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# Upgrading in Spain: An Institutional Perspective

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## Abstract

This paper frames and summarises the main contributions of a book-length project that aims to explain the recent rise of Spain's firms in complex service sectors, and the parallel fall in skill- and capital-intensive manufacturing sectors, through an analysis of the institutional structure that enabled it. The paper argues that a form of strategic coordination called *peer coordination* (PC) was responsible for the Spanish pattern of upgrading. PC was a non-hierarchical variant of strategic coordination based on the presence of structural public-private interdependencies and direct state-business interactions. PC enabled large, well-established Spanish firms in complex service sectors like banking and telecommunications to maintain control of the home market and undertake costly restructurations but imposed few constraints on these firms, facilitating upgrading. The lack of effective intermediary agents hindered the development of PC in capital- and skill-intensive manufacturing sectors dominated by small and medium enterprises (SMEs). Furthermore, PC in banking and telecommunications imposed additional constraints in manufacturing sectors like professional electronics, making it difficult for firms to access the patient capital and stable demand they needed to develop new, complex products. In exceptional cases, the central state and some regional governments were able to circumvent the limitations derived from PC and to create institutional structures that supported modest upgrades in some manufacturing sectors.

**Keywords:** industrial upgrading, Spain, institutions, business and government relations, public policy

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## **1 Introduction**

Spain's late industrialisation in the 1960s and 1970s transformed a backward, rural economy with stark socioeconomic differences into an industrialised society with a broad middle class. Working conditions improved, standards of living rose, and child labour disappeared. However, by the early 1990s, a labour-intensive Fordist production model based on standard manufactures and sheltered service sectors could neither serve the rising aspirations of Spaniards nor continue to operate as usual. New technologies, advances in transport, and lower barriers to trade and capital movements transformed manufacturing production and high value-added service sectors. Two additional factors threatened Spain's status quo: The fall of the Berlin Wall and the decision to integrate Central and Eastern Europe into the EU meant that Spain risked losing the market for standard manufacturing outputs to lower-cost competitors from Central and Eastern Europe. Second, EU plans to liberalise service sectors, starting with banking and telecommunications, spread concerns that Spain's most sophisticated firms could be acquired by larger, more advanced Western European rivals looking to expand into the Peninsula.

If Spain wanted to continue raising the standard of living of its citizens, most sectors had few alternatives but to upgrade. Upgrading meant entering segments where outputs could not be easily replicated by producers from emerging markets and improving processes and operations to compete effectively with sophisticated rivals. Not all sectors were able to achieve this. By the mid-2000s, Spanish firms in a few complex service sectors (banking, telecommunications, energy, and infrastructures/civil engineering) had managed to rise to the top of international rankings in terms of sustainability, efficiency, productivity, and international scope. By contrast, productivity and comparative advantages in most manufacturing sectors, especially those that required technically skilled labour and sustained capital investments to support new product development, were flat or negative.

Spain's steep rise in complex service sectors and its deep parallel decline in manufacturing were surprising. As tables 5, 6, 9, and 10 show Spanish firms in complex services started from positions of disadvantage in terms of size, resources, productivity, quality of service, and international scope. Furthermore, upgrading in these sectors required deep process adjustments, costly organisational restructuring, and changes in firm strategies that were complex, risky, and had long-term horizons. Consequently, the rise of Spanish services to a world-class level was unexpected. Furthermore, although most developed economies have experienced a decrease in the contribution of manufacturing

to GDP<sup>2</sup> since the early 1980s, the drop has been much steeper in Spain than in any other large European economy, including the UK (see Table 11).

This paper takes an institutional perspective to explain upgrading in Spain. It starts from the premise that institutional structures—that is, the rules of the game—generate systemic advantages and constraints that condition firm strategies and, therefore, economic outcomes. As a result, the analysis of upgrading in Spain turns into an analysis of Spain’s institutional structure. This paper responds to the following questions: What defines Spain’s institutional structure? And why was it more adept at fostering upgrading in complex service sectors than skill- and capital-intensive manufactures?

### 1.1 *Relevance*

An analysis of Spain’s institutional structure has the potential to make valuable contributions to the literatures of upgrading, institutionalism, and Varieties of Capitalism (VoC). Neither a world leader nor a developing country, Spain represents a viewpoint often neglected by the scholarly literature. Spain’s late industrialisation trajectory, relatively recent political transition to democracy, and late integration into the global economy frames upgrading within a context that resonates well with those of peripheral, transitional, and middle-income economies elsewhere. In addition, Spain falls into the category of “mixed-market economies” or hybrid institutional ecosystems. These cases have been understudied by the VoC literature and are expected to underperform relative to *Liberal and Coordinated Market Economies* (LMEs and CMEs) (Hall and Gringerich 2009). By taking up the study of a hybrid case, this paper contributes to the exploration of the nature of mixed systems and tries to elucidate whether they offer any advantages.

An analysis of upgrading in Spain also has important practical value. Spain is one of the Western countries hardest hit by the crises that started in 2008. Unemployment levels in mid-2013 surpassed 26%, and the International Monetary Fund estimates it will take Spain a decade to reach pre-crisis GDP levels (INE 2013, El País 2012). Understanding the structure that enabled a handful of sectors to upgrade in the period that preceded the crisis can offer valuable clues as to whether, or how, other sectors could achieve comparable results to generate the wealth Spain needs to support a sustainable recovery.

### 1.2 *Methodology*

The analysis in this paper is operationalized through in-depth qualitative case studies taken from three sectors: banking, telecommunications, and professional electronics. These sectors were selected on the bases of their skill- and capital-intensity, density of connections to other sectors, and centrality to Spain’s economy. These features were interpreted as signals that upgrading at the sector level could

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<sup>2</sup> Gross domestic product

unleash economic transformation on a national scale through cross-sector interdependencies. This paper uses evidence from the banking sector to introduce the concept of peer coordination and define Spain's institutional structure. It uses evidence from telecommunications to generalise conclusions to a broader set of complex services sectors. To evaluate the impact of PC on skill- and capital-intensive manufacturing sectors, this paper uses evidence from three mini-cases in the professional electronics sector (telecommunications, defence, and industrial electronics). The paper relies on within-sector, cross-country comparisons with the UK, Germany, and France to reveal the distinctive features of Spain's institutional structure relative to those of other large European economies and to underscore the consequences of these differences on socioeconomic outcomes.

In its present form, this paper frames the debate, presents the argument summarily, and outlines the contributions of a book-length project. It also discusses the practical implications of the findings in the context of the economic crisis that started in 2008. This paper should be seen as an introduction to the book, a summary of its main conclusions, and more generally, as an instrument to stimulate further discussion. The remainder of this paper is structured as follows: Part two outlines the theoretical frameworks used to develop the argument. Part three presents the argument and discusses alternative hypotheses. Part four summarises theoretical contributions and part five finishes with a discussion of practical implications.

## **2 Theoretical Frameworks**

The literature on Spain offers no ready answers to map Spain's institutional structure. Contributions written from a management perspective trace the growth and internationalisation trajectories of some Spanish firms, especially large banks (Guillen 2005, Guillen and Tschoegl 2008), but these authors disregard the role of institutional structures in shaping the trajectories of firms and unleashing their potential. Contributions written from historical and political sciences perspectives (Perez 1997, Pons 1999, 2002) account for the institutional framework but concentrate on the Francoist epoch (1939–1975), which precedes the period discussed in this paper. Finally, Spain rarely features in the international institutionalist literature and where it does, authors characterise its model as “hybrid” or “mixed” (Moline and Rhodes 2007, Hall and Gringerich 2009), a concept whose meaning has yet to be fully developed.

This paper compensates the lack of a substantial body of institutional literature on Spain by relying on three major conceptual building blocks: the concept of upgrading, a group of firm-centric contributions, and the statist literature. Conceptual elements from these three strands of the scholarly literature define the process this paper aims to explain and the actors responsible for achieving it. Upgrading is the process by which economic actors (nations, workers, producers) move up the Global

Value Chain by generating outputs that have more value-added invested in them because they are better, are produced more efficiently, or require more complex skills (Gereffi 2005, Gibbon and Ponte 2005, Gereffi and Fernandez-Stark 2011). The concept of upgrading implies that higher returns at the firm or sector level derived from upgrading will lead to improvements in national socioeconomic conditions (Milberg and Wrinkler 2010). This implication confers upgrading a national dimension, in addition to a firm- or sector-level dimension, and likens it to development. However, the concept of upgrading remains broad enough to be applicable to industrialised countries that no longer fit standard notions of low income, such as Spain.

Following the assertions of Porter (1990), firms are indispensable contributors to upgrading because they are responsible for the decisions that result in superior, more complex outputs, more efficient processes, and effective organisational structures. However, this paper deviates from the management literature by contending that states are as essential to upgrading as firms. The concept of upgrading assumes a change in a country's productive specialisation, which in turn needs to be based on a shift in a nation's resource endowment. States' overarching capacities to undertake public investment and provide basic collective goods, and their responsibility toward the common welfare, place them in a unique position to modify a country's resource endowment and therefore contribute to upgrading.

Furthermore, not all firms and states are equally likely to act as catalysts for upgrading. Rodrick (2011) argues that some sectors are more likely than others to spearhead development, and he calls these *elevator sectors* because they accelerate the rate at which a country can absorb ideas and new knowledge. Rodrick identifies manufacturing sectors such as automotive, metals, and machinery as elevators. However, he does not establish a set of characteristics that define elevator sectors more generally. This paper combines contributions from other authors to fill in this gap. It identifies four defining features of elevator sectors: high skill and capital intensity, density of connections to other sectors, centrality to a country's economy, and in some instances industry concentration. This paper then works on the assumption that any sector that fulfils these requirements, whether in manufacturing or services, could help support a broader process of upgrading and socioeconomic development.

Amsden (1989) discards low-capital and low-skill sectors as catalysts of upgrading because they can maximise and sustain their profits over relatively long periods of time through capacity expansion rather than costly qualitative changes. Low skills are also difficult to apply to other activities and offer low potential for diversification. Rodrick and Hausmann (2006) and Hidalgo (2009) argue that industries with deep linkages to other sectors are more likely to transform a whole economy by transmitting change through proximity and interdependence mechanisms. The Resource Based View literature (Dierickx and Cool 1989, Barney 1991 and 2001, Peteraf 1993, and Whitley 1999) contends

that centrality to a country's economy -or control over imperfectly mobile strategic resources (physical, human, organisational)- increases the likelihood that a firm can develop strategies that lead to sustainable growth. Finally, Zysman (1983) adds that sectors dominated by a few large firms are more likely to unravel investment patterns in physical or market infrastructures that generate systemic benefits.

Zysman's argument needs to be qualified, however, because it runs against evidence from Germany, where midsize firms are engines of innovation and sustainable wealth. According to Streek (1991) and Herrigel (1996), small and medium firms can play such a role when three conditions converge: a universe of several equally efficient competitors; a high-trust climate conducive to transversal alliances across competitors; and socialisation of risk through collective organisations, such as regional governments, regional banks, technical schools, and trade associations. Consequently, elevator sectors will be characterised by market concentration only in contexts where these preconditions are absent or where there are no functional equivalents.

Similarly, not all states are equally likely to spearhead change. Contributions from the state-centric literature identify competence, autonomy, and financial resources as three crucial factors that influence state's efficiency. Rueschemeyer and Evans (1985) define competence as the ability to pull in organisational capabilities, knowledge, and skills through a cohesive bureaucracy with common orientations, assumptions, and expertise. Skocpol (1985) defines autonomy as the ability to develop goals and insights free from pressure from other elites. However, it is unclear what guarantees autonomy and studies of French developmentalism (Hancke 2001, Loriaux 2003) question whether it requires structural separation between civil servants and entrepreneurial groups. Skocpol (1985) also points out the importance of financial resources and the flexibility in their collection and use, especially for undertaking capital-intensive projects.

The presence of a capable state and firms in elevator sectors alone is not sufficient to explain upgrading. Building on Teece and Pisano's (1998) relational view of the firm, this paper contends that the key to upgrading lies in the way the two actors articulate their interactions. The literature has developed a variety of taxonomies that define coordination across economic actors. Despite the nuances of different classifications, they all tend to capture the same dichotomy between mechanisms that operate via spot market arrangements in response to price signals, and those in which coordination is based on negotiations among groups of insiders. To facilitate the discussion, this paper uses Hall and Soskice's (2001) terminology and calls these two forms of coordination *market* and *strategic coordination*, respectively. However, this paper introduces a variation, based on Williamson's (1975) argument, to state that there are at least two variants of strategic coordination: *hierarchical* or *peer-group*, depending on whether one actor is subordinate to the other.

Although the VoC literature does not consider the role of an actor's capabilities in consolidating a certain form of coordination, this paper argues that different variants of strategic coordination make important assumptions about the roles and characteristics of firms and the state. In the hierarchical variant, the state is the primary agent of economic change, and firms become instruments for policy implementation. The state in this variant is assumed to have a highly competent, autonomous bureaucracy and substantial financial resources. Firms are kept dependent on the state through state control of key resources, such as capital and licenses, and through tight networks of insiders who straddle the high echelons of public policy making, the civil service, and large firms. By contrast, the peer-group variant is based on the presence of interdependences among economic actors. Each actor is incapable of undertaking change on its own; but it has unique capabilities the other needs. States in these systems lack one or more of the attributes that would make them effective (competence, autonomy, or financial resources), and firms possess the corresponding attribute or attributes the state needs.

This paper also departs from the VoC's conventional expectation that national economies can be defined by a single institutional structure based on national-level institutions, because it is considered too limiting to "map" highly decentralised economies such as Spain's. Thus, this paper complements the traditional national-level analysis with a subnational perspective that examines the contribution of regional institutions to upgrading.

### **3 Argument**

This section is divided into two parts: The first discusses two alternative hypotheses to explain upgrading in Spain. The second presents the paper's argument.

#### *3.1 Alternative Hypotheses*

Some features of the Spanish evolution point toward explanations for upgrading in which the relationship between the state and large firms was dominated by one of these two actors. Under the firm-driven explanation, upgrading would have been based on processes of firm competition and Schumpeterian creative destruction. Firms in complex service sectors would have achieved upgrading based on a combination of time-tested competitive advantages in project evaluation and execution and negotiation skills (Guillen 2005, Guillen and Garcia-Canal 2010). Conversely, firms in most manufacturing sectors would have been unable to develop competitive advantages to counter cost and product quality competition, leading to stagnation and decline. Under the alternative state-driven

explanation (Chislett 2003, Rozas Barbotin 2008, Martinez 2008), Spain's state would have driven upgrading by defining, directing, and shaping the strategy of large firms.

Spain's two periods of privatisation in 1983–1985 and 1997–1998, and the liberal background of most of its economists, suggest a political shift toward a market-oriented approach and support the firm-driven explanation. Two waves of banking mergers—one that followed the 1977–1985 banking crisis, and another one around the introduction of the Euro in 1999—suggest that the most competitive banks absorbed less efficient rivals, which supports the firm-driven hypothesis. The rapid foreign expansion of large banks and the telecommunications operator to Latin America, a region that was less developed than Spain, in the 1990s and early 2000s also suggests that Spain's recent developmental experience could have been a source of competitive advantage for Spanish large firms.

However, a deeper analysis undermines the firm-led, market-based hypothesis. Privatisation alone cannot be identified with a shift toward a competitive market structure unless it is accompanied by institutional changes that guarantee competition. This is exactly what the UK did in telecommunications, where the privatisation of British Telecom (now BT) was coupled with a strict separation of policy making, policy implementation, and service production functions, which were allocated to different bodies: the government, an independent regulator, and a private firm, respectively. Such institutional changes were absent in Spain. Despite a first privatisation phase that reduced the state's stake in Telefonica to only 20% by 1987 (about half the share that the UK still held of British Telecom at the time), the Spanish Telecommunications Bill passed that year stated that telecommunications were “essential services, owned by the state and managed by the public sector”. Furthermore, Spain did not create a sector regulator until 1997, and even then there were serious concerns regarding its independence.

In addition, evidence from both the banking and telecommunications sectors challenges the claim that Spanish complex services succeeded in their expansion through reliance on competitive advantages in project evaluation and execution. When Spanish banks initiated their international expansion in 1992, they had more limited international experience than their Western European counterparts, they were significantly smaller, and they had little experience with internal or external competition. These features were a result of Spain's late industrial development, the closed nature of its economy until EU accession in 1986, the smaller size of the Spanish economy<sup>3</sup>, and the legacy of Francoism<sup>4</sup>. Similarly, tables 6, 9, and 10 show that when Telefonica initiated its international expansion in 1989 it had few competitive advantages relative to other European incumbents in project execution or satisfying unmet demand. Between 1985 and 1996, Telefonica added an impressive 6.1 million new

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<sup>3</sup> Spain's GDP was 50% of Germany's GDP in 1985 (World Bank, own calculations).

<sup>4</sup> Franco vetoed mergers among large banks, and none occurred until 1987.

lines, but these figures pale in comparison with Germany's 18 million new lines, and are small compared to France's and the UK's 9 million, and Italy's 8 million. In addition, the context of Germany's reunification weakens the claim that Telefonica's experience with service expansion was fundamentally different from those of operators from more advanced countries. Moreover, Telefonica's service expansion did not keep pace with demand: waiting lists for service continued to increase in Spain until 1989, by which time they had disappeared in most developed economies (Table 10).

Finally, the assumption that manufacturing sectors declined because they could no longer compete in costs is simplistic. As Spain's cost advantage eroded in standard manufactured outputs, the logical reaction, especially in sectors with heavy sunk costs, would have been to offset higher relative costs with higher value through increases in productivity and product complexity. Yet, there is little evidence that this occurred in Spain. In fact, the country's investment in research and innovation has remained low. In 1985, Spain invested only 0.6% of its GDP in research and development. Investment peaked at 1.3% of GDP in 2007, well below the investment of other large European economies. For example, France consistently invested about 2.2% of its annual GDP in research and development between 1985 and 2007 (OECD 2012). Developmental economies like Korea consistently scored above 2.5%. Furthermore, as Table 13 shows, labour productivity in key industrial manufacturing sectors in Spain declined, and in those where it did not, positive increases were minimal. Calculations of Balassa's Revealed Symmetric Comparative Advantage for Spain across a selected set of manufacturing sectors also show either negative or decreasing values (see Table 12).

In contrast, the state-directed hypothesis appears to be supported by evidence of high-profile personal relationships between high-level government officials and company CEOs, firm internationalisation patterns heavily focused on Latin America, the existence of national plans to modernise sectors like electronics, the use of executive decisions to allocate telecommunication licenses, and public procurement practices that favour local firms. Despite these indications, detailed empirical analysis of the composition and the relative capacities of the Spanish state indicate that it lacked the willingness, the strategic planning capabilities, and the financial resources necessary to pick sectors, develop complex strategies, understand and respond rapidly and accurately to market dynamics, and impose plan implementation of firms. These capabilities would have been essential to articulate a state-directed upgrading.

After the strong Socialist Party victory in the 1982 election, any remaining Opus Dei<sup>5</sup> planners in government left office. The winning party replaced them with liberal economists trained at the Central Bank who had been vocally critical of the planner's methods. In addition, up to that point, the state had delegated policy-making functions in banking and telecommunications directly to large firms. As a result, the state initially lacked the powers, and sometimes also the necessary specialised civil servants, to undertake complex planning functions without the assistance of large firms. For instance, although Spain's Central Bank (CB) was broadly considered the home-base of Spain's most talented economists, it lacked the necessary instruments to exercise monetary policy to control inflation. A central bank can exercise monetary policy through two instruments: interest rates or the monetary base. Until the early 1980s, Spain did not have an interbank lending market, a necessary feature to exercise control through interest rates. Consequently, the Central Bank could only exercise its policy functions by controlling the expansion of the monetary base. Banks, especially large ones, increase the monetary base through their regular credit operations, which meant that the CB needed the agreement of large banks to exercise one of its primary functions.

The case of telecommunications is even clearer. Until 1986, Spanish telecommunications were regulated exclusively through a contract between Telefonica and the state. There was neither a dedicated ministry for telecommunications nor a secretariat (the hierarchical level directly below that of minister), and there was no specialised civil service body. Although the state was represented on the board of directors of the operator through a government delegate, strategic decisions were taken directly by Telefonica, and its employees represented the state and negotiated on behalf of Spain at intergovernmental organisations like the International Telecommunications Union (ITU) and the International Telecommunications Satellite Organisation (Intelsat/ITSO).

There is also weak evidence that the state had sufficient financial means to implement capital-intensive plans linked to public policy objectives. The main sources of capital for Spanish industry were publicly listed and privately owned large Spanish banks and foreign investors, not the state (Perez 1997, Guillen 2005, Guillen and Tschoegl 2008). In fact, large firms tended to be primarily responsible for the implementation of public strategies that aimed to address critical episodes and overhaul basic infrastructures. During the 1977–1985 banking crisis, Royal Decree 3048/1977, RD 54/1978, and RD-Law 4/1980 made large banks responsible for providing the funds and the expertise to rescue the 51 banks that required support. Similarly, in telecommunications RD 2248/1984 established the framework for the universalization of telephony services between 1985 and 1996 but

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<sup>5</sup> Opus Dei is a Spanish-founded Orthodox Catholic organisation whose members are encouraged to participate actively in public service at the highest levels, often supported through the Opus' extensive financial resources and personal networks. Opus members had played significant roles in Francoist governments in the 1960s and 1970s, introducing multiannual planning strategies inspired by the French model.

attributed the articulation of specific plans, decisions over deadlines, development of technical solutions, and 75% of funding to Telefonica.

Evidence of a state-directed approach to upgrading is even scarcer in skill- and capital-intensive manufacturing sectors. The electronics sector (both professional and consumer electronics) is a case in point. After repeated demands from industry representatives, the state approved two successive biannual National Electronics Plans in 1984 and 1987 aimed at stimulating demand, production, and exports, and reducing Spain's technological dependency (Senate 1986). However, these plans did not respond to the protectionist expectations of their industry advocates. The plans achieved and sometimes exceeded their stated goals, but 86% of investments, 95% of production, and 97% of exports associated with them corresponded to foreign rather than local firms (De Diego 1995). There is scant evidence that foreign direct investment helped local Spanish firms upgrade. In fact, some of the largest projects, such as a new AT&T's microelectronics plan built in first half of the 1980s, were linked to legal provisions that limited spill over effects (Ministerial Order of 5 June 1985). More generally, competition with sophisticated foreign rivals hurt unprepared Spanish firms, forcing most of them to downsize and many to sell their interests to foreign investors. For instance, between 1981 and 1990, Standard Electrica SA, the largest telecommunications equipment producer based in Spain, was down from 23,000 to 5,000 employees (Cubero Postillo 1992). The company was eventually acquired by Alcatel. Amper, the second largest Spanish producer of telecommunications equipment, sold its interest to Siemens in 1995 (El Pais 1995).

Finally, unlike its French counterpart, the Spanish state did little to encourage crucial clients of the telecommunications electronics sector to support its ancillary industry through procurement practices or participations in the industry. On the contrary, the state helped broker the agreements by which Telefonica, which accounted for 80% of telecommunications equipment demand, sold some of its industrial participation to foreign investors. For instance, the government took an active role in the selection for a foreign technology partner for Secoinsa, a Spanish telecommunications equipment producer in which Telefonica held a significant participation; specifically, the government favoured an alliance with Fujitsu, which eventually acquired Secoinsa entirely, over other possible US acquirers as part of a strategy to diversify away from US investment (Interviews<sup>6</sup>). More generally, starting in the early 1980s, the government failed to take any measures to prevent Telefonica from substituting historical procurement policies based on contract allocation to historical providers with practices based on competitive tenders (CSIC, Cubero Postillo 1992, focus groups transcripts, Interview<sup>7</sup>).

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<sup>6</sup> Interviews Xavier Castillo, Jorge Infante and Jose Antonio Silvestre.

<sup>7</sup> Jose Luis Adanero

### 3.2 *Introducing Peer Coordination*

This paper rejects both the market-based and hierarchical coordination hypotheses, contending instead that upgrading in Spain's complex services was enabled by peer coordination. PC is a non-hierarchical, peer-group variant of strategic coordination based on the presence of interdependencies among economic actors. It works through a system of direct exchanges of sensitive information between small groups at decision-making and working levels within the state and large firms.

As it evolved in the Spanish context since the late 1970s PC was based on the presence of functional interdependencies and complementarities between the public and private spheres. The financial and organisational resources of large, well-established firms complemented state weaknesses in these areas and enabled the state to undertake crucial policy reforms, address sector-specific crises, and overhaul critical infrastructures. In exchange for their contributions, large firms involved in this system benefited from non-neutral regulation that enabled them to implement deep restructuration plans, secure large market shares, and substitute an older generation of decision makers during a crucial transformational period. Behind PC stood a developmental state that aimed to modernise Spain between 1982 and 1996, through a strategy based on the universalisation of basic services (healthcare, basic education, electricity, telephony service) and the development of basic infrastructures (especially the road transportation network) (see Organic Law 8/1985) but which often lacked the competences, manpower, or the financial resources to achieve these goals autonomously.

Two additional features whose roots can be traced to the Francoist period defined the context where PC developed in Spain. The first one was the existence of a fragmented elite structure based on specialised groups with relatively narrow fields of action in either the public or private spheres. The Francoist regime had actively fostered fragmentation as a way to prevent any single interest group from overshadowing the dictator. The second was the limited role in corporate decision-making processes played by intermediaries and professional interest groups. Unions had been effectively banned until 1977, partly as a way to subdue labour, and partly due their traditional association with leftist political parties, which were also banned. Once legalised, unions focused fundamentally on salary negotiations rather than corporate strategy. Similarly, associational activities, including those of professional associations, remained restricted until the democratic transition in the late 1970s.

PC was different from other European forms of capitalism based on strategic coordination. Spain's chronic state deficit, the position of privately owned banks operating under strict profitability criteria as the main financiers of industrial activity, and the lack of a cohesive elite with a strong esprit de corps straddling the higher echelons of the public and private sectors differentiated the Spanish from the French structure. These features diminished the capacity of the Spanish state to design and implement multi-annual strategic plans that required extensive coordination across the civil services.

They also severely limited the state's ability to use firms as subordinated instruments of public policy. On the other hand, the lack of involvement of labour intermediaries and professional associations in corporate decision-making differentiated Spain's structure from German-style coordination. Instead, the state and firms in the Spanish system managed their interactions directly through high-level contacts between executives and public sector officials, an approach that benefited large firms in concentrated sectors over SMEs.

The importance of public-private interdependencies in PC, the strategic planning and financial limitations of Spain's state, and the limited role of social intermediaries, also help explain why PC thrived in concentrated "infrastructure" sectors, such as banking and telecommunications, but was less likely to flourish and help support upgrading in skill- and capital-intensive manufacturing sectors. Public-private interdependencies in banking and telecommunications are structural. Despite liberalisation and globalisation, state supervision remains the cornerstone of the stability of national financial systems and, therefore, of national economies. States also continue to define the conditions under which massive capital investments in critical telecommunications infrastructure take place. The state's lack of financial means was not an obstacle for leading firms in the banking or telecommunications sectors because their average size, publicly listed nature, and historical trajectories enabled firms in these two sectors to raise funds through the financial markets. The state's weak planning capacities granted private firms enough freedom to elaborate strategies that helped fulfil public objectives without compromising their profitability. Finally, market concentration meant that firms in these sectors could (and probably preferred to) communicate with the state directly without using intermediary organisations to aggregate the sector's interests and play the role of interlocutors.

By contrast, PC was less likely to develop and help support upgrading in skill- and capital-intensive manufacturing sectors. Firms in these manufacturing sectors did not control strategic resources or generate outputs that were indispensable to the state's modernisation goals. Compared to complex services, most of these manufacturing sectors operated in competitive markets that were less dependent on state regulation. Most Spanish firms operating in skill- and capital-intensive sectors had severely limited or no independent financial and organisational capacity for new product development (Orkestra 2012) and those that did often concentrated on low- and mid-value-added segments, lacked critical mass, and had little exposure to foreign markets. Consequently, firms in these sectors depended more on what the state could do less well: elaborate and implement long-term plans, facilitate access to patient capital and stable demand, facilitate access to foreign markets, and provide access to shared research facilities for the development of new complex products. Firms in skill- and capital-intensive manufacturing sectors also had less autonomous capital and strategic resources to offer in exchange for state support. Finally, small- and medium-size Spanish firms needed a platform

of intermediary agents through which they could articulate sector-wide positions and manage interactions with the state.

Not only was PC less likely to crystallise in skill- and capital-intensive manufacturing sectors, but these industries also suffered the negative externalities derived from PC in complex service sectors. The example of telecommunications electronics illustrates how PC in banking and telecommunications made it difficult for telecommunications electronics firms to access the patient capital and stable demand they needed to develop new, complex products through which to upgrade. By virtue of the quid pro quo arrangement that defined PC in the banking sector in the late 1970s, large banks agreed to a stronger CB, restricted credit to enable the state to curb inflation, and accepted a reform package that set the sector on a future path to liberalisation. In return, large banks maintained control of the internal market, persuaded the state to delay entry of foreign competitors until 1993, and obtained the progressive elimination of mandatory investment coefficients. Lack of banking competition and credit restraint enabled banks to charge high interest rates for loans - in 1980 the President of the Spanish Banking Association admitted to charging 20% interest rates- (Torrero 1981) maintaining high profit margins. In addition, the combination of decreasing investment coefficients and the banks' for-profit orientation led banks to divest from industrial investments that did not offer immediate profit prospects, as opposed to forging long-term strategic alliances with productive industries based on the provision of patient capital. Absence of patient capital and high interest rates for loans exacerbated the liquidity problems that industrial firms in sectors such as telecommunications equipment were already suffering as a result of the economic crises of the 1970s and early 1980s. It also hindered efforts to invest in new product development to foster upgrading. Instead, as mentioned earlier, most telecommunications firms were forced to cut costs and downsize or seek foreign acquirers.

PC in the telecommunication services sector also prevented the telecommunications equipment sector from securing the stable demand that could have sustained the development of new complex products. The arrangement between Telefonica and the state meant that the operator assumed responsibility for the modernisation and expansion of the country's telecommunications network in exchange for strategic independence and legal protection from competition. An implication of this arrangement was that the state was unlikely to force Telefonica to allocate purchasing orders to local producers to support the telecommunications equipment sector the way France did with France Telecom (Owen 2013). The state was also unlikely to force the operator to maintain ownership, finance, and contribute as a technology partner to its industrial group. In the absence of state pressure, a for-profit firm like Telefonica had few economic incentives to invest a sector that lacked enough technological capacity to develop next generation network equipment. In fact, as mentioned previously, the operator divested

from its industrial group in the second half of the 1980s (Telefonica Annual Reports) and used the proceeds to finance its international expansion in the following years.

Nonetheless, PC's negative externalities with regard to skill- and capital intensive manufacturing sectors were not always insurmountable. The case of Defence Electronics shows that these constraints could be overcome when the political climate favoured a direct state intervention, the state could rely directly on its own organisational and financial capabilities, and local firms had some independent capacity for new product development. Under such circumstances, the state took a textbook industrial policy approach consisting of capital injections, incentivised mergers, allocation of public contracts, and public appointments, despite opposition from some of the firms involved.

After the failed military coup of 1981, the transformation and modernisation of the Spanish armed forces was considered a critical underpinning to the stability of Spain's new democracy (El Pais 1982). Military budgets increased sevenfold between 1982 and 1991 to carry out this objective (Telos 1995). Investment programs included the development and purchase of a new air surveillance system, a project entrusted to Ceselsa, a privately-owned firm and the only Spanish defence firm that developed its own technology. Between 1986 and 1993, in preparation for intense competition under the EU's Single Market, the Ministry of Industry spearheaded an effort to reorganise the Spanish defence sector through a merger between Ceselsa and a group of state-owned defence firms. The Ministry overcame Ceselsa's reticence to the merger by freezing the purchase of the air surveillance system mentioned above, and by tying the contract allocation to the merger with the state-owned group (Expansion 2013). Economic pressure forced Ceselsa to give in, and the two groups merged to form Indra in 1992. Between 1994 and 1998, Indra received 15,000 million pesetas as part of a restructuring plan that aimed to prepare it for full privatisation. By 2012, Indra embodied success in complex, capital-intensive, high value-added technology, obtaining 3,000 million Euros in revenue, employing 42,000 people globally, and growing steadily throughout the crisis that started in 2008.

In other exceptional cases, regional governments successfully took the initiative to help upgrade sectors underserved by the national institutional system. The case of Basque industrial electronics is perhaps the most representative example. Since the region was formed in 1980, it has developed an increasingly sophisticated institutional framework tailored to the needs of local SMEs in the metal-related sectors that constitute the backbone of the region's economy. The Basque institutional structure revolves around a network of intermediary entities, including an industrial development agency; specialised technology centres; regional savings banks; technical schools; higher-education institutions; and cluster associations that help firms gain access to patient capital, enter into collaborative-competitive arrangements with other firms, take part in product development platforms, access suitably skilled labour, and communicate effectively with the regional government. This

structure helped increase the sophistication of industrial electronics outputs and place the Basque Country, a region of only 2 million people, among the world's largest producers of manufacturing technologies, especially machine-tools. As Table 14 shows, the region's world share of exports in this sector between 1995 and 2009 has slightly increased despite growing competition and higher technological complexity, while that of Spain as a whole decreased by 40% over the same period.

Nonetheless, the Basque model is unlikely to be replicated across Spain because conditions in the Basque region differ from those common to the rest of the country. The particularities of Basque region include a strong manufacturing tradition based on local entrepreneurship, a concentration of economic activities in a few related manufacturing sectors, and a sense of political purpose. More important, other Spanish regions lack the financial independence and the power-sharing structure that derive from the Basque "Concierto Económico". The Concierto is a fiscal regime with historical roots that is only operational in the Basque Country and in a neighbouring region, Navarre. It attributes the capacity to collect taxes to the three Basque provincial governments and most spending decisions to the regional government. Such division of responsibilities led in the mid-1980s to a political schism which was resolved in favour of the political faction that favoured a collaborative structure across the local, provincial, and regional levels of government. The collaborative framework was then extended to the economic sphere, fostering the interlocked structure that supported upgrading in sectors like industrial electronics.

## **4 Contributions**

The findings summarised above complement, and in some cases challenge, the literature. Specifically, Spain's combination of high- and low-performing sectors and the presence of complementary institutional systems based on different forms of coordination challenge the VoC literature's assumptions of underperformance in hybrid institutional models, and the identification of institutional complementarity with institutional homogeneity. In addition, PC's non-hierarchical, multi-agent structure calls for better integration between firm-centric and state-centric views. The circumstances that helped consolidate the Spanish system indicate that the capabilities and resources of economic actors are important for institutional development. The identification of several variants of relational coordination indicates a need for more detailed analyses of economic models based on strategic coordination. The rest of this section develops these themes.

### *4.1 Performance in Hybrid Models and Complementarity through Heterogeneity*

The VoC literature (Hall and Soskice 2001, Hall and Gringerich 2009) concentrates fundamentally on national-level institutions. It also identifies institutional coherence with institutional homogeneity- the application of the same form of coordination across several spheres of the economy across sectors.

Homogeneous systems are associated with the generation of advantages that enable firms to perform certain types of activities more efficiently. By contrast, institutional systems that combine different forms of coordination (hybrid or mixed systems) are expected to perform less efficiently.

Evidence from the Spanish case shows a more complex picture of national institutional systems. This paper's argument does not undermine the idea that institutional systems need to be internally coherent to generate advantage; both PC and the Basque regional structure are based on a single form of coordination, and high-performing sectors are closely aligned with each of the systems. However, by showing that Spain has a primary system and at least one subnational structure, the paper's analysis does challenge the assumption that a political economy should be defined by a single institutional system. The contribution of subnational institutional systems to upgrading in the Spanish case also indicate the limitations of an approach based solely on national-level institutions, particularly for the analysis of decentralised economies.

The presence of two self-contained, internally coherent institutional systems based on different forms of coordination challenges the conventional view that advantage can only stem from institutional homogeneity and that institutional heterogeneity is to be considered a primary cause of economic under-performance. In Spain, the primary institutional structure operates through direct reciprocal exchanges between the central state and large firms, whereas the Basque structure relies on a dense network of intermediary agents to articulate the relationship between SMEs and the regional government. The two systems are complementary rather than antithetical because each supports different types of economic activities and firms, thereby increasing the total number of sectors that receive institutional support for upgrading. Two features ensure that the national and regional system do not undermine each other despite their reliance on different forms of coordination. First, the distribution of powers between the central and regional governments enshrined in the Constitution guarantees that policy-making powers associated with banking, infrastructures, and utilities are not decentralised. Second, the Basque government has political incentives to support sectors that are underserved by the national system: these sectors constitute the economic backbone of the region and are directly associated with the powerful Basque entrepreneurial class that supports the nationalist party that has ruled the region, almost uninterruptedly since 1980. Therefore, upgrading continues to be the Basque political elite's most effective political tool.

Finally, the analyses on banking and telecommunications support the claim that supra-national coordination did not unravelled national institutional structures. Technological innovations and institutional change have transformed sheltered service sectors that used to be regulated exclusively at a national level into porous, multilevel ecosystems. Nonetheless, nation-states continue to play a critical role. Despite the dramatic transformation experienced by banks everywhere, close

coordination between credit institutions and states is still a necessary guarantee for the stability and efficiency of national credit systems. Similarly, liberalisation has not eliminated the underlying tension between heavy capital investment in infrastructures and long-term maturity returns that defines telecommunications. In fact, states' competences for infrastructure development and allocation of other critical resources are a fundamental part of discussions regarding the on-going development of next generation telecommunication infrastructure as this article is being written.

#### *4.2 Integrating Firm- and State-centric Perspectives*

The firm-centric literature places firms at the centre of economic analysis because of their role as generators of wealth. The role of the state in firm-centric frameworks is unclear, although it is presumably vicarious to that of firms. By contrast, the statist literature identifies the state as the main catalyst for economic transformation and places firms in a second plane. This paper's argument speaks in favour of integrating these two positions and considering the possibility that both states and firms can be co-responsible for upgrading through a non-hierarchical relationship.

This paper argues that large, established Spanish firms in banking and telecommunications not only engaged in a relationship with the state, but also needed the state's unique capabilities as negotiator, legislator, and advocate to upgrade. Therefore, evidence from Spain supports the argument that while firms are the cornerstones of economic transformation due to their ability to generate wealth, states are equally necessary to stimulate and orchestrate changes in the country's resource endowment, a prerequisite of upgrading. Liberalisation and globalisation have affected states' ability to exercise power over firms through conventional avenues such as control over suppliers, price regulation, and explicit trade barriers everywhere, but states maintained unique competences and capabilities specific to each of these sectors that continue to make them indispensable.

The institutionalist literature is based on the idea that institutions are the result of a negotiated process between the actors involved. Yet, the Hall and Soskice (2001) approach does not consider how the resources and capabilities of economic actors influence their positions in the negotiation game. This paper suggests that integrating the firm-centric and statist views requires taking into account the capabilities and resources of economic actors in their national context and viewing these capabilities as complementary. Spain's PC developed within a historical context defined by the state's chronic lack of capital, historical delegation of governance functions to the private sector, late economic development, a concentration of economic elites in a handful of protected sectors, and recent political and economic transitions. These factors determined the relative strengths and weaknesses of the state and large firms, the range of options available for coordination between them, and the choices adopted. The state's willingness to make concessions to firms depended on its ability to accomplish

policy objectives through its own resources. When firms' resources complemented the state's own and helped further public policy goals, the state was willing to offer firms favourable regulation and support their restructuration. The state was willing to make these offers despite the fact that PC prevented the state from providing more substantial support to smaller, more vulnerable firms in a large number of manufacturing sectors. This decision was consistent with a modernisation strategy based on the universalisation of basic services and with Spain's integration in the EU. Large firms entered into PC because the agreements enabled them to protect their home market positions and undertake deep restructurations that they deemed essential to compete in a wider European market. The SMEs that suffered the negative externalities of PC could do little to object; they did not control strategic resources through which they could exercise leverage, and they lacked a common platform to articulate their demands. In the exceptional cases when the state had sufficient autonomous planning and financial resources to fulfil its developmental policy objectives independently it did not take a peer-group approach. Instead, it adopted a conventional top-down industrial policy approach.

#### *4.3 Variants of Strategic Coordination*

According to the VoC literature, firms in Coordinated Market Economies depend heavily on strategic relationships to build their core competencies. Strategic coordination "generally entails more extensive relational or incomplete contracting, network monitoring based on the exchange of private information inside networks, and more reliance on collaborative, as opposed to competitive, relationships" (Hall and Soskice 2001). Although this definition of strategic coordination is broad, in practice the literature has considered the German institutional model as the paradigm of a Coordinated Market Economy.

This paper challenges such identification by suggesting that strategic coordination could adopt different forms. Spain's PC specifically, emerged as a structure in which policy making, policy implementation, and service provision functions were not clearly separated but rather determined through negotiation among several groups of elite civil servants and private sector decision-makers. Intermediary agents were absent from decision-making roles in Spain, and the state disengaged from direct intervention in firms based on ownership or board-level representation. In addition, Spain's public service lacked the organisational skills of its French counterpart, in part as a result of Spain's specialised and siloed civil service structure.

These characteristics translated into a specific set of constraints and advantages for firms in terms of market share, restructuration, relationship with adjacent sectors, and participation in programs and services with redistributive aims such as the universalisation of telephony services. Generally, PC

underscored the capacity of large firms in banking and telecommunications to maintain large market shares in established segments and to establish solid positions in emerging segments, while minimising constraints related to restructuring and long-term relationships with clients and equipment suppliers. Although PC was linked to the public objectives of developmental state, Spanish firms in banking and telecommunications prioritised profit-making and internal transformation over contributions to the common welfare. Thus, competitiveness and profitability took priority over the provision of patient capital and stable demand for manufacturing sectors, and although the universalisation of telephony service eventually took place, it did so later than in other large European countries.

Such organisation of priorities enabled large banks and the telecommunications operator to overcome historical deficiencies and reach the efficiency frontier but had negative externalities. The advantages experienced by complex service sectors in Spain came at the expense of capital- and skill-intensive sectors that needed patient capital and steady demand to develop more complex products. Because the state prioritised PC, there was no significant national effort to build a common platform to help atomised sectors overcome their limitations. Instead, the state opted to incentivise foreign investment in these sectors, and often took a role in brokering arrangements between local firms and foreign buyers.

These findings call for a more detailed characterisation of institutional structures based on strategic coordination to identify the nuances of different variants. Evidence from this paper suggests that analyses should include complex services in addition to manufacturing sectors. Although manufacturing is an important part of the economy of any country, the Spanish example shows that complex service sectors, like banking and telecommunications, are also central to any economy because of their thick network of interconnections to virtually all other sectors, the types of outputs they generate, and their capital and skill intensity. This argument challenges two types of conventional views regarding complex services. The first identifies some of them, and especially the financial sector, as “part and parcel” to specific models of capitalism (Zysman 1983) but does not consider them as a productive sector in its own right. The second view (Rodrik 2011) fails to include complex services in the definition those industries that can act as catalysts for sustainable economic development. By defining elevator sectors through a set of general characteristics and viewing complex services as potential elevator sectors, this paper engages directly with current debates regarding the role of manufactures and services in generating the basis for “good new jobs, new enterprises, and sustainable growth” (MIT 2013).

## 5 Practical Implications

The crises that started in 2008 have affected Spain more than most European countries. Although unpacking the institutional structure of the Spanish economy does not guarantee that the Spanish government will take effective measures to stimulate a sustainable recuperation, it is a necessary step to identify common causes to the problems Spain faces and evaluate policy alternatives. In that regard, this paper's argument provides important clues to form a coherent picture and understand Spain's current situation. As explained through this paper, PC in banking and telecommunications generated negative trade-offs for skill- and capital-intensive manufacturing sectors, making it hard for them to access key resources to develop new complex outputs. As a result, Spain achieved upgrading in a handful of complex service sectors that demanded highly educated individuals, but the overall productive structure thinned down in the middle of the occupational distribution. This occurred mainly through two mechanisms: (1) a shift from manufacturing to commercialisation of imported goods and (2) insufficient investment in research and development for the development of new complex products.

As mentioned earlier, many of the professional electronics firms purchased by foreign investors in the 1980s and 1990s eventually closed down or transferred their production capabilities to other industrialised countries, specialising instead in commercialisation activities. In the case of telecommunications equipment, firms survived but their size and low investment in innovation meant that they faced considerable limitations in product and process upgrading (Orkestra 2012, Felgueroso 2010). These changes took place across manufacturing sectors, leading to a 15 percentage point drop in the contribution of manufacturing activities to Spain's GDP between 1980 and 2010. Productivity also decreased especially after industrial investment started flowing east in the mid-1990s (OECD Stats 2013). A recent recuperation of productivity in 2013 has responded to a decrease in salaries, rather than increases in output per worker.

The drop in manufacturing had important occupational and socio-economic consequences. First, it translated into low demand for professionals with technical skills. As a result, Spain's share of employment in technical sectors remains small relative to the rest of the EU (Felgueroso 2010). Meanwhile, traditional low-skilled sectors like hospitality and construction continued to fuel demand at the low end in the occupational distribution. The education profile of Spaniards reflects this situation. In 2012, only 22% of people aged 25–65 in Spain (vs. 48% for the EU-21) had upper secondary education qualifications, the basis for most professional and technical occupations. By contrast, 46% of people in Spain capped their education below upper secondary levels (16 years of age), a much higher proportion than the EU's 24% (OECD 2013). Second, lack of widespread upgrading in manufacturing sectors translated into less demand for highly skilled managers or product specialists. Despite the demand for labour with tertiary education in the upgraded complex service

sectors, the drop in manufacturing has therefore resulted in a relatively narrow and concentrated market for university educated individuals in Spain. As the proportion of those with higher education has grown, the result has been a high rate of underemployment. In 2007, 44% of people under 29 with tertiary education in Spain were employed in roles that do not require such qualifications, the highest rate in the OECD (OECD 2010).

The shape of Spain's labour structure threatens short-term economic recovery and long-term sustainable growth. Since the crisis set in, most firms have reacted by adjusting their costs—especially wages—to increase competitiveness, not by increasing productive investment to foster upgrading. The result has been higher unemployment, a drop in permanent employment contracts and an increase in temporary contracts, lower salaries, and weaker consumption (INE 2013). More generally, this situation means fewer and less attractive opportunities for the qualified individuals who could help shift the productive structure upmarket. Unsurprisingly, an increasing number of those with technical or higher education skills have been seeking employment outside Spain (El País 2011, Financial Times 2012, El País 2013, NYT 2013). The analysis in this paper implies that to stop and reverse these negative trends, the current institutional model will need to evolve. Only a change in institutional incentives can stimulate a virtuous cycle that will support upgrading in a wider range of sectors and increase demand for individuals with the necessary skills to carry out the type of economic transformation that can support sustainable growth. An alternative strategy could rely on lower salaries as stimulus to foreign investment and on the promotion of traditional low-skilled activities such as tourism. However, in the mid-term such strategy has limited potential to stop the migration of qualified individuals and to generate incentives for those with low-skills to increase their education levels to help generate more complex, higher value-added outputs. Such pattern would also make Spain more vulnerable to the type of cost-cutting competition mentioned at the beginning of the paper, and would make it difficult to sustain, let alone increase standards of living in Spain.

## Appendix

**Table 1. Spain's GDP per capita as percentage of other countries' (1985 and 2009)**

Country	1985	2009
OECD	48%	95%
France	48%	78%
Germany	50%	79%
Italy	59%	90%
United Kingdom	56%	90%

Source: World Bank Development Indicators, own elaboration

**Table 2. Spain's top 20 firms by market capitalisation (2009)**

Ranking by market capitalisation	Ranking Forbes 500	Company	Sector
1	34	Telefonica	Telecommunications
2	21	Grupo Santander	Banking
3	40	BBVA	Banking
4	122	Iberdrola	Energy
5	113	Repsol-YPF	Energy
6	609	Inditex	Textiles
7	451	Cepsa	Energy
8	341	Gas Natural	Energy
9	571	Abertis	Infrastructures
10	278	Banco Popular	Banking
11	226	Grupo ACS	Infrastructures
12	363	Acciona	Infrastructures
13	485	Banco Sabadell	Banking
14	409	Mafre	Insurance
15	1411	Gamesa	Energy production
16	383	Grupo Ferrovial	Infrastructures
17	867	Metrovacesa	Infrastructures
18	680	Sacyr Vallehermoso	Infrastructures
19	1665	Red Espanola Electrica	Energy
20	642	FCC	Infrastructures

Source: ICEX Esade: First annual report from the Observatory of the multinational firm 2009

**Table 3. Main Bank ratios (1985)**

1985	Spain	Switzerland	USA	Sweden	Germany	Italy	Netherlands	France*
Net income/Assets	0.023	0.027	0.025	0.027	0.023	0.020	0.023	0.023
Net non interest income/ Total income	0.18	0.29	0.27	0.35	0.21	0.28	0.26	0.19
Operating expenses/ Net income	0.62	0.53	0.67	0.62	0.61	0.63	0.63	0.70
Operating expenses/ Assets	0.027	0.024	0.028	0.029	0.027	0.025	0.026	0.026
Tier 1 and Tier 2 Capital/ Assets	na	na	0.062	na	na	na	na	na
Institutions	1.39	223	1,127	15	1,379	123	92	2,079
Branches per 1,000 inhabitants	0.23	0.25	0.19	0.17	0.20	0.21	0.33	0.26
Employees per branch	9.7	26.3	35.2	16.6	1.48	17.1	19.2	17.1

Source: OECD Banking statistics and Factbook statistics (population). Own elaboration

\* Data for 1988

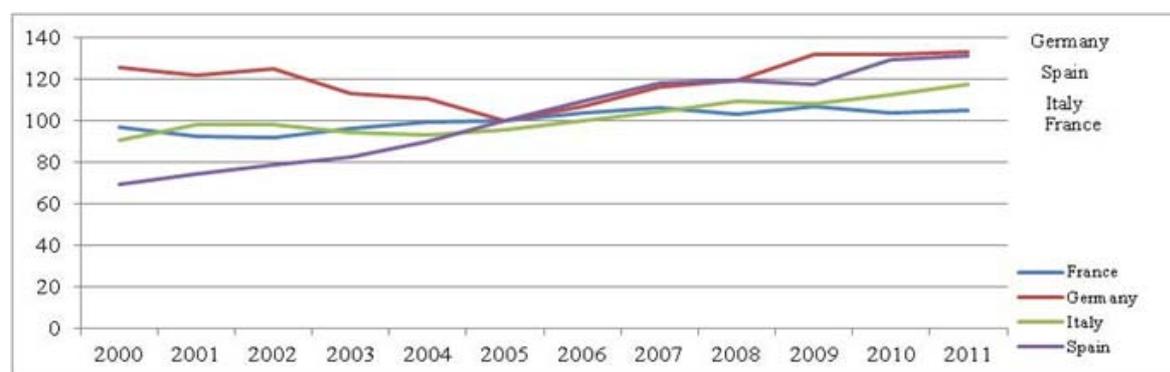
**Table 4. Main bank ratios (2009)**

2009	Spain	Switzerland	USA	Sweden	Germany	Italy	Netherlands	France
Net income/Assets	0.023	0.021	0.051	0.020	0.017	0.022	0.016	0.015
Net non interest income/ Total income	0.31	0.64	0.40	0.48	0.20	0.36	0.31	0.58
Operating expenses/ Net income	0.37	0.77	0.59	0.57	0.76	0.63	0.69	0.62
Operating expenses as % of assets	0.009	0.016	0.030	0.011	0.013	0.014	0.011	0.009
Tier 1 and Tier 2 Capital as % of assets	0.086	0.064	0.112	0.082	na	0.065	0.055	na
Institutions	153	207	6,905	59	1,774	768	93	325
Branches per 1,000 inhabitants	0.32	0.21	0.27	0.20	0.46	0.56	0.19	0.61
Employees per branch	7.4	53.8	23.2	22.0	17.0	9.7	35.1	11.1
Outwards FDI positions (Billion USD)	27,812	319,729	254,411	256,694	53,654	91,957	91,870	111,109
Inwards FDI position (Billion USD)	157,633	344,217	733,245	420,433	194,384	312,116	175,864	237,307

Source: OECD Banking statistics, Factbook statistics (population) and International Direct Investment Statistics (FDI position). Own elaboration

FDI positions exclude insurance and pension funding activities.

**Table 5. Annual person-based productivity, financial, and insurance activities (2000-2011)**



European Commission and European Central Bank calculations based on Eurostat data. Own elaboration

Table 6. Telecommunications, network, profitability and investment (1985)

Country	Standard access lines per 100 inhabitants	Revenue per access channel in USD	Investment per access channel	Investment as percentage of revenue	Investment as percentage of fixed capital formation	Investment per inhabitant in USD
Sweden	62.78	347.50	104.36	30.03	2.56	66.44
UK	52.93	358.93	73.14	20.38	2.65	38.78
United States	49.24	946.76	180.17	19.03	2.58	88.97
France	40.69	381.55	161.94	42.44	3.46	65.89
Japan	37.48	474.81	152.83	32.19	1.88	57.36
Germany	32.95	447.22	195.74	43.77	3.50	64.49
Italy	30.74	363.54	159.69	43.93	2.99	49.10
Spain	24.21	267.69	113.84	42.53	3.03	27.56
Ireland	19.85	670.91	204.16	30.43	3.84	40.55
Korea	18.48	253.39	177.65	70.11	4.98	32.84

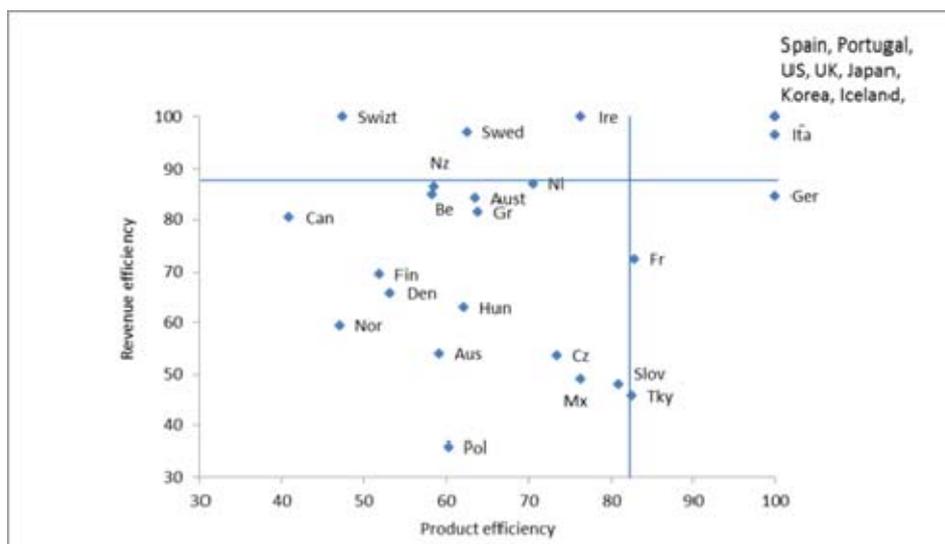
Source: OECD Internet and Telecommunication Statistics, Own elaboration

Table 7. Telecommunications, network, profitability, and investment (2009)

Country	total access channels per 100 inhabitants	Revenue per access channel in USD	Investment per access channel in USD	Investment as percentage of revenue	Investment as percentage of fixed capital formation	Investment per inhabitant in USD
Japan	146.98	816.78	128.71	15.76	2.42	189.18
Ireland	162.83	767.76	84.07	10.95	1.06	137.41
United States	151.97	799.08	123.96	16.33	2.44	201.85
France	200.02	734.11	81.18	11.21	1.33	128.46
Spain	177.10	713.15	73.03	10.24	1.29	129.33
Germany	201.90	927.19	50.22	9.90	1.16	101.78
UK	197.78	500.06	63.20	12.64	1.42	129.85
Korea	205.45	464.10	53.43	11.51	1.65	92.49
Italy	158.23	399.16	73.08	18.31	1.79	143.05
Sweden	163.45	351.94	72.40	20.57	1.39	145.38

Source: OECD Telecommunications and Internet Statistics, Own elaboration

**Table 8. Telecommunications efficiency (2007)**



Source: Giokas and Pentzaropoulo 2008<sup>8</sup>

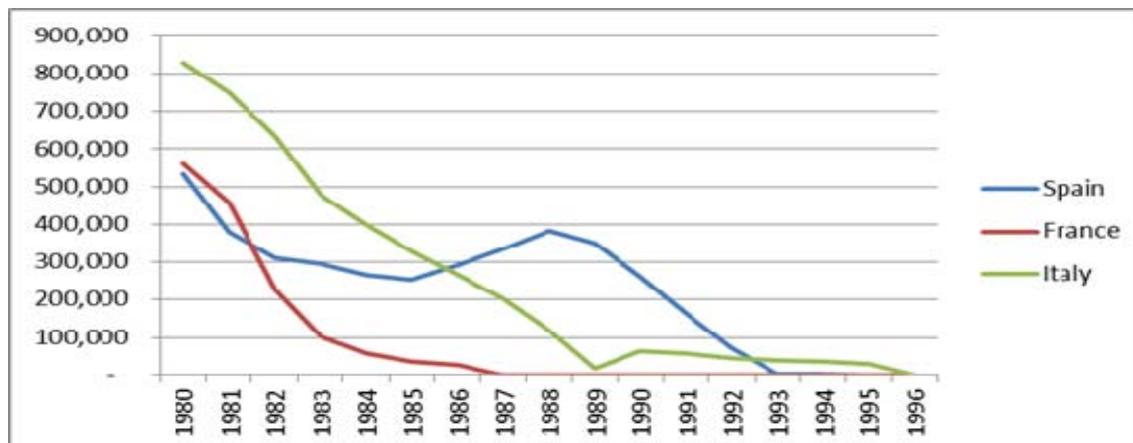
**Table 9. Telecommunications network expansion (1985–1996)**

Country	Additional fixed lines		
	Increments 1985-1989	Increments 1989-1996	Total increments 1985-1996
United States	15,518,752	3,914,122	19,432,874
Japan	11,528,000	11,583,300	23,111,300
Germany	3,156,000	5,252,300	8,408,300
Korea	5,274,279	7,808,276	13,082,555
France	3,311,888	5,357,548	8,669,436
United Kingdom	3,622,000	5,888,256	9,510,256
Italy	3,869,136	3,993,482	7,862,618
Spain	2,456,781	3,615,626	6,072,407
Poland	636,949	3,167,391	3,804,340
Portugal	788,582	1,622,890	2,411,472
Switzerland	507,480	786,491	1,293,971
Ireland	21,300	174,300	195,600

Source: ITU 2002. Own elaboration.

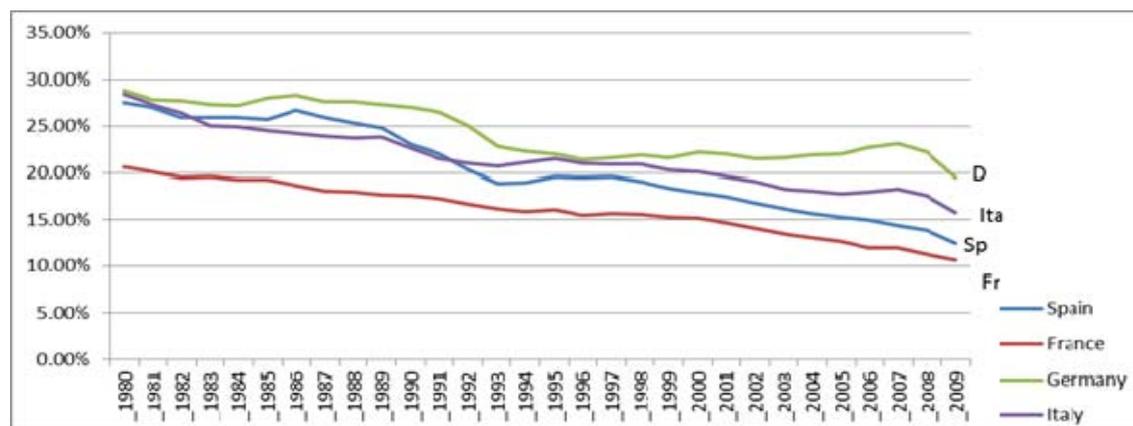
<sup>8</sup> The axes dividing the quadrants represent the efficiency scores of a hypothetical average country, as calculated using DEA revenue and productivity. Their values are 74.18% for productivity and 83.10% for revenue.

**Table 10. Waiting lists for fixed telephone lines (1980 –1996)**



Source: ITU database 2010. Own elaboration

**Table 11. Manufacturing as percentage of GDP (1980-2009)**



Source KLEMS. Own elaboration

Table 12. Spanish Manufactures, Revealed Symmetric Comparative Advantage<sup>9</sup> (1994-2007)

Sector	Year															
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007		
A. Chemicals	-0.105	-0.092	-0.159	-0.14	-0.133	-0.112	-0.092	-0.065	-0.07	-0.096	-0.093	-0.091	-0.091	-0.09	-0.09	
B. Machinery and transport equipment	-0.029	-0.028	-0.022	-0.021	-0.042	-0.046	-0.07	-0.065	-0.065	-0.042	-0.029	-0.021	-0.021	-0.024	-0.021	
C. Electrical machinery, apparatus and appliances	-0.215	-0.22	-0.25	-0.216	-0.25	-0.24	-0.239	-0.236	-0.243	-0.242	-0.2	-0.204	-0.204	-0.204	-0.204	
D. Manufactures of metal	0.244	0.099	0.073	0.185	0.061	0.065	0.086	0.085	0.08	0.082	0.088	0.082	0.082	0.071	0.069	
E. Road vehicles (including parts and accessories)	0.228	0.284	0.246	0.21	0.223	0.205	0.224	0.211	0.2	0.202	0.202	0.2	0.2	0.203	0.203	
F. Other transport equipment (aircraft and ships)	-0.026	-0.112	-0.076	-0.122	-0.21	-0.132	-0.146	-0.204	-0.194	-0.193	-0.166	-0.145	-0.145	-0.164	-0.069	
G. Telecommunications and sound recording apparatus	-0.206	-0.211	-0.261	-0.244	-0.248	-0.27	-0.248	-0.245	-0.241	-0.245	-0.228	-0.244	-0.244	-0.232	-0.229	

Source: OECD International Trade and Commodities Statistics, Own elaboration.

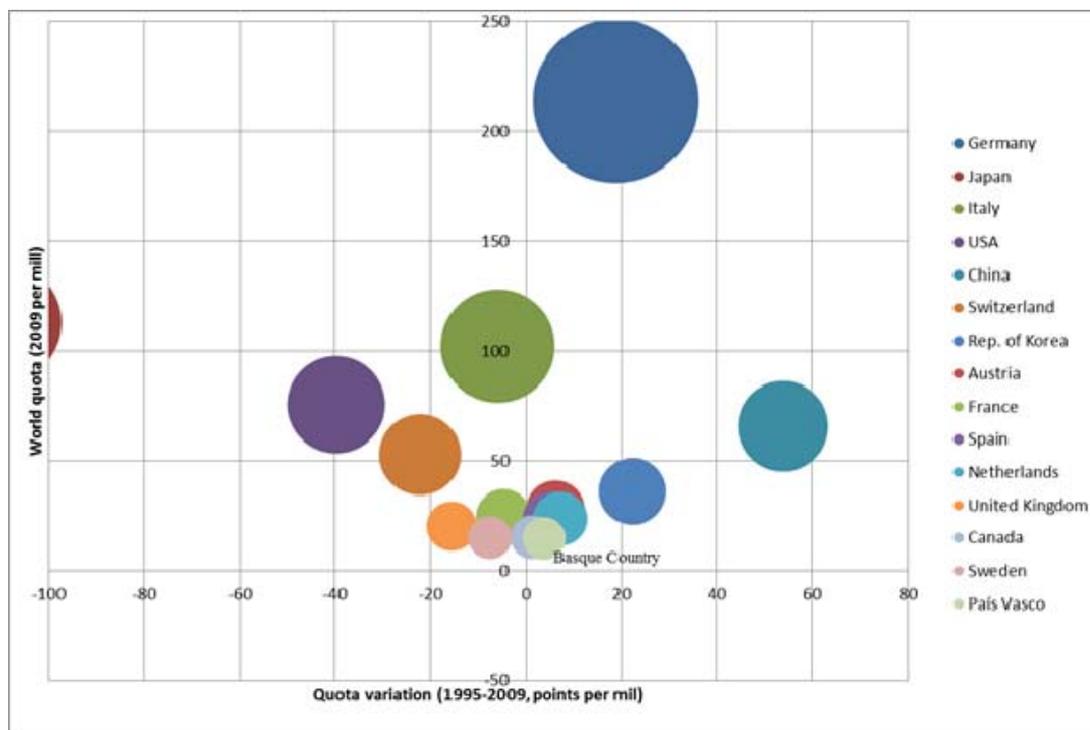
Table 13. Spain's Labour Productivity by Sector (1996-2007 average)

<sup>9</sup> RCA= (exports country a in sector b/ Total export country a) / (World exports in sector j/Total world exports). RSCA= (RCA-1)/(RCA+1). "World" includes data for the following countries: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France,

	Labour productivity growth (%)			Average share in total economy added value (%)		
	Spain	EU	US	Spain	EU	US
Electrical and optical equipment	1.8	5.6	17.2	1.1	2.3	2.3
Machinery nec	1.1	2.1	3.8	1.2	2.2	1.1
Transport equipment	1.7	3.1	5.2	1.9	2.1	1.8
Chemicals and chemical products	0.6	3.6	5.2	1.6	1.9	1.9
Basic metals and fabricated metals	0.2	1.6	1.8	2.8	2.6	1.7
Total manufacturing	0.9	2.6	5.1	17.2	19.1	15

Source: OECD 2012 Economics department working paper N 973

**Table 14. Bubble chart, Manufacturing Technologies (machine-tools) (1995-2009)**



Source: <http://tools.orquestra.deusto.es/klusterbolak> data from UN Comtrade and AEAT. Own elaboration.

Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, US, and UK.

## **Archives and Databases**

Boletín Oficial del Estado

Cortes Generales, Diario de sesiones del Congreso de los Diputados y del Senado

Eurostat

European Central Bank, Bank Statistic

EU KLEMS Growth and productivity accounts

International Telecommunications Union Database 2010 Edition

Instituto Nacional de Estadística (INE)

Observatory of Spain's Multinational Companies (ICEX/ESADE)

OECD, Online Library

- Telecommunications and Internet Statistics

- International Investment Database

- International Trade and Commodity Statistics

- Banking Income Statement and Balance Sheet statistics

Telefonica online historical archive

World Bank online databases, Development Indicators <http://data.worldbank.org/indicator>

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