Sommer (managing director 1930-1943) and F. Meüsner (attorney powers) and a number of prestigious Spanish doctors such as Dr. G. Pittaluga (a reputed professor at the University of Madrid with strong industrial ties) and Dr. J.L. Gallego (a German-speaking doctor that was to play a key role in the future). Gallego was in charge of scientific propaganda". The outbreak of the war prompted Sommer to organize QFB's transfer from Barcelona to Seville. With the majority of German personnel repatriated, the Seville plant offered great

[11] BAL 302/211, "Bericht über die Situation der FNCE 5/9/1961".
[12] Reconstruction based primarily on Química Farmacéutica Bayer, 1992; BAL 9/K 1.2. 53 190 and BAL 9/K 1.2. 54; and MAE R-9945/2 and R-2188/8.

opportunities to Spanish managers, such as C. Pozo. W. Kempf (Bayer's production manager) and other German officers ensure that the flow of German imports via the west-northern Vigo meets the needs of Franco's troops in southern Spain. It soon reveals as a booming business whose benefits are invested in land, real estate and the creation of the Instituto Behring de Terapéutica Experimental. F. Serra is the one who discusses with Leverkusen what can or cannot be manufactured in Spain and potential partnerships with other companies.

The years 1939-1943 are crucial. Sommer had to oversee the reconstruction of QCF Barcelona and its human resources, while launching an ambitious manufacturing program based on the firm's huge stocks and benefits and a 1941 license agreement with Bayer-IG and dealing with post-war Spain's autarkic legislation. Leverkusen was primarily interested in securing imports of products and intermediates and the repatriation of profits (i.ee, the pre-war business scheme). To this end, the IG tried to strengthen its control over Barcelona, resorting to all sorts of tricks, but in 1943 the world war, added to Spain's overall restrictive framework, and the ambitious plans of Sommer and Gallego, led to a clash between IG and Barcelona and within the subsidiary's top management. As a result of the confrontation, both Sommer and Gallego resigned, the former being replaced by Dr. P. Schmitz (b. 1902, CEO 1943-1946) and the controversial W. Loechelt (b. 1895-d. 1967, CEO 1946-1950), the architect of QCF's concealment. Interestingly, during the auctioning that followed Bayer's expropriation, both Sommer (Activion) and Loechelt (Vicente Ferrer) competed against Urquijo Group. As for the German owners, they sought in vain to control the process with Birk's help. Finally, the Spanish Government chose Urquijo (advised by J.L. Gallego), leaving Bayer's trademark issue unsolved until 1958.

Urquijo's takeover brings about a sound change in QFB's growth strategy and management team, despite the fact that Dr. Gasser continues to oversee the scientific department (scientific advertising) until 1975. The new team includes R. Gandarias-Urquijo (president of the board of directors 1950-1968), H. González-Parrado (with Urquijo-Proquisa since 1946, CEO 1966-1982, president 1968-1982), Dr. J.L. Gallego-Fernández (QCF's alma mater 1950-1966, d. 1966), Dr. C. Sarrías-Cano (1950-1952), Dr. A. del Pozo-Ojeda (b.1919-d.1999, 1952-1999, professor and dean of the University of Barcelona, promotes university-industry collaboration and Spain's pharmaceutical lobby Farmaindustria, recruits many of his students), Dr. F. Donada-Bosch (b. 1917-d.2001, joins QCF in 1948, production manager 1964-1981, also recruits students and helps found Farmaindustria), Miguel Rives-Bernades (factory plant manager in 1964), Arturo Rives - Bernades (director quality control in the 1990s), Dr. J.L. Alvarez-Lage (b.1923-d.2012, Pozo's student and successor at the University of Barcelona, with QCF 1947-1987, in 1964 technical director), Dr. Francisco Donada-Bertomeu (production manager, trained in Leverkusen, succeeds his father Donada-Bosch), Dr. José Cemeli-Pons (b. 1930, Pozo's student, professor at the University of Barcelona, replaces Alvarez-Lage in 1987), José Milán (in 1964 accounting and finance chief, in 1988 director).

Interestingly, some Bayer top managers were recruited during the war.[13] They were not straw men, but played an active role in the nationalization. Gallego (b.1904-d.1966) was a Madrid born physician, educated at the German school and married to a German wife. He managed to simultaneously defend the interests of Bayer and the Spanish industry (leading the complex negotiations regarding Bayer's trademark and patents) as well as to recruit a growing number of Spanish graduates of bourgeois-liberal social background, especially in the 1960s (Puig, 2003, 111-126). He was crucial to the recruitment of his brother Antonio, a prestigious academic physician that returned to Spain in order to head the technical department of Urquijo-Schering right after the expropriation of the German pharmaceutical firm. A. Gallego created a rare (in the Spanish context) yet successful university-industry partnership: the Instituto de Farmacología Española, a research unit financed by Bayer and Schering. Parrado constitutes a typical example of Urquijo's social milieu and human capital strategy: an aristocratic (marquis of Llano) lawyer, member of the conservative republican party, who served in the pre-war republican regime.

As in Unicolor, in QCF Bayer's takeover is preceded by audit reports of both QCF (1961) and Proquisa (Urquijo's chemical-pharmaceutical holding) (1962) and involves growing control from Leverkusen and the implementation of a multidivisional structure.[14] Although Bayer's reports are very negative, the multinational company seems to trust QCF's local managers (except for the commercial area, which will continue to be headed by a German) more than those of Unicolor. The four new departments will be headed by F. Donada (production), M. Rives (plant-factory), J.L. Alvarez (quality) and Kurt A. Hoelzner (commercial). However, Gallego's premature death in 1966 intensifies Bayer's control over the Barcelona subsidiary, which between 1967 and 1971 will be led by R. Langguth and Dr. Donada- Bosch. In the early 1970s, the appointment of H. Lauterbach, a modern executive that stresses profitability and productivity, paves the way for Química Farmacéutica Bayer (1972). The board of directors includes Parrado (president), Birk (vice-president), Gerks, Tejero, Wagner, Gronenborn, Donada and Bianchi.

5. The case of ITT: Telefónica (1924-1960s)

5.1 Long term development

In the early 1920s, Spanish telecommunications were characterized by a low-quality national network based on small local companies with poor productivity and profits, which, in addition, used heterogeneous technology that hampered domestic interconnections (Calvo,

[13] MAE R-2188/8; and National Archives and Records Administration (hereafter NARA), Record Group 226, Entry 19, Box 314, File 22808.

[14] BAL 302/211, "FNCE Probleme".

2002). In order to foster an integrated and efficient national network, the government decided to organize a national monopoly to be managed by a private operator. Although the first steps were taken at least one year earlier, the bidding was finally published in 1924 by a new dictatorial government headed by General Primo de Rivera. As it has been already mentioned, Telefónica got it, defeating the proposals developed by companies with a much longer expertise, and reputation, such as Ericsson and Siemens-Halske.

With an extensive Pan-American network that connected the main cities of Latin America with each other and with the United States, Europe and Asia, a monopoly on services in Spain and other European countries, ownership of the former international branch of one of the world's largest equipment manufacturers –Western Electric, renamed International Standard Electric (ISE)— and manufacturing subsidiaries all over the world, as well as fixed agreements with other manufacturers, International Telephone and Telegraph (ITT) rose in the inter-war period to become world leader in the sector (Wilkins, 1974, p. 30; Tetsuo, 1991, p. 523). But when ITT got the Spanish monopoly was a still largely unknown firm, with only four years of experience in Puerto Rico and Cuba. Nor did it have its own technology, as ISE would not be founded until a year later. Telefónica and ISE were, in fact, the cornerstones of the company's later expansion.

With the foundation of Telefónica, ITT became in addition the largest American investor in the country. In a few years its position was strengthened with the foundation of a ISE's branch (*Standard Eléctrica S.A.*, SESA) and two affiliates, *Compañía Radio Aérea Marítima Española* –supplier of radio services– and ITT Spain –which provided financial services to the rest of the group–.And even after the nationalization of Telefónica in 1945 ITT continued to be one the largest foreign firms in Spain, with a stake that represented around 20% of total American direct investment in the country (Álvaro-Moya, 2011a). The approval of the monopoly and its immediate concession to Telefónica inaugurated an era of great expansion in service. In only one year, the number of telephones in operation practically doubled; a growth that was also accompanied by great advances in productivity (Álvaro-Moya, 2007; Calvo, 2010). This expansion combined the widening of service territories, through the installation of manual stations in the smaller villages, with the progressive implantation of automated centers in larger ones.

ITT's success relied largely on the information about the Spanish system obtained from a group of local engineers and lawyers who would become its partners later on –thanks also to the support given by the American embassy, an aspect already examined (Álvaro-Moya, 2011b) and which we do not consider here–. The first information about the Spanish government desire of reorganizing the telephone network came in 1923 from Gurmensindo Rico González, the assistant manager the International Western Electric subsidiary in Spain – a company acquired by ITT in 1925 and renamed as International Standard Electric, becoming the group's manufacturing branch–. Looking for financing for the project he had developed to modernize the Spanish network, Rico got into contact with the House of Morgan, a traditional ally of ITT (Pérez Yuste, 2004).

ITT's efforts increased in early 1924, when a group of its managers, headed by Sosthenes Behn (ITT’s chairman), arrived to Spain to prepare the proposal to be submitted to the government tender. By that time, the American company had got the control of a large part of the existing telephone network with the acquisition of the Peninsular Telephone Company, the largest operator at that time (Bahamonde, 1993, p. 208; Calvo, 2002). In fact, some of the engineers and managers related to this local provider, together with some Rico’s acquaintances, were in fact engaged in the preparation of ITT’s proposal, providing both technical and legal knowledge.[15] The network developed by ITT included, in addition, well-known politicians, and key figures in the General Post Office and Spain’s largest industrial banks (the Urquijo Group and the Hispano Americano Bank, among others).

ITT's partnership with significant local industrial and financial groups crystallized in the foundation of Telefónica in April 1924 and the immediate signature of an advisory and supply contract, which only would come into effect if Telefónica obtained the telephone monopoly, between the new company and the American group. From then until the 1950s – that is, even after the nationalization of Telefónica in 1945– Telefónica Board of Directors was constituted, broadly speaking, by ITT’s executives, on one hand, and representatives of the aforementioned industrial banks, on the other (Álvaro-Moya, 2007).

The alliances constituted by ITT with influential groups since its arrival to the country allowed the Americans to retain the control of its subsidiary at all times –also the intervention of the US diplomacy, as it has been analyzed by Álvaro-Moya (2011b)–. First, in the early 1930s, to prevent the seizure of the monopoly by the new Republican government, which, although not unanimously, denounced as illegal the contract signed by the dictatorial government that preceded it. Shortly afterwards, during the Spanish Civil War (1936-1939), the management of the company was divided in order to retain control on both fronts. While ITT executives and some Spanish engineers accompanied the republican government on the move, the rest of the Board rearranged the company’s management in the revel zone. Such a strategy, however, made it difficult for the Americans to return once the conflict was over. The US government had finally to intervene in order that ITT regained control of its subsidiary. But the Americans, in the meantime, were kept constantly informed of what was going on in Telefónica's management by their Spanish partners, who also tried to limit the new government’s actions against the firm interests.

The nationalization of Telefónica in 1945 did not mean the end of ITT’s influence on the company’s management. In fact, by virtue of the nationalization agreement, Telefónica signed two contracts with ITT to get its technical advice and equipment. The weight of ITT in Telefónica's top management only began to diminish in the late 1950's. The positions which

[15] An in-depth analysis in Álvaro-Moya (2007).

formerly belonged to the American managers were then occupied by the local managers that they had trained, and with whom they had cooperated, throughout their professional life. The work plan of 1955 illustrates this renewal very well. For the first time without ITT's advice, local talent had the entire responsibility of its technical design and administrative management –they had already been in charge of plans' implementation since the late 1920s–.

An inevitable generational renewal of the company's managers, however, took place in the early 1960s, along with an increase in government presence on its Board –as a regulated industry, the government had always had a small representation there–. The definitive turning point was the appointment, in 1965, of Antonio Barrera de Irimo as chairman. This technocrat, who had received the appointment of Advisor by the Treasury only a few months earlier, would over the eight years of his presidency transform the organizational and technological foundations upon which Telefónica had been sustained up to then. In order to do so, however, he went on relying on some of ITT's local business partners and engineers.

5.2 Management of human resources.

While telephone services were being modernized, ITT was implanting its own corporate culture at Telefónica. This took form, first of all, in a hierarchical management structure firmly controlled by its president, Sosthenes Behn, who, when out of the country, received reports from his trusted associates in both the multinational and Telefónica (Álvaro-Moya, 2010). The company was organized into nine departments -Administration, General Secretary, Treasury, Auditing, Engineering, Construction & Maintenance, Traffic, Training and Sales-, which were initially led by American executives with Spanish assistants.[16] There was, in addition, a building unit dependent from the chief engineer - ITT had usually outsourced architect services, but this unit was founded as a response to the Spanish law, according to which all projects had to be approved by a Spanish architect (García Algarra, 2012, p. 307). At the same time, in order to increase and improve service, the Spanish territory was reorganized by regions, which from 1940 onwards counted with their own technical departments, were also headed by Spaniards.[17] This structure was supported by the progressive establishment of protocols and operational routines at all levels of the company: the bureaucratization typical of modern business enterprise (Deloraine, 1974; Sampson, 1973; Sobel, 2000; Bartlett and Ghoshal, 2002 [1989]). Most of the staff belonged to the Construction & Maintainance, and the Traffic departments –around 45% and 35%, respectively, of the total staff in the period analyzed here (Álvaro-Moya, 2010, p. 477).

[16] CTNE (1928), pp. 20 and 24; and *Revista Telefónica Española* (RTE, Spanish Telephone Review, Telefónica corporate journal), enero 1926.

[17] CTNE (1928), p. 22; Telefónica Archives (hereafter AT), Executive Committee Minutes (ACE) 44 (10/06/25) and 195 (30/05/28); Telefónica Foundation (hereafter FT), *Reunión de Jefes Técnicos*, December 1943.

ITT pioneered the development of one department in particular –Sales—, among whose responsibilities was the execution of marketing studies and advertising campaigns, still quite unusual for a Spanish company at that time. The multinational also introduced for the first time techniques of personnel management that were already firmly established in similar companies in other countries, especially the United States, but which were not widespread in Spain. These methods were related to the *rationalization of work* concept but were combined with that of the *"telephone family"* –a human relations approach by which the loyalty of employees is gained by improving their working conditions and making them feel that they are part of a collective success (Álvaro-Moya, 2008; Borderías, 1993). In addition, a remuneration policy based on objective achievement (minimum wages complemented with bonuses for productivity) was introduced, and middle management was reinforced with the introduction of more management levels.

The implementation of the new management methods made personnel training a priority. Training included both technical and managerial skills. ITT made a great effort to train the local staff, drawing on ITT group's engineers, accountants and management professionals (even experts from the American AT&T (Deloraine, 1974, p. 67). All formal personnel training was channeled through the *Escuela de Telefonía* (Telephone School, created in 1925) and the company's training department, which from 1926 onwards managed the different training initiative developed.[18] This school held different level courses, but they were mainly aimed at shop-floor workers, middle managers and office employees. English and correspondence courses were also offered. The activities of the School were expanded throughout the period here studied, even, by the end of the 1960s, to university levels.

The contract signed in 1924 between CNTE and the State already stipulated that the majority of staff (at least 80%) had to be comprised of Spaniards, a requirement that was subsequently applied to ISE's Spanish subsidiary as well (Cabezas, 1974, p. 49; Calvo, 2009). The information available shows that this commitment was quickly fulfilled. From 1924 to 1928, a total of 250 American employees (among a total of around 7,600) worked in Telefónica. In 1932, apart from the five ITT representatives on the Board of Administration and top managers at four departments -Auditing, Construction & Maintenance, Engineering and Sales –, there were only 13 foreigners on the staff, working in the Construction & Maintenance, and Engineering departments.[19] In fact, by that time a 32% of Spain's telecommunication engineers worked in ITT (most of them in Telefónica), a 29% in 1941 (Asociación Española de Ingenieros de Telecomunicación, 1932 and 1941).

[18] RTE, January 1925and September 1926; Telefónica, *Annual Report* (1926).

[19] AT, ACE 406 (28/09/32); ITT's Memorandum February 26th, 1940; MAE, R1671/6; Telefónica, Annual Reports (1924-1945); Pérez Yuste (2004), pp. 273-274 and 277; Álvaro-Moya (2010), chapter 4; and García Algarra (2012), pp. 307-315. In the case of SESA, the Spanish subsidiary of ITT's Standard Electric, all senior officers were foreigners, either Americans or executives from other European subsidiaries (Márquez Mira, 1976, p. 149).

There were not great changes in management positions after Telefónica's nationalization. By that time only four American executives still played a key role, as executive vice president, general director of the operations departments (Construction & Maintenance, Traffic, Engineering and Sales), chief executive of the auditing department and assistant manager in the Construction & Maintenance one –immediately before the nationalization, there had been three more, two as chief executives of the Construction & Maintenance and the Sales departments and another as assistant manager in the latter–[20]

To illustrate the role that local managerial talent played in Telefónica's performance, we have reconstructed the professional career of top managers at the Engineering department, and, although less in-depth, at the Sales and Auditing departments (Table 1). Apart from the Building unit, where managers were architects, in all cases the Spaniards had obtained a telecommunication engineering title at Spanish universities. It was very usual that they collaborated with local training institutions throughout their career.

TABLE 1. Key local managers in Telefónica technical and auditing departments (1924-1960s)

Name and department	Comments on their professional career at Telefónica
ENGINEERING DEPARTMENT	
José María Clara Corellano	1924-1965, assistant manager and chief engineer
Manuel Marín Bonell	1924-1962, assistant manager
Francisco García del Amo	1924-retirement, assistant manager
Building unit	
Ignacio Cárdenas Pastor	Chief Architect (1924-1939)
José María de la Vega Samper	2nd Chief Architect (1924-1939), Chief Architect (1939-c. 1960)
AUDITING	
Luis Sousa Sánchez-Majón	1920s-retirement
SALES	
Vicente de la Calle y García de la Parra	c. 1930-1983
OTHER TOP MANAGEMENT POSITIONS	
Francisco Martín de Nicolás y de Osma	1925-1964

Regarding the Building unit included in the Engineering department, Ignacio de Cárdenas Pastor acted as the chief architect since 1924, although in the first years under the supervision of the ITT's executive Aldrich Durant. He was recruited immediately after finishing his architecture studies (García Algarra, 2012, pp. 308-310). His professional life was devoted to Telefónica, where he achieved a great success. He published several works on telephone architecture and worked very closely with ITT architects to build Telefónica's skyscraper headquarters. After the Spanish Civil War, however, he was dismissed for political

[20] Fundación Telefónica, *II Reunión de Jefes Técnicos*, July 1945; AT, ACE 279 (01/05/45) and 281 (16/05/47); Asociación de Ingenieros de Telecomunicación (1932) and (1941); Álvaro-Moya (2010), pp. 191-193; García Algarra (2012).

reasons, ending as a result his career as architect. He was replaced by José María de la Vega Samper, the second in command until then. Both headed the group of young Spanish architects who worked in Telefónica's Building department (García Algarra, 2012, p. 309).

In the case of the engineering department, probably the most important local figures were José María Clara Corellano and Manuel Marín Bonell. José María Clara Corellano worked at Telefónica since its foundation, as assistant of ITT's chief engineers, Roy A. Walter and, later on, P. Wendell (Deloraine, 1974, pp. 62 and 69; Asociación Española de Ingenieros de Telecomunicación, 1932 and 1941)–. Telecommunication engineer by an Spanish university, he studied electricity in París becoming instructor in that field. When the Spanish Civil War broke out, he continued working in the Republican zone, until had to exile in 1937 (Deloraine, 1974, p. 69). After the war, he was first appointed chief engineer and technical general director, as well as counselor of another ITT subsidiary in the country (SESA).[21] CEO since 1954, one year later he was appointed CEO, a role he held until his retirement in 1965. He was responsible for operations plans from 1950 onwards, visiting frequently ITT subsidiaries in other countries and attending national and international conferences related to the telephone service.[22]

Manuel Marín Bonell, former engineer from one of the local companies absorbed by Telefónica was in charge of Telefónica's research and training regarding automatic systems (Marín-Camacho, 2009). From the 1940s, and until his retirement in 1962, he held top positions in Telefónica's (and Standard's) engineering department.[23] He published several works on the automatic service, which were used, for instance, by ITT to train their staff worldwide. He also held top positions in other Spanish communication companies and was instructor of the main schools related to this industry.

Francisco García del Amo, finally, also devoted his entire professional career to the Engineering department of Telefónica.[24] He was firstly office manager until being appointed assistant manager in the early 1940s (Asociación Española de Ingenieros de Telecomunicación, 1932 and 1941).

Other important local managers, not related with the engineering department, were Vicente de la Calle, Francisco Martín de Nicolás and Luis Sousa. Vicente de la Calle y García de la Parra was assistant manager at the Sales department in late 1930s and operations manager in 1955, when he was appointed general director of the operations department –a position

[21] AT, Board of Directors Minutes (hereafter ACA) 165 (28/08/47), 209 (19/07/50), 261 (28/10/54) and 264 (25/01/55); and AT, ACE 57 (03/12/40) and 273 (20/03/45).

[22] AT, ACA 165 (28/03/47), 174 (27/11/47), ACA 196 (19/07/49), 202 (16/01/50), 203 (23/02/50), 227 (20/12/51), ACA 264 (25/01/55), ACA 265 (22/02/55), ACA 390 (10/11/65); and AT, ACE 374 (11/06/47), ACE (28/06/50) and ACE 1090 (02/12/64).

[23] AT, ACA 306 (30/09/58); and ACE,849 (30/09/58).

[24] AT, ACA 306 (30/09/58); and ACE, 849 (30/09/58).

only held until then by American executives–.[25] He was managing director from 1965 until his retirement in the early 1980s (Álvaro-Moya, 2010, pp. 229-232; *El País*, January 27th, 1983).

Francisco Martín de Nicolás began to work at Telefónica in 1925, after finishing his engineering studies. In 1947 he was appointed director of the new Department of Social Affairs, where he was responsible for the new rules work, and Deputy Secretary General in 1954, a position he had already occupied before the Spanish Civil War.[26] In the early 1930s, he took part of the Joint Committee established by the Ministry of Communications to resolve the labor unrest that arose as a result of the publication of a new collective agreement.[27] Finally, Luis Sousa Sánchez-Manjón, formerly officer and assistant manager of auditing, he was appointed chief executive of this department in 1954.[28]

6. Discussion

This paper explores how multinationals promote talent within their subsidiaries, and how local managerial talent might shape the multinational's operations in host economies. In order to do so, we have first defined local managerial talent as the stock of knowledge, skills and relationships embodied in the local associates and staff of foreign MNEs that facilitate economic action and the production of economic value. Social and human capital, therefore, are both included in this definition as variables that interact enhancing MNEs operations.

In our still ongoing research, we have analyzed the activities of two prominent MNEs, Bayer and ITT, in Spain during the second industrial revolution. We have first examined their entry mode and long term evolution in the country. Both multinationals entered the Spanish market through strategic alliances with local partners. In the case of Bayer, scale and scope dictated its international expansion and its technical and commercial capabilities were enough to dominate the Spanish market. It was only under nationalistic pressure that the German MNE agreed to form joint ventures with Spanish commercial agents (Lluch) and manufacturers (FNCE). In contrast, ITT was still a little known company when it obtained the Spanish monopoly; Telefónica, indeed, became the cornerstone of an accelerated global expansion in the second half of the 1920s. This, and the fact that telecommunications was an strategic usually tied to the Post Office and Telegraph departments, made crucial to have local support to success. Later on, this local support allowed ITT to retain the control of its subsidiary in adverse situations such as the Spanish Civil War and the nationalistic government that followed.

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[25] AT, ACA 264 (25/01/55) and 265 (22/02/55).

[26] AT, ACA 67 (26/11/40), 68 (09/12/40), 169 (25/06/47), 183 (14/07/48), 257 (17/05/54) and 392, 22/12/65; and AT, ACE 24 (10/01/40).

[27] AT, ACA, 364 (12/12/31).

[28] AT, ACA 258 (22/06/54).

In the first years of Telefónica, ITT made a great effort to set the company organization and train local managers and staff. Top management positions were occupied by American executives as a result. But soon their former assistant managers replaced them. Corporate governance was distributed between ITT executives and local partners, although ITT had, directly or indirectly, the full control of the subsidiary for most of the period here considered. As a result, key top managerial positions in the operations department (Auditing, Construction & Maintenance, Engineering and Sales) were kept by American executives even after Telefónica's nationalization in 1945. However, after a very few years of Telefónica's foundation, local managers, whose professional life was usually devoted to this company, had been in charge of designing and implementing operations plans. They, in addition, contributed to the process of knowledge transfer promoted by MNE's headquarters with their technical background and contacts.

In the case of Bayer, our research demonstrates that between 1899 and 1975 its impact on its Spanish subsidiaries' human capital was determined by three factors: 1) Its mode of entry, which tied the German multinational company to a group of Catalan industrial dynasties over four generations; 2) External shocks such as the Spanish and world wars and the expropriation process, which strengthened the role of Spanish managers and associated Bayer with Spain's largest private business group; and 3) The ambition of its local partners, which led Bayer to intensify its Spanish business and overall influence on the local staff and institutional environment. One could even add a fourth factor: the existence of a strong German economic and cultural community that sustained inward investment and the transfer of knowhow.

It seems clear to us that Bayer (by far the most Spanish-committed of the three big German chemical firms) was not particularly interested in the development of local human capital between 1899 and 1975. The company was fully aware of both its competitive advantages (proprietary technology and customer service) and disadvantages (protectionism). Hence the dual structure and tight control of its Spanish subsidiaries (through German technical and commercial directors), on the one side, and the neat division of labor between technical and political partners, on the other.

War and expropriation, however, increased Bayer/IG's reliance on its Spanish partners and employees. In the case of UQLL/Unicolor, IG's and Bayer's commercial platform, the impact was insignificant until 1939. In the case of FNCE, the impact was greater, mainly because of circumstances (WWII increased IG's interest in Spain but the concern had to rely on and train Spaniards) and the iron will of FNCE's Spanish families and their social network (we have gathered evidence on four owning generations specifically trained to run FNCE, and Francesc Belil IV ended up at the top of Bayer's southern Europe operations!). Finally, in the case of QCF, the impact was remarkable (in quantitative and qualitative terms) because of two factors. First, the pharmaceutical business necessarily relied on educated employees, doctors, pharmacists, and specialized salespeople and was labor intensive. Bayer had to build a network, and this was facilitated by the relatively high level of Spanish health professionals. Second, after the war QCF found itself tied to Urquijo, a powerful business group with the capabilities and ambition needed to fully exploit this unique opportunity. Proquisa, CEPA, IFE… and their human teams would have been unthinkable without Bayer.

Finally, it was common that the engineers and managers of the companies we have studied collaborated as instructors in various training institutions of the time. Bayer's local managers, for instance, used it to modernize the Spanish pharmaceutical industry in the late 1950s and 1960s. In this sense, the knowledge spread by foreign MNEs was in turn transferred to the rest of the Spanish society. This is a point, however, which needs to be studied in greater depth.

Summing up, this still ongoing research offers, on one hand, some long-term empirical evidence on how MNEs develop networks of relationships to avoid the liability of outsidership, showing the role played here both by local and foreignness, and how economic nationalism can reinforce such networks. It shows, in addition, that local partners are not necessarily limited to political and business elites, as most studies from development economies point out. The research stresses, on the other hand, that FDI contributes to enhance human capital on host economies, but this process is also greatly enhanced by the already existing local managerial talent (including the human and social talent embodied in local partners and staff). If protectionism encouraged the development of human capital, as our cases suggests, was because the capabilities, vision and ambition were there. This process of transfer of knowledge and capabilities –that is, the long term effects of MNEs on human capital– can only be properly addressed through the tools and perspective of business and economic history.

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