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Regulatory capture in the first Spanish Nuclear Program (c.1951-64)?

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ABSTRACT

Countries adopted the commercial use of nuclear electricity in different forms, with varying corporate strategies and structures. In Spain, the transition from an autarchic to a liberal model of nuclear management consolidated the vested interests of the national electric oligopoly. This article explains this process using a mesoeconomic perspective (inter-institutional dialectic). While the commonly accepted general idea is that reciprocal instrumentation between political and economic interests explains the transition from Franco's autarky to developmentalism, we conclude that the theory of regulatory capture is a more accurate explanation, at least in the first phase of development of the Spanish nuclear program. In fact, the banking electricity oligopoly's capture of the Spanish state was a distinct variety of its energy policy in international comparative terms.

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Nuclear energy; regulatory capture; utilities; pressure groups; Spain

1. Introduction

States initially directed the birth and development of nuclear businesses due to their strategic, military, and energy functions. Governments have created new institutions to fulfil the social responsibility of national security and ensure the energy supply. After World War II, a shift occurred in nuclear expertise from the military-scientific world to the civilian sector (Walker & Wellock, 2010). In contrast, the transfer of power in Spain spanned over two decades. In the period from the creation of the Nuclear Energy Board (JEN, by its initials in Spanish, 1951) to the enactment of the Spanish Nuclear Energy Act (hereinafter SNEA, 1964), key decisions were made that shaped the nuclear development of the fourth largest economy in continental Europe. This article analyzes a transitional stage between the two phases of the Franco dictatorship (1939–1975). The first phase (1939–1959) was characterised by autarkic policies that resulted in dire economic consequences. The second phase (1959-1975), known as developmentalism, brought a period of relative economic success.

The choice of nuclear energy in an underdeveloped nation with scarce economic resources, such as Spain, was seemingly driven by the concentration of power around national and international financial capitalism, particularly the oligopolistic structure of the

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electricity market (Serrano & Muñoz, 1979; Martín Vázquez, 1983). Some historians of technology (Barca Salom, 2000; Ordóñez & Sánchez-Ron, 1996; Presas I Puig, 2000; Romero de Pablos, 2012; Sánchez-Ron & Romero de Pablos, 2001) argue that Spain's entry into the nuclear field was driven by its diplomatic, military, and economic relations with the United States, particularly in the years before the 1960s.

From that point onward, internal struggles between two ideological currents within the Franco regime—the Falangists and the technocrats—shaped Spain's nuclear development. The strategic decisions made by these factions, with the Falangists viewing nuclear energy as a means to enhance the country's energy independence and bolster its scientific-technological modernity, and the technocrats perceiving it as a catalyst for initial economic liberalisation and a means to end Spain's international isolation, are key to understanding the trajectory of Spain's nuclear industry. However, the Franco dictatorship ultimately failed in its initial ambition to lead the transition from research to industrial development. In fact, from 1964 onward, particularly after private nuclear power plants became operational, the JEN's industrial research and advisory powers were significantly diminished.

Many researchers have seen the transition from public to private leadership in the Spanish Nuclear Program (hereinafter SNP) as the result of friendly collaboration between the government and electricity companies (Caro, 1995) or, on rare occasions, as the result of tensions between the economic agents involved in decision-making (Sánchez-Vázquez, 2009, 2012). A renewed perspective offered in recent years by economic history suggests that the government and electricity companies made these decisions in a framework of collaboration and competition typical of high international politics (Marty & Sanchez, 2000; Sánchez-Sánchez, 2010, 2016, 2017).

To understand the high expectations surrounding the Spanish nuclear program, we must examine the decision-makers and the institutional environment at the time. The dictatorship's centralised structure hindered efficient decision-making, ultimately strengthening the interests of the electricity sector, which benefitted from financial and technological collaboration with the United States. The significant influence of the business sector in transitioning this technology from the experimental stage to industrial application, through information exchange networks between politicians (government), technicians (experts), and business groups, is a crucial aspect of the Spanish nuclear program. While the political apex and the developmentalist orientation of the Franco regime made the final decision to undertake the SNP, the business sector heavily influenced these decisions (De la Torre, 2017; De la Torre & Rubio-Varas, 2016; Rubio-Varas & De la Torre, 2016).

This article takes up the challenge of continuing the work initiated by Rubio-Varas et al. (2022), focusing on examining the interaction of strategy and structure in the early stages of the Spanish nuclear industry. Adopting a mesoeconomic perspective as outlined by Dopfer et al. (2004), and incorporating regulatory theory from political science, this study of the first SNP addresses three key questions:

What strategies and structures did electricity companies—also referred to as the electric-banking oligopoly or consortium—employ to influence the first SNP in favour of private initiative?

Does the political science theory of regulatory capture adequately characterise the institutional relations between regulatory authorities and regulated entities in the early stages of the SNP? If so, was regulatory capture by companies in Spain a unique case or a common practice internationally?

We aim to shed light on the business dimension of nuclear history, an understudied area. We focus on the role of business in shaping the direction of industrial and energy policy in a developing state under a dictatorship, which initially took a unilateral approach to the promising technological challenge of thermonuclear power generation. This unique approach contrasts with the experience of most democratic countries, where the state has directed energy policies in the public interest, legitimised by citizen votes, rather than favouring specific oligarchic interests. Despite the prevailing trend towards international institutional and technological convergence, our research reinforces the existence of 'national nuclear varieties' shaped by the performance of economic agents and the variable political and economic contexts in which they developed.

This research seeks to achieve a two-fold objective: first, to reveal the positions and interests of critical public and private institutions involved in nuclear policy, and second, to enrich the case analysis by incorporating theoretical frameworks from cognate disciplines like political science. To achieve these objectives, this research will utilise archival and declassified sources (Garrués-Irurzun & Rubio-Mondéjar, 2018, 2021).¹

This article examines the case of regulatory capture in Spain's nuclear industry, discussing its objectives and methodology within the existing literature. This analysis employs a twopronged approach, first delving into the theoretical underpinnings of regulatory capture. It then explores how the decline of state intervention and the failure of nuclear regulation in Spain led to this regulatory challenge. The third part of the article unveils the distinctive features of the Spanish case through a comparative analysis with other international electronuclear industry experiences. The article concludes by revealing that Spain's initial nuclear policy, characterised by a lack of coordination and consistency, was ultimately captured by the interests of the electricity-banking oligopoly.

2. The first Spanish Nuclear Program: a case study of regulatory capture

2.1. The theoretical approach

Social scientists have extensively investigated regulatory capture. Recent theoretical approaches in economics, considering social or individual efficiency, frame regulatory capture within two assumptions: market failure or regulatory failure. These assumptions have given rise to two opposing interpretations: public-interest regulation theories and private-interest regulation theories. The fundamental differences between them lie in their assumptions, methodologies, and results.

This article draws upon the regulatory theory posited by Harvard political scientists Carpenter and Moss (2013a), which proffers a markedly divergent understanding from that of traditional economic regulation. This theory acknowledges that regulation is a complex political process shaped by various actors, including private interest groups, government officials, and the public interest.

Figure 1 illustrates the diverse regulatory environments faced by economic activities. This regulation ranges from comprehensive state control, where the state regulates the economic activity it owns (A), to nearly nonexistent state regulation (B), where the state has allowed the economic sector to self-regulate. The regulatory landscape between these two extremes (Q1)





Source: Prepared by the authors.

is vast and can range from partial state regulation (Q2) to, in exceptional cases, highly deficient regulation (Q3), allowing for regulatory capture (h) by firms. The degree of capture can vary greatly: weak (A3), moderate (A2), or strong (A1), and is dynamic, meaning it changes over time.

Recently, Carpenter and Moss (2013a) have examined regulatory capture in detail, describing how and to what degree it operates in different settings. Their research illuminates the interests, mechanisms, and outcomes of regulatory capture, which, if not optimal, necessitate improved regulation. This perspective contrasts with the approach of the Chicago School's theories of economic regulation and public choice, which focus on demonstrating the presence or absence of capture. If capture is present, proponents advocate for eliminating regulation (Boehm, 2005; Novak, 2013).

This article adopts Carpenter and Moss (2013b, p. 13) definition of regulatory capture: 'the result or process by which regulation, in law or application, is consistently or repeatedly directed away from the public interest and towards the interests of the regulated industry, by the intent and action of the industry itself. In this way, regulatory capture is understood as the prioritisation of the interests of specific groups, such as industry (I) or special interests (S), over the public good (W) in political or governmental decision-making (Carpenter, 2013, pp. 57-63). This undue influence stems from these groups' disproportionate sway over policymakers. Regulatory capture falls into two main types based on timing: legislative/statutory capture (occurring before regulation development) and agency capture (influencing existing regulation implementation). Each type can be further divided based on persistence:

deterministic (consistent) and probabilistic (frequent). In deterministic capture, the legislator or agency consistently prioritises special interests. Probabilistic capture allows occasional public interest prioritisation, but the likelihood of favouring special interests remains high. Essentially, capture distorts decision-making, favouring particular interests (I/S) at the expense of the public good (W) (Carpenter, 2013, pp. 59–60).²

Political theory posits that public interests would have been better preserved in the absence of regulatory capture by private interests. Experts generally agree that while determining the public interest is already a highly intricate process in democratic regimes, it becomes even more challenging in dictatorships. Citizens and consumers lacked free means of representation to influence government decisions, so the government imposed its vision of public interest, often linked—as in the Spanish case—to its interests in political survival, industrialising ideology, or military interests. Therefore, when referring specifically to the interests of the Francoist administration, we will henceforth use the term 'official public interest' (OW) instead of 'public interest' (W).

Carpenter and Moss (2013b, pp. 13–14), given the complexity of defining and measuring the public interest, propose developing testable and non-tautological explanatory models to assess validity. The development and implementation of nuclear programs raise a variety of public concerns. Applying a simple, tiered criterion (highest to lowest importance, reflecting evolving public demands), governments and companies should consider three fundamental aspects, at least from an economic and energy perspective: participation, equity, and sustainability. This approach transcends the view of citizens as mere electricity consumers, recognising them as present, if not crucial, actors in decision-making and the definition of public interest.

Table 1 expands upon the Carpenter model by incorporating official public interests, prevalent in non-democratic regimes, into the relationship matrix. While democratic systems may experience occasional sectoral regulatory capture when industrial interests prevail, the absence of legal checks and balances in authoritarian governments fosters a more enduring form. In such cases, the imposition of industrial interests (I) upon official public interests (OW) theoretically results in deeply embedded regulatory captures, promoting their persistence over time. This case study will empirically assess the extent to which this theoretical proposition holds.

The public interest, though difficult to quantify, is served when decisions by political and economic actors consider societal welfare and the general interests of the country. The spectrum of possible combinations of public and private interests varies over time and across economic activities, ranging from total conflict to complete alignment. However, the imposition of dominant private interests over the public good is a necessary but not sufficient condition for identifying regulatory capture. Legitimate influence can exist where private

Table	1.	Public	(W),	Official	(OW),	Private	(I)	Interest	Dynamics	in	Democracies	&
Autho	rita	rian Reg	gimes	(Simplifi	ied).							

Regime	Relationship	Types of regulations
Democratic	W>I I>W	Efficient Regulation Inefficient Regulation (Sectoral Regulatory Capture)
Authoritarian	OW>W I>OW	Inefficient Regulation Inefficient Regulation (Institutional Regulatory Capture)

Key: The symbol '>' used in this table denotes a relationship of dominance, indicating that one element 'prevails over' or 'is imposed upon' another.

Source: Prepared by the authors.

and official public interests occasionally align or complement each other. This alignment may develop collaborative policy through legitimate lobbying and transparent negotiation. Strong regulations and control mechanisms might allow private interests to take precedence temporarily. However, we must distinguish this alignment as legitimate lobbying, separate from the illegitimate lobbying associated with regulatory capture and the erosion of good governance criteria (Table 2).

On the other hand, illegitimate lobbying and regulatory capture remain inextricably linked to the age-old problem of corruption, which continues to undermine political and social systems (Novak, 2013). In this context, a recent work by Sudrià (2018) on corruption in contemporary Spain provides valuable theoretical insights into its definition, mechanisms, and outcomes. Sudrià defines corruption as the 'abusive use of power or trust granted by society for personal gain instead of the purposes for which power or trust was granted.'

Among the two corruption mechanisms identified by Sudrià (extortion and collusion), our study focuses on collusion, which involves an agreement between a public official and a beneficiary, wherein the official makes a favourable decision, such as in public procurement or the regulation of significant investments, in exchange for incentives or advantages. The consequences of corruption are numerous and varied, including direct costs like the transfer of income from citizens to corrupt entities, resulting in lower-guality public services or misappropriation of funds, as well as indirect costs like reduced investment, adverse selection of public suppliers, damage to the country's reputation, erosion of social morality, and impediments to societal growth and transformation. Comín (2018b) emphasises the challenge of guantifying the historical impact of corruption, including state capture, due to the lack of comprehensive historical data. However, he argues that historical studies can still provide valuable insights into its prevalence. In his analysis of the Franco dictatorship, he presents corruption as systemic, institutionalised, and hierarchical within public institutions. The author observes that the prevailing political and economic context influences the forms corruption takes, being demonstrably more prevalent in absolute regimes and dictatorships than in democracies. Additionally, Comín (2018b) identifies state capture by clientelist groups as a critical driver of corruption.

In line with the research discussed above, this article moves beyond mere identification of regulatory capture by employing a comprehensive approach informed by existing research and aligned with similar studies. We investigate the presence or absence of capture, its root causes, and the extent of its influence (high, medium, or low). To achieve this, we will analyse

Some criteria*	Legitimate Lobbying	Regulatory Capture or Illegitimate Lobbying
Transparency	Obtains relevant public information through transparent channels	Exploits privileged or confidential information for personal gain.
Citizen Participation	Upholds and strengthens control and accountability mechanisms.	Excludes citizens from the decision-making process.
Accountability	Supports control and accountability mechanisms to ensure the proper exercise of public power.	Weakens control and accountability mechanisms.
Rule of Law	Defends the impartial and consistent application of the legal framework	Manipulates the legal framework to gain illegitimate advantages.
Effectiveness	Advocates for efficient and evidence- based solutions.	Blocks or delays beneficial public policies.
Integrity	Maintains ethical conduct and integrity	Engages in bribery, corruption, or influence peddling.

Table 2. Critical indicators for differentiating legitimate lobbying from regulatory capture.

Inclusion and sustainability can be incorporated into the present-day. Source: Prepared by the authors. the intentions and actions of private actors (hereafter 'l') and contrast them with the official government's objectives ('OW'). This comparative analysis will reveal whether the final policies deviated from the public interest initially envisioned for the SNP. Furthermore, this research seeks to identify the specific mechanisms employed by private interests should regulatory capture be confirmed.

This study is focused on the potential for statutory capture (ex-ante) during the design phase of the SNP rather than agency capture (ex-post) that might emerge after implementation. Due to the limited research on economic actors' decision-making processes within diverse regulatory environments, this study excludes any comparative analysis with other economic sectors, a topic of great interest for future research.

The following section interprets the interests, explicitly or implicitly, expressed by economic agents within the Advisory Commission for Industrial Reactors (hereinafter CADRI, by its initials in Spanish). It provides contextual explanations to assess the alignment or misalignment of the Spanish nuclear energy case with the theoretical frameworks established by regulatory theorists.

2.2. The decline of state intervention in Spain and the failure of nuclear regulation

2.2.1. The first public-private conflict of interests in Spain's nuclear program: research vs industrial development

CADRI laid the groundwork for the Spanish Nuclear Program (SNP).³ In mid-1955, the president of the Nuclear Energy Board (JEN) championed collaboration with private companies. Although the division of labour appeared clear, with the JEN focusing on training and companies leading development, the relationship between CADRI and the JEN proved more intricate in practice. CADRI's president, José M. Otero, exerted significant control over the companies, limiting their autonomy relative to the JEN. This initial subordination prevented companies from freely expressing their reservations about the SNP in official forums. The interests of public officials (OW) initially trumped those of the private sector (I).

In this study, 'private interests' refers to a select group of Spanish electricity companies, affiliated banks, and associated capital goods industries. Collectively, this group constituted the so-called electricity-banking oligopoly. Throughout the twentieth century, the oligopoly sought to maintain its dominance in the electricity and banking sectors by leveraging its financial interconnections and interlocking directorates and exploiting weak regulatory frameworks that allowed them to restrict the entry of new competitors, particularly foreign entities. In return, the oligopoly fulfilled its obligations to the state by managing the public electricity service and meeting the financial requirements demanded at that time.

Figure 2 illustrates the high interconnectedness between these entities, evidenced by shared directors across both sectors. The level of interconnection between the electrical and banking sectors was unparalleled by any other two industrial sectors from the 1920s to the 1970s (Rubio-Mondéjar & Garrués-Irurzun, 2016).

Within the electricity sector, the Spanish Electricity Industry Association (hereinafter UNESA, by its initials in Spanish) comprised approximately twenty companies considering bargaining power. Seven private groups within this association controlled more than two-thirds of national electricity production. Similarly, the banking sector, governed by the Banking Supervisory Board, also exhibited a high concentration of power. Six private banks held over two-thirds of Spanish banking assets (Figure 2).





Note: The size of the nodes represents the number of interconnections between members who share boards of directors.

Unlike their counterparts in other European nations following World War II, Spanish electricity companies evaded nationalisation. This success enabled them to retain private control over electricity distribution by establishing UNESA as the central managing body.

However, the emergence of new public electricity companies, which threatened their interests, was challenging this control (Gómez-Mendoza, 2007). UNESA presented a united front to protect the electricity industry from government intervention. The electricity lobby was concerned that the government's nuclear goals, managed by the National Institute of Industry (hereinafter INI, by its initials in Spanish) and the JEN, would deviate significantly from the industry's plans to control the private distribution of future electronuclear energy.

CADRI played a pivotal role in informing companies about the JEN's plans. After several trips abroad, including the Geneva Conference (1955), CADRI's president, José M. Otero, advocated for the installation of heavy water or graphite-moderated reactors in Spain, utilising natural uranium instead of enriched uranium. To address private electricity companies' concerns regarding the government's interest in commercial electricity generation, Otero clarified that the proposed 10 MW reactor in Madrid would be purely experimental. However, Otero's suggestion to utilise this prototype as the foundation for a larger industrial reactor, developed in collaboration with Spanish private electricity companies, failed to alleviate their concerns regarding their role in the SNP.

The electricity companies, seeking to maintain their monopoly on electricity distribution, opposed the nationalisation of electronuclear production. Conversely, the Francoist regime, having already broken the electricity generation monopoly with the creation of the public company ENDESA (1944), aimed to achieve the same in nuclear power. Various factors drove scientists, military personnel, civil servants, and politicians to support this option. These factors included the aim to strengthen the regime's economic position by alleviating its trade deficit and bolstering its weakened industry, the aspiration for greater energy independence, the vision of acquiring enhanced military capabilities, starting with plutonium, and the desire to increase the regime's prestige and political recognition on the international stage.

Electricity companies entered into a collaborative agreement with the public sector on operating an experimental reactor. However, they resisted a more advanced nuclear program that would have leveraged British and French technological expertise with natural uranium while aligning their commercial interests (electricity production) with the government's objectives (plutonium production).

The underlying debate between natural and enriched uranium reflected the competition between two models for the development of the SNP. Choosing natural uranium would have favoured Franco's conservative faction, which advocated for self-sufficient military and energy policies during the autarkic phase (Muñoz-Delgado & Rubio-Varas, 2017). Conversely, opting for enriched uranium would have aligned Spain's nuclear policy with that of the United States, indirectly promoting private sector involvement and deviating from an independent energy strategy.

As demonstrated by Roitto et al. (2022) in their comparative study of nuclear programs in Britain, West Germany, and Finland, the selection of nuclear fuel and associated technology in Spain was constrained by a complex interplay of geopolitical factors, both domestic and international. While the public sector prioritised national security and technological self-sufficiency by favouring natural uranium, the private sector's preference for enriched uranium was driven by economic considerations such as efficiency and global market integration.

The electricity companies' obligation to maintain regular contact with the Francoist administration, despite its limited positive effects for the former, was strategically welcomed by the companies. Firstly, the Francoist regime would not tolerate outright defiance. Secondly, the electricity companies recognised the value of obtaining firsthand information about the SNP, which proved crucial in assessing future contractual agreements and mitigating the high costs associated at the time with the existing asymmetry of information favouring the administration.

In late March 1957, the Minister of the Presidency acknowledged the necessity of collaboration with electricity companies, admitting that the nuclear program's development hinged on considering the interests of the banking and industrial sectors (Garrués-Irurzun & Rubio-Mondéjar, 2017). (Figure 2) Consequently, he strengthened the role of electricity companies within CADRI and established the General Directorate of Nuclear Energy, which served as the primary channel of communication between major companies and the government, providing a forum for proposing the country's nuclear plan. What factors motivated the alignment of official interests (OW) with those of the electricity-banking oligopoly (I)?

The late 1950s in Spain marked a significant political shift as the Franco regime, grappling with a severe institutional crisis and economic collapse, began to yield to the demands of electricity companies regarding nuclear power. In a strategic move to ensure its survival, the regime delegated key responsibilities to Opus Dei-affiliated technocrats. These technocrats, in turn, implemented economic reforms, increased commercial openness, and gradually liberalised the internal market, all while preserving Francoism's traditional social and political structures. This shift in power from the financial aristocracy to the industrial bourgeoisie (Rubio-Mondéjar & Garrués-Irurzun, 2016) fostered greater receptivity among the elite to private sector involvement in economic decision-making, particularly in the nuclear power industry.

Changes in Spain's domestic policy were not isolated from international politics, particularly those driven by the United States. During the early Cold War, the United States significantly influenced Spain's opening and modernisation (Puig-Raposo & Álvaro-Moya, 2016), becoming a strategic military ally while serving as a valuable economic partner. The political support for Spain's reintegration and the economic aid provided by the United States to revitalise its economy aligned Spanish industrial policy with free-market principles. This new political orientation bolstered the corporate strategies of Spanish electricity companies against the INI's 'promoter state' approach.

In response to these evolving domestic and international economic policies, the Francoist bureaucracy strategically accelerated decision-making to secure a favourable outcome. The negotiations for a bilateral nuclear agreement between Spain and the U.S. intensified the debate within CADRI. The JEN commissioned CADRI to draft a ten-year Reactor Program. Shortly after thar, members of CADRI and Dr McLain began scouting a location for a Dual-Use Reactor (DUR).⁴ This decision steered the SNP in favour of the JEN's desires to extend its remit from experimentation to the industrial field of electricity generation.

Confronting a financially strained Spanish state lacking a cohesive energy policy and robust bureaucratic structure, the major electricity companies, beyond mere political lobbying tactics, strategically exploited their financial and technological might to achieve their objectives. Several electricity-financial groups, known collectively as the Nuclear Consortium (NUCLENOR, TECNATOM, and CENUSA), presented to CADRI nuclear power production projects they had been developing secretly for some time. As mentioned earlier, the electricity companies' move sought to extend their existing regulatory control, exercised through UNESA over electricity distribution in Spain, to the emerging electronuclear subsector. This move aimed to thwart the ambitions of the JEN and INI, which represented the government's policy goals. The ratification of the Cooperation Agreement between Spain and the U.S. on August 16, 1957, along with the international availability of enriched uranium for commercial purposes, further facilitated the installation of enriched uranium reactors and bolstered the aspirations of electricity companies.

Despite shifts in international relations and Spanish economic policy, the Junta de Energía Nuclear (JEN) remained steadfast in its commitment to advancing peaceful nuclear research and power generation, a commitment demonstrably evident in its sustained pursuit of the Dual-Use Reactor (DUR).

This objective was pursued through a two-pronged state strategy: first, nationalising the initial and final stages of the uranium cycle to secure control over raw materials and waste

disposal; and second, developing the necessary infrastructure for nuclear power, encompassing civil engineering and mechanical construction projects, with the support of the Instituto Nacional de Industria (INI) (Álvaro-Moya, 2014; De la Torre et al., 2022; Sánchez-Sánchez et al., 2024; Sánchez-Sánchez & López García, 2020).

However, the JEN's capacity to maintain its leading role in nuclear development was challenged by several factors. These included its transfer to the Ministry of Industry, which resulted in an expanded board incorporating members from various ministries, and, most significantly, persistent financial constraints and a scarcity of skilled personnel.

While state intervention is crucial in the economy, particularly as a state entrepreneur in the nuclear sector, its financial capacity and effectiveness have fluctuated over time (MacKenzie et al., 2022). The JEN's expenditure between 1948 and 1959, totalling just over one billion pesetas, was considerably lower than spending in other countries. In annual per capita terms, this expenditure was approximately fifteen times less than the UK's spending on fast reactors between 1946 and 1951 and over 300 times less than that of the US nuclear program during the same period. (MacKenzie et al., 2022, p. 4). Notably, the majority (60%) of the JEN's budget was directed towards geological research and construction, with only 3% allocated to human capital development. Moreover, while the JEN's budget increased over time, it remained a mere 6% of the annual added value of the electricity sector (Figure 3).

At a CADRI meeting in early December 1958, disagreements emerged regarding the SNP's management model, primarily between public representatives (sectoral union, INI, and JEN) and the electricity companies. Both sides acknowledged the necessity of public-private collaboration but had differing motivations. Neither wanted to be excluded from decisions regarding the SNP's ownership, operation, and financing. Public institutions sought to expand their role beyond research, while private companies, wary of government involvement in the commercial development of nuclear energy, conditioned their financial support on the government's non-participation in this aspect.

Between May and June 1959, CADRI studied the financing of the future nuclear power plant, considering previous studies to obtain a loan from the Exim-bank. Otero travelled to the United States, believing that the success of securing technical-financial support depended





Source: Prepared by the authors based on JEN budgets (AGA) and Prados de la Escosura (2017).

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on the Spanish government's firmness in negotiations. Otero was right: the design and financing of the first SNP could take various forms (public, private, or mixed) with varying funding levels. Ultimately, the chosen management model depended on how the Spanish nuclear agenda was integrated into broader negotiations between Spanish and American authorities regarding Spain's reintegration into the international community (Calvo-González, 2007; Puig-Raposo & Álvaro-Moya, 2004).

Simultaneously, private companies, while pursuing their own nuclear projects, delayed the JEN project by citing a lack of cost information from affiliated American consulting firms, such as General Electric and Westinghouse. However, in mid-July 1959, after extensive discussions on institutional and economic representation, all CADRI members approved funding for technical and economic studies. Months later, the Spanish Minister of Foreign Affairs endorsed the JEN's request for U.S. assistance.

Under U.S. influence, the Spanish government's economic policy shifted significantly, facilitating the dominance of the electricity-banking oligopoly's private interests (I) over the previously held autarchic state interests (OW), establishing a scenario of regulatory capture. This analysis reveals that both international and national factors shifted the balance of power in favour of the oligopoly. However, the question remains: what covert mechanisms did the oligopoly employ to assert its interests?

Facing a fiscally constrained Spanish state lacking a coherent energy policy and robust bureaucratic apparatus, the large electricity companies, beyond political lobbying tactics, strategically leveraged their financial and technological prowess to achieve their objectives.

Implementation of the government's energy policy directives hinged upon substantial long-term investments from these companies. However, they would only assume the associated business risks if the government provided sufficient guarantees of profitability. The companies secured this profitability through several key strategies. Firstly, they prioritised eliminating competition from third parties. Secondly, they sought to execute the investment plan jointly, effectively shaping the government's eventual proposal with minor adjustments. Thirdly, they secured a tariff system that covered their investment costs and ensured a satisfactory return. Fourthly, they sought favourable treatment from the administration in fiscal, tariff, and financial matters, including subsidies and cost externalisation.

This approach allowed the administration to undertake ambitious energy projects beyond its immediate fiscal capacity while minimising transaction and management costs related to them. However, this modus operandi, which facilitated regulatory capture, cannot be categorised as legitimate lobbying. Ultimately, it transferred undue costs from the companies onto Spanish consumers, taxpayers, and citizens. These groups shouldered the burden through increased electricity prices in the short term, the nuclear moratorium in the medium term, and nuclear dismantling expenses in the long term.

Overall, the mechanisms and outcomes of regulatory capture during the Franco regime, characterised by opaque negotiations and exploitation of privileged information, resemble the corruption present in other economic sectors, as described by Comín (2018b). Unlike legitimate lobbying, this practice marginalised citizens from decision-making processes, undermined the rule of law, manipulated the legal framework to favour private interests, and failed to prioritise an efficient allocation of resources to meet the needs of the population. Public officials and private companies, respectively, misused and abused their power, exploiting the weakness of the state and acting to the detriment of the public interest (Table 2).

2.2.2. The authoritarian state takes a step back, and the electricity and banking oligopoly designs the foundations of the first spanish nuclear program

In late April 1960, the electricity and banking consortium opposed the 30 MW DUR reactor, arguing for its obsolescence and hindering the integration of more efficient and economical nuclear technologies, as well as international collaboration in research and development, such as the CERN (European Organisation for Nuclear Research) and DRAGON (OEEC Direct Reactor Assembly Gas Operated Nuclear) projects. They argued that the DUR would not prepare the sector for large-scale nuclear power plants, would not preclude the import of capital goods, and would provide an insignificant electricity power contribution. To secure the private companies' financial support, CADRI's president, Otero, assured them the JEN would terminate its large reactor program once the DUR was operational.

This decision by the JEN to link research and development (DUR) to business interests reflects its adaptation to the shifting political and economic landscape. Established under Franco's military dictatorship, the JEN had to reconcile its research focus with the state's new liberal economic objectives, emphasising private sector involvement. Despite enjoying support from the INI, which promoted industrialisation through import substitution, and a government reluctant to forfeit the social capital accumulated by the research centre, financial and technological constraints made the DUR the most effective means of bridging these conflicting interests in the short term.

Electricity companies did not outright refuse financial support for a research reactor. However, their cooperation hinged on clarifying their role in future Spanish nuclear development, particularly regarding administrative franchises or concessions for power plant ownership and operation. They viewed this collaboration as a 'heavy burden' due to uncertainties surrounding the government's allocation of responsibility for nuclear energy production. As a potential pressure tactic, the consortium, prior to the drafting of the Nuclear Law (enacted in April 1964), requested administrative authorisation for their nuclear power plants (Garoña and Zorita) in October 1960. Months later, they emphasised that with appropriate safeguards, their development aligned with the notion of public service.

In mid-May 1962, under the newly appointed Minister of Industry, Opus Dei technocrat G. López Bravo, the government favoured a clearer regulatory framework for nuclear facilities by establishing general authorisation conditions. This shift occurred as the government confirmed private companies' participation in the nuclear sector, and the JEN announced the potential operation of three nuclear power plants (600 MW) by 1968-1970. Initially, the electricity oligopoly and the Franco regime enjoyed a convergence of ideological interests. However, this alignment fractured due to the competing agendas of certain regime factions, particularly the military-Falangists. The government and the JEN, advocates of a promoter state model for industrialisation, harboured deep distrust towards private sector involvement, especially in the electronuclear subsector. The electricity companies, having secured a monopoly on electricity distribution (Bartolomé, 2005; Garrués-Irurzun & López-García, 2009; López-García et al., 2010; López-García & Garrués-Irurzun, 2014), refused cooperation with the government as long as the JEN, the state's nuclear advisory body, simultaneously played an active role in their industrial development.

As the international and national landscape shifted, electricity companies advocated for a clear regulatory framework that protected their interests. They sought a transition from a promoter state to a regulatory state, wherein an independent institution would mediate between official public and private interests. In this context, the Spanish government commissioned the CADRI in mid-September 1962 to draft the forthcoming Spanish Nuclear Program. The CADRI formulated a comprehensive survey for critical stakeholders, including the INI, private companies, the JEN, the Ministry of Industry, and the Water, Gas, and Electricity Union. The survey addressed key topics related to the construction of nuclear power plants between 1968 and 1972. The CADRI submitted its findings to the JEN, who then presented them to the government. The proposed nuclear program outlined a two-phase approach: the government would initially construct three plants using either British/French or American technology, followed by another three plants in the second phase. Additionally, the government envisioned collaborating with the industry to establish a national nuclear equipment sector.

Unbelievably, in March and August 1963, the new Minister of Industry provisionally authorised the installation of the first two nuclear power plants before any legislation on safety and civil liability had been enacted. The authorisation of the Zorita plant pleased electricity companies as the Ministry of Industry modified its criteria to allow for a single mixedownership (public-private) plant and permitted private companies to construct their facilities. However, the public-private collaboration model implemented at the Vandellòs nuclear power plant in 1972, coupled with the choice of a natural uranium-graphite reactor, suggests that regulatory capture was not fully realised. Nonetheless, private interests (I) ultimately prevailed over official public interests (OW) in the critical decision regarding the ownership and management of most of the nuclear power plants, a circumstance that has lasted until their decommissioning.

The influence of private interests is evident from the outset of nuclear development, yet the sector's subsequent evolution reveals increasing complexity. Later plant generations faced more stringent safety and manufacturing standards, including dominant multipackage contracts. Moreover, the mix of reactor suppliers—primarily American, with French (Vandellós) and German (Trillo) exceptions—suggests factors beyond regulatory capture also played a role. Understanding these post-1970s shifts requires considering both internal institutional factors and the changing international political and economic landscape (De la Torre & Rubio-Varas, 2018; Sánchez-Sánchez, 2017; Sanz-Lafuente, 2017).

In summary, the deficiencies of the initial Spanish regulatory state allowed private interests (I) to prevail over official public interests (OW) in the design and development of the first SNP, leading to *ex ante* regulatory capture.

The Spanish Nuclear Energy Act of 1964 (SNEA) and subsequent regulations, including the Risk Coverage Regulation (1967) and notably the Regulation on Nuclear Facilities (1972), laid the groundwork for regulating Spain's nuclear program. However, this legislation, insofar as it consolidated the regulatory capture of the nuclear power subsector, exhibits two distinctive characteristics that differentiated it from programs in other countries.

The first peculiarity lies within the SNEA. This landmark legislation proved as significant for what it omitted as for what it dictated. The act recognised private entities as potential operators of nuclear power plants. However, the law deliberately remained silent on the crucial issue of ownership and management models (public, private, or mixed) for these facilities.

The second peculiarity, and more importantly, the initiation of Spain's nuclear program preceded, the regulatory framework that was to govern it. The first three Spanish nuclear power plants (Zorita, Garoña, and Vandellòs I) were already operational before the law had been fully completed and became effective (1972).

Two additional legislative choices further solidified private sector involvement in Spain's nuclear program. The first, the government's decision to use administrative authorisation instead of administrative concession, through bidding or other means, eliminated competition among power companies for the ownership and operational management of the plants. The second, in line with Spain's international commitments to peaceful nuclear energy and civil liability in case of accidents, the government explicitly stated in the preamble that the law would favour a policy of 'not imposing excessively serious responsibilities on private capital' to promote the development of the Spanish nuclear industry. This emphasis on facilitating private participation in nuclear development aligns with the diverse approaches to nuclear facility authorisation observed internationally (Agence pour l'Énergie Nucléaire, 1972; De los Santos-Lasúrtegui, 1964; OCDE-NEA, 2020; Tocino-Biscarolasaga, 1975).

Based on these legislative considerations, can it be concluded that Spanish electricity companies were able to flout international regulations and agreements in the construction and operation of nuclear power plants? The data does not support such a conclusion. While recognising national administrative autonomy, the United States and international bodies, such as the International Atomic Energy Agency (IAEA), implemented robust technical safety and quality standards for countries adopting nuclear power. These standards, informed by the expanding global experience in nuclear development, became increasingly demanding over time and likely exerted a considerable influence on subsequent domestic regulatory frameworks; however, the specific administrative regulations examined in this paper fall outside the scope of this influence.

In the aftermath of these developments, a powerful alliance of electricity and banking interests spearheaded the development of a distinct trajectory for nuclear energy in Spain. This path diverged radically from the autarkic (self-sufficient) plans envisioned by the Francoist regime.

The relative invisibility of regulatory capture during this period can be attributed to the alignment of official public interests (OW) with private interests (I) during Francoism's developmental phase, a contrast to the autarkic era. This alignment did not eliminate regulatory capture; conversely, it obscured its presence.

The most compelling evidence to determine regulatory capture hinges on identifying the prevailing interests served by regulations: Do they benefit the legitimate interests of corporate shareholders (private interests) or the general interests of society (public interest)? While occasional alignment between these interests is possible, the Franco dictatorship demonstrably disregarded the public interest (De Riquer I Permanyer et al., 2018). This lack of concern for the public interest, inherent in the illegitimacy of authoritarian regimes, manifested itself in the nuclear issue in the total absence of public hearings—direct or indirect—to address matters related to nuclear energy, something logical in a blatantly corrupt dictatorship like Franco's (Comín, 2018b).

3. Regulatory capture of the Spanish nuclear electricity industry in an international comparison

Gilbert and Khan (1996) argued that regulating of the electricity industry should follow the same organisational orientation at the international level because many countries share common productive and technological factors. However, national traditions lead to different institutional experiences in the search for economic and social efficiency. Since Franco's

economic approach constituted a 'heavily state-intervened market economy,' a variant of Hall and Soskice (2001) classification, it is worth investigating the extent to which regulatory capture within the Spanish nuclear sub-sector is sustained internationally. In other words, how similar is the regulatory capture of the first SNP to the behaviour of other countries?

Spain was among the few underdeveloped countries to enter the nuclear power race and the first capitalist dictatorship (Sallai & Schnyder, 2021) to connect a nuclear reactor (De la Torre & Rubio-Varas, 2016; Rodríguez, 2021). Spain was also one of only three countries (along with the US and Japan) where the first nuclear reactors were privately owned and operated. Theoretically, the government or its independent regulatory bodies regulate nuclear activity. In all other countries, the electricity systems were state-owned or had a mixed structure, meaning that the government was directly responsible for regulating them ('self-regulating') (Figure 4).

The regulatory system applied in Spain was more similar to that deployed in Japan, with regulatory strong capture than in the United States. Some scholars have argued that the government experienced a weak and declining ex-post-regulatory capture in the United States. In contrast, others have characterised the relationship between business and government as a form of business influence that dissipated after the oil crisis (Hewlett & Holl, 1989).

Few authors have applied capture theories to the relationship between governments and companies in Japan (Japan Inc.), despite the extensive study of this relationship (Wang & Chen, 2012). Drawing on Laffont-Tirole agency theory and comparing Japan to the United Kingdom and the United States, Young (2003; Young & Meijaard, 2002) argues that Japanese nuclear regulation should be characterised as 'regulatory capture' or 'bureaucratic capture' rather than the mythical 'developmental state' approach because the government prioritised corporate economic health and well-being over public welfare.



Figure 4. Ownership and management of the first commercial networked reactors and political systems. Source: Prepared by the authors.

Other scholars (Cohen, 1979; Cohen et al., 1995) attribute American and Japanese nuclear policy divergence to decision-makers political choices in very different institutional settings. They argue that the two countries' different political (federal vs parliamentary) and electoral systems (simple majority vs single non-transferable vote) have conditioned decision-making, affecting management capacity (flexible vs rigid) in the face of energy structures (autonomous vs dependent) and economic situations that did not always coincide.

During the SNP's initial development, the Spanish electronuclear industry's regulatory capture coincided with Japan's lacking a participatory political system like the United States, where competing interests are confronted. The absence of checks and balances undoubtedly facilitated the direction of nuclear policy by those with the most financial backing and the best information, particularly companies. The technology vendor (United States) provided the treated fuel, training, and payment methods necessary for implementation. At the same time, the Spanish government collaborated internationally by facilitating technology transfer agreements and nationally by internalising many of the business costs (fuel preparation, waste disposal and security), if not supplementing them with subsidies/compensation for companies. Some scholars have seen this government-industry collaboration in the electricity sector as a win-win management strategy for both parties (Pueyo, 2007). This analysis, however, does not consider who earned more from this 'reciprocal implementation' or incorporate citizens/consumers, which is a significant limitation (Sánchez-Vázquez & Menéndez-Navarro, 2015).

Returning to the comparative analysis, two aspects distinguish Japanese and Spanish regulatory capture. First, the government-industry strategic link in Japan had a long tradition and extended to many sectors of the economy. In contrast, the Spanish electricity-banking oligopoly began in the 1920s, and regulatory capture was only significant in some capital-intensive sectors.

Regulatory capture of the electronuclear subsector in Spain is consistent with what happened in the electricity sector during the Franco regime. Sudrià (2007) highlights that the Francoist state lacked a coherent strategy for the electricity sector and that the public company and imperfect regulatory system implemented denotes a weak state –authoritarian but without authentic authority—that gave too much power to its agents and did not control monopoly private companies in their markets. The self-regulation system carried out by the electricity companies during the Franco regime demanded, with the arrival of democracy, that the socialist government establish a regulatory power to confront the market power of the electricity-banking oligopoly (Garrués-Irurzun, 2010).

4. Conclusion

The incorporation of nuclear energy into military and civilian life led to the creation of new institutions. Governments managed nuclear development due to its impact on national security. In Spain, as in other countries with authoritarian governments, the transition from the promoter state to the regulatory state did not involve the creation of independent regulatory bodies to mediate between electricity producers and users until democracy arrived. Therefore, before strong regulation of the electronuclear subsector was established at the end of the twentieth century, public and private interests struggled over one of the most critical decisions in this business: who would own and manage the distribution of nuclear electricity.

Technologists, historians, and economists have described who, when, and where the Spanish nuclear industry was implemented. This article complements this perspective, drawing on declassified official documentation, by analysing a topic little addressed in the literature: how the first SNP was designed, taking the logic of action of its leading actors as a starting point.

The decision-making process of the government and companies regarding the establishment of the first SNP occurred when the Franco dictatorship was transitioning from an autarkic to a liberal model of nuclear management. Three phases of institutional conflict characterised the transition. In the first phase, the government initially strongly opposed the participation of private companies in the nuclear business. In the second phase, the Franco administration sought the collaboration of companies. In the third phase, the electro-banking oligarchy imposed its interests on the design of the nuclear program, contrary to the initial wishes of the state and without opposition from the new government of liberal technocrats, in line with the new winds of Francoist liberalisation and international reintegration of the dictatorship.

The institutional relationship between the government and Spanish electricity companies, taking as a reference the theory of regulation in political science applied by Carpenter and Moss (2013a), allows us to classify it as a strong regulatory capture. This interpretation is consistent with what we already knew about the logical functioning of the entire electricity sector in those years. The literature, however, has not yet provided a comprehensive analysis of this aspect.

Regulatory capture, as defined by the authors mentioned above, is a process where regulation shifts from the public interest (W) to align with the interests of the regulated industry (I), either before (ex-ante) or after (ex-post) regulation is established.

In the case of the SNP, electricity companies used their financial and technological power, along with the institutional weakness and lack of government experience in nuclear matters, as pressure mechanisms to influence regulatory decisions in their favour. This mechanism included illegal lobbying for guaranteed profitability, eliminating competition, shaping the investment plan, and securing favourable tax and tariff treatment. Specifically, the electricity-banking oligopoly leveraged its position as the only actor capable of long-term investments in constructing and operating nuclear power plants. Additionally, the nuclear consortium conditioned its participation in the program to obtain guarantees of profitability and the externalisation of many of the costs associated with nuclear energy, such as fuel preparation, waste disposal, and safety.

The evidence of regulatory capture in the SNP is clear. The transition from an autarkic to a liberal model, the lack of a strong regulatory framework, and the government's dependence on private investment created an environment conducive to industry influence. However, without a doubt, the most obvious proof is the result: the first nuclear program was designed and, above all, mainly executed according to the interests of the electricity-banking oligopoly (I), prioritising its economic benefits over the public interest (W). Defending the argument that the electricity-banking oligopoly captured the regulator in implementing the first SNP does not mean that a nuclear program owned and controlled by the state during the dictatorship would have achieved better functioning and results. The starting problem is that the official public interest (OW) in dictatorships hardly coincides with the general interest/welfare (W) simply because it is impossible to know their societies' desires as they cannot express themselves freely and democratically.

The Spanish case is not unique at the international level. However, it aligns with dynamics observed in other countries during the early development (first generation) of nuclear energy, especially in those with less participatory political systems and weak regulatory frameworks. The Spanish case has much in common with the Japanese case and is quite different from the American case. Spain and Japan were distinguished by their political systems, which left little room for interests other than commercial ones. In both cases, the nuclear industry significantly influenced the government, prioritising economic growth over public welfare and safety. The strong regulatory capture these two countries share in the electronuclear subsector and the weak capture in the United States differs from what happened in other countries, where 'state self-regulation' prevailed, as their electricity systems were owned and managed by public or mixed companies.

Beyond its contribution to a better understanding of the SNP, this article is an excellent example of the importance of meso-level studies in business history in unravelling key factors that cannot be addressed exclusively from a narrow micro-level or macro-level approach. The interaction of companies and governments, adequately contextualised, provides a complementary perspective on the problem to be analysed, especially when using an interpretative theory that facilitates its understanding from an international perspective. However, the interpretations of any article are not a final point, and therefore, we hope this work not only encourages academic debate but also paves the way for further research by incorporating other theories that confirm or refute those already used.

In this regard, the theoretical proposition of 'reciprocal instrumentation' appears to illuminate some of the political-economic dynamics of contemporary Spain.⁵ However, according to our research, it does not apply to the early electronuclear subsector. However, lacking comparable business history studies, we cannot presently determine whether the electronuclear subsector was an anomaly or indicative of a broader pattern within Spain's capital-intensive industries.

While occasional alignment occurred between the Francoist government and the electro-banking oligarchy in the design of the SNP during the 1960s, it is crucial to note that this alignment stemmed from the failure of the regime's initial autarkic nuclear program. Furthermore, it is essential to acknowledge that the official public interest (OW) of dictatorial governments (whether autarkic or technocratic) within the SNP never truly represented the general interest (W).

Explanations based on reciprocal instrumentation and regulatory capture (beyond initially divergent or interdependent interests of political and business classes) are not always far apart in interpreting specific historical dynamics. Pérez-Diaz's (1985) four scenarios— collaboration, distance, moderate conflict, and dramatic conflict—can help categorise SNP dynamics. However, the reciprocal instrumentation theory often overlooks a crucial element: the interests of the society bearing the costs of political action.

Furthermore, characterising the electricity-banking oligopoly's pressure on the government as mere, medium, or strong legitimate influence seems inappropriate. The reciprocal instrumentation proposal does not fully align with a dictatorship like Franco's Spain, which institutionalised corruption across most economic sectors (Comín, 2018b). This misalignment is particularly evident in the electronuclear subsector, where a lobby operating with illegitimate practices disregarded good governance criteria, such us transparency, citizen participation, accountability, rule of law, efficiency, and integrity. Although significant, regulatory capture in the Spanish nuclear sector has been a dynamic historical phenomenon. While initially exerting a profound influence on the sector, its reach has been circumscribed over time by internal factors such as escalating technological complexity and external factors such as democratisation and globalisation. These factors have introduced novel actors and dynamics, challenging the hegemony of private companies. A more comprehensive investigation could illuminate how the interplay of these elements has configured the evolution of regulatory capture in the Spanish nuclear sector since the 1970s (Garrués-Irurzun, 2022; Madureira & Bartolomé-Rodríguez, 2024).

Notes

- This article utilises the following archival sources: declassified minutes of the Advisory Commission for Industrial Reactors (CADRI) (General Archive of the Spanish Administration (AGA), Alcalá de Henares); Vizcaya Bank's Permanent Commission minutes (History Archive of BBVA, Zaratamo, Bizkaia); UNESA's Board of Directors minutes (Spanish Electricity Industry Association Archive, Madrid); Hidrola's and Iberduero's Board of Directors minutes (Iberdrola Historical Archive); and various periodical publications.
- 2. Statutory capture (Pr[L = I | C] > Pr[L = I | C] and/or Pr[L = W|C] < Pr[L = W | C]), where Pr denotes probability, L denotes legislator, and C denotes capture, occurs when laws are designed to favour special interest groups. Agency capture (Pr[R = I | C] > Pr[R = I | C] and/or Pr[R = W|C] < Pr[R = W | C]), where R denotes regulator, occurs when these groups exert pressure on the regulator to apply laws in their favour. Both are forms of corruption that harm the public interest.
- 3. CADRI was established to centralize the efforts of other state, parastatal, and private industry groups. It was also tasked with advising the JEN, the government's advisory body for project studies and, in due course, the construction and management of power plants.
- 4. Initially, the term referred to a prototype reactor designed for dual purposes: first as a test reactor, then transitioning to an industrial reactor for electricity production. Later, the term DUR was used to describe an industrial reactor capable of serving both civilian and military applications.
- 5. Cabrera and del Rey (2007) offer insights into Reciprocal Instrumentation from a long-term, political-historical perspective. Pires-Jiménez (1999) thesis provides an economic history view of the Franco era, emphasizing state control over the regulation of industrial authorizations rather than control by other economic actors. However, this author does not deny the possibility of regulatory capture through other means, as theorized by Fraile-Balbín (1999). Conversely, Pueyo (2004), Pons (1999), and Díaz-Morlán (2015), while acknowledging strategic and temporal nuances, agree on the reciprocal influence between the Francoist Administration and economic actors in the electricity, banking, and mining sectors, respectively. On the other hand, Calvo-Calvo (2016) positioned the regulation of Spanish telephony outside of the two prevailing models: regulatory capture and reciprocal instrumentation. Taking a significantly different approach, Comín (2003, 2018a, 2018b; Comín & Cuevas, 2017), focusing on financial and fiscal matters, boldly reasserts the importance of the capture of the state and the regulator in the historical-economic debate.

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