

# Revisión sistemática de la política industrial española

## A systematic literature review over Spanish industrial policy

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Recibido: 16/06/2023. Aceptado: 05/12/2023.

Cómo citar: Del Castillo Sancho, Margarita, “Revisión sistemática de la política industrial española”, *Revista de Estudios Europeos* 83 (2024): 259-284.



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DOI: <https://doi.org/10.24197/ree.83.2024.259-284>

**Resumen:** Durante muchos años, España ha protagonizado un importante desajuste en la contribución de sus sectores estratégicos a la economía en comparación con otros países europeos. La crisis económica y de producción industrial heredada tras la pandemia del Covid19 pone de manifiesto la importancia de abordar los sectores tractoros de nuestra economía.

Para entender cómo ha evolucionado la política industrial en España en los últimos doce años, se ha realizado una revisión sistemática de la literatura a través del Web of Science con la intención de subrayar y analizar las ideas clave y líneas estratégicas definidas por los autores sobre las políticas pasadas orientadas a la política industrial y las propuestas de actuación futuras.

**Palabras clave:** Revisión sistemática; política industrial; España; crecimiento económico

**Abstract:** For many years, Spain has carried out a significant mismatch in the contribution of its strategic sectors to the economy compared to other European countries. The economic and industrial production crisis inherited after the Covid19 pandemic highlights the importance of addressing our economy's driving sectors.

In order to understand how industrial policy evolved in Spain in the last twelve years, a systematic literature review has been carried out with the intention of bridging the gap using the Web of Science and drawing out the key ideas and strategic lines defined by the authors on the past policies oriented towards industrial policy and future action proposals.

**Keywords:** Systematic review; Industrial policy; Spain; economic growth

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## INTRODUCTION

For many years, Spain has lived at the bottom of Europe in terms of spending on innovation, with a productive model under a shared monopoly between tourism and construction (Molina, 2019).

Factors such as the pandemic or the war in Ukraine, among others, have placed the need for a solid, agile and technologically sovereign industrial base at the center of the political debate (Vega, 2020). Many public and private actors have been calling for a change on this model, and now, although there is still a long way to go, the foundations are being laid for an innovative, scientific and modern Spain.

This study brings up interest for the academic and governance community as regards the future policy programs at the industrial level that could be addressed in the future both at the national but also regional level.

For a careful consideration of the object of study covered by this analysis of the literature, one should first establish the adopted definition of industrial policy in this case. Due to the comprehensiveness and accuracy, the one selected is the following definition from the Organization for Economic Cooperation and Development (Warwick, 2013:16):

*Industrial Policy is any type of intervention or government policy that attempts to improve the business environment or to alter the structure of economic activity toward sectors, technologies or tasks that are expected to offer better prospects for economic growth or societal welfare than would occur in the absence of such intervention*

This paper provides a systematic literature review of the existing research on Spanish industrial policy until 2022. Its main objective is to interpret and highlight a snapshot in terms of national, regional, and autonomous community level, within a general framework of case study analysis of the Spanish industry. Through authors conclusions, the answers to the following research questions will be addressed: 1) How have industrial policies at a regional level in Spain affected the economy? 2) How have specific initiatives and public policies affected economic growth? 3) How can Spain improve its industrial policy?

## **1. METHODOLOGY**

This research addresses a systematic literature review process. Starting from an initial database search at the Web of Science as a reliable

database commonly accepted in the academic field (Chadegani et al. 2013). The topic of the discipline to be reviewed in this document has been summarized in several queries to get the widest scope of information. Followed by an initial filter per topic accuracy and accessibility of the documents and finally scrutinizing and analyzing the final sample of literature.

The first query was performed against the Web of Science on 22<sup>nd</sup> February 2023. The query included Boolean operators such as AND: “INDUSTRIAL AND Policy AND Spain” within the SSCI of Economics, Political Science and International Relations.

Achieving a total of 771 results.

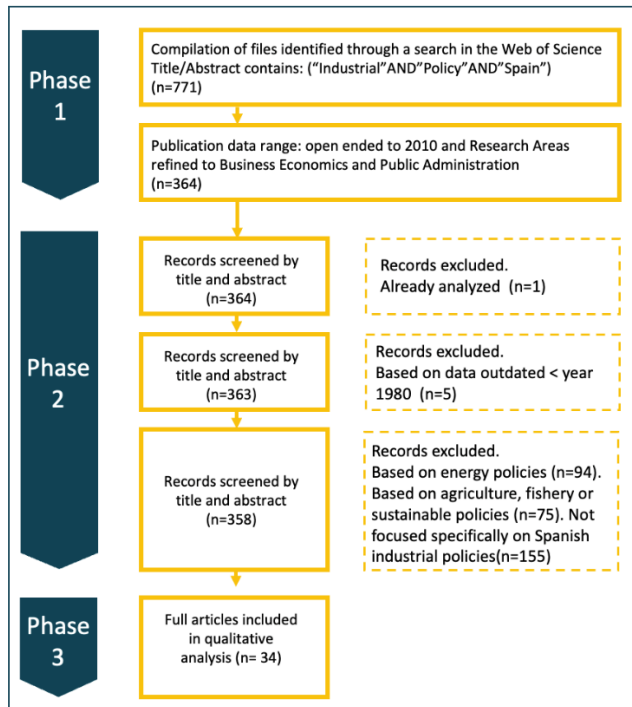
To further refine the search, the Research Areas selected were Business Economics and Public Administration, while the Document type was reduced to Article and Article Review. As the industrial policy in the last twelve years has evolved in a relevant way, enough information can be gathered to address the research questions. This horizon has been chosen since industrial policy changes tend to have a long-term impact while also new conceptualizations around new industrial policy started about ten years ago (Warwick 2013). This means that the effects of a policy may not be immediately evident but may take several years to manifest themselves. Therefore, time condition was limited from 2010 until today: Getting a total of 364 results. This second screening was performed by analyzing title and abstract from the 364 results. Figure 1 incorporates the methodological flow for shortening the content of analysis in three phases. Along Phase 2 a filtering was carried out from a thorough assessment of the suitability of the topics discussed in the abstract and title and their direct relationship with the topic under study: industrial policies in Spain.

One article was discarded from the Web of Science search as there might be some error on the web and it was repeated once. An total of n=5 were discarded since their information under study in the article was not up to date and were referring to data prior 1980, though the article was published after 2010.

The last step within phase 2 addressed most specifically research questions regarding the analysis and the direct contributions to the Spanish industrial policy: As it can be seen on table 1 a large amount of articles n=94 were discarded due to their content was really focused on energy policies in Spain, which goes out of the scope of this analysis. A total of 75 files discussed topics related to agriculture, fishery, or sustainable

economies from an environmental point of view. Finally, a total of 155 were also discarded from the analysis as they lacked specific content on Spanish industrial policies.

The third and last step included the clustering of the 34 remaining into common categories to answer the defined research questions with the available literature.



*Figure 2 Literature selection procedure*

In the specific case of industrial policy in Spain, it is important to note the importance of the grey literature as a contribution to the research questions. For instance, an analysis has been carried out from the initiatives implemented by the Spanish government mainly on the grounds of the covid pandemic and the war in Ukraine, since those were recent events with few precedents, therefore there is little academic literature and thus, necessary to incorporate information from the grey literature.

## 2. RESULTS

A complete detailed table compiling the results can be found in the annex, summarizing and clustering the characteristics of each of the documents reviewed in terms of their qualitative or quantitative nature, their author, year, title, and research question.

**Table 1** summarizes the clusters identified aligned on how they answer each of the research questions.

How can Spain improve its industrial policy?	14
How have industrial policies at a regional level affected the economy?	8
How have specific initiatives and public policies affected economic growth?	12
Total general	34

Table 1 Research questions

### 2.1. How have specific initiatives and public policies affected economic growth?

Within the Franco era, the main highlights on Spanish industrial policy were focused on a strong protectionism of Spanish economy, supported by the Instituto Nacional de Industria (INI), the private investment banking and the ICO Instituto de Crédito Oficial. Followed by a transformation led by the privatization, des-intervention and deregulation of foreign exchanges, the elimination of entry barriers and price regulations, therefore upgrading the competency and efficiency of the sector. Nevertheless, it was not the case with companies' privatization processes, in this case García-Ruiz (2019) highlights the fact that privatization didn't contribute to an improvement in the efficiency of the companies, except for those where sectorial regulation was taking place at the same time. Nevertheless, the privatization of those companies helped Spanish economy to reduce public debt and comply with the requested objective to join the Economic and Monetary Union of the European Union.

The European Commission made one of its main political priorities the liberalization of services like electricity, banking, and

telecommunications, with the adoption of the Single European Act and a set of directives, the traditional segmented market of every nation turned into an integrated European market (Clifton, Díaz-Fuentes, and Revuelta 2010). Nevertheless, this turn out into strategic sectors shares being taken over by foreign competitors in some cases. A remarkable example where industrial policy took a significant role was the telecommunications sector and Telefonica. As far as national telecommunications champions, the case of the Spanish market compared to the Italian one is significantly different due to the role played by the Spanish government and the Italian. Both countries intended to foster the internationalization of their domestic telecommunication incumbents, but their strategies were addressed differently. Spain, within the case of Telefonica, built a shareholding of companies coming mainly from the banking sector, as opposed to Italy, which was built mainly from companies coming from different sectors rather than the banking on (for example the Benetton group) and not so affected by a national regulatory system of significant influence (Bulfone 2019).

Therefore, in the Spanish case, the banks did agree to join a capital share though the State had a golden share, by obtaining in exchange regulatory protection in their main sector of activity. The Spanish State protected Telefonica's position in the Spanish market by postponing the EU liberalizing directives implementation (Jordana and Sancho 2007) and fostered its international expansion towards other countries such as Latin America (Etchemendy 2004).

Competitive dynamics in industrial districts with social capital, knowledge acquisition and innovation are introduced in Ruiz-Ortega et al. (2016), where the district effect analyzed shows the impact from a corporate perspective that belonging to industrial district areas have. Profitability and growth are higher for companies belonging to these districts while the investment in innovation is also relevant. In both income distribution mechanisms and inter-sectoral relations, enterprises are closely interconnected: industrial policies affecting large firms also have an impact on small firms and vice versa. In Spain, the preservation of the economic activity seems to be more sensitive to large companies' behavior, nevertheless, employment rates depend strongly on SMEs in general and micro-enterprises in particular (Pedauga, Sáez, and Delgado-Márquez 2022). Industrial clusters with low unemployment rate and high income per capita are very synchronized. Gadea et al. (2012) presents the different

economic cycles within Spain regional economies, highlighting the fact that there are 17 different cycles and therefore having a national approach on the economic policy initiatives could decrease convergence process and undesired distortion growth. On top of that, industrial deregulation could have positive consequences if the necessary measures are taken, thus achieving better competition (Alonso-Nuez, Rosell-Martínez, and Muñoz-Porcar 2015). However other studies have proven that a cluster is not a necessary condition for success such as the case of Perles-Ribes et al., (2017) , where, as defined by Porter (Porter, 2008) the characteristics for a exist have not been, to date, a necessary condition for competitive success.

R&D programs may also contribute to the growth of a collaborative culture among cluster stakeholders, thus strengthening the effectiveness of the cluster's competitiveness (Broekel, Fornahl, and Morrison 2015). It is suggested that R&D programs should be structured to trigger cooperation between the cluster actors and to encourage the exchange of knowledge among them (Belso-Martínez et al. 2021). As a result of a successful industrial policy process an innovation upgrading, the Basque Country has been under study by many scholars in recent years (Konstantynova 2017) .When it comes to evaluating policies, the findings highlight the need for filling the gap between policy-mix design and evaluation, since current process and governance structures are not yet totally defined and shaped towards a proper evaluation and experimentation of innovation policies (Magro and Wilson 2019).

## **2.2. How have industrial policies at a regional level in Spain affected the economy?**

It was after the admission to the European Union in 1986 and the second half of 1980's when Spain transferred the legislative power to the regions that the industrial policy in Spain achieved a different approach at the policy- level:

The regional areas of development where previous industry was being pushed to grow and evolve, received the following incentives from the Spanish government in order to succeed in their economic growth: In order to attract industrial facilities they invested in transport infrastructures as well as defined lower interest rates, tax reduction and public co-funding

(Fløysand, Jakobsen, and Sánchez-Hernández 2015) . These policies evolved later in a post-Fordism recipe into a different strategy that strived to give companies the tools to become for efficient and competitive than other disrupter such as Korea or Taiwan (Navarro 1989, 1990). Public financial resources were mostly dedicated to the technological retrofitting of older factories, to the reduction of manufacturing capacity to cope with the decrease in demand due to the crisis in Spain, and to mergers and acquisitions with the aim of creating financially strong and economically competitive industrial companies. Also "Fondos de Promoción de Empleo" or Job promotion funds, were delivered to the youngest workers in order to provide them with additional skills and training so that the youngest Spanish workforce could be better prepared for the evolving industry (Fløysand et al. 2015). Industrial policies and regional growth were pushed from the autonomous regions in Spain, whom had their different innovation and research centers or technology parks. As well as the autonomous regions inner policies, Spanish industries benefited from the adhesion of Spain to the European Common Market and their European industrial restructuring programs or European Social Funds (Oller, Benaül Berenguer, and Sudrià Triay 2003)

On a national scale, investment on infrastructure communications provisions, territorial planning or knowledge creation and transferring to the private sector rely on the decision on a national scale of the Cohesion funds or Structural Funds, defined and allocated after the agreement between the European Commission and Spanish Government. The regional governments (subnational level) have also relied on European resources to support a major share of their programs in the areas of technological innovation, transportation, urban renewal, rural development and vocational training; on a subregional level, local authorities also relied on the European funds to tackle this reindustrialization process (Fløysand et al. 2015) .

As introduced previously, the Basque country has been under study by many scholars. The region suffered a strong economic and unemployment crisis in the early 1980s, this was translated into an industrial crisis due to the collapse of the steel and shipbuilding sector (Konstantynova 2017) . On top of a minimum income scheme, the industrial restructuring process pushed from the institutions allowed the Basque Country to achieve a stronger economic sector in terms of unemployment and poverty rates which are below the Spanish average (Sanzo-González, 2020) .



At the regional level it is interesting to emphasize the approach the different regions in Spain had towards the energy production and distribution companies in terms of agreements with the main stakeholders. Basque country and Navarra prioritized the renewable energy investment and created joint ventures such as the Basque country case with Iberdrola, called "Eolicas de Euskadi" and Navarra with Acciona, while awarding R&D grants and co-developing research centers with the private sector (Ichaso 2000; Matti, Consoli, and Uyarra 2017). Galicia and Castilla y Leon pushed the collaboration between large producers of turbines and local companies promoting the local production of some components of the turbines (Ferreira, 2010)

### **2.3. How can Spain improve its industrial policy?**

Spain was already shifting its industrial policy in three layers: From a national approach to a regional one, aligning its strategy with the EU's regional development policies (Fløysand et al. 2015) . Second shifting the intervention from a vertical to an horizontal approach, targeting competences such as skills, technologies or industrial processes rather than intervening specific firms. Third from top-down approach to bottom-up, through a collaborative process with the different players in the market including both government, industry and innovation centers (Šćepanović 2020).

Industrial policy principles are to foster the economic growth, by supporting the evolution of knowledge, technologies and economic activities. A comparative study on Spain's productivity is addressed against the German model (Hintzmann 2015), concluding that even though Spain increased a lot its economic growth from 1993 until 2003 (mainly due to the construction boom), it was in 2008 crash that economic growth stopped, starting an economic crisis. In contrast, Germany did encourage its industry towards a deeper sophistication on their technologies and also workforce, fostering its economic growth in a diverse industry. The analysis shows that German companies have a higher productivity rate compared to the Spanish ones since they had been able to add value to the production, improving the efficiency, incorporating more qualified human workforce and a having a larger stock of capital as this also incorporates technical progress.

Hintzmann (2015) proposed to focus on strategic sectors such as: chemical and pharmaceutical, basic metals and fabricated metal products,

real capital goods, electrical and optical equipment, transport equipment (as the aerospace, automotive or railway industry) and less traditional sectors like ICT, renewable energy and agri-food. Promote internationalization of Spanish companies, support R&D within SMEs and entrepreneurship and drive along an industrial policy at a European, national, and regional level.

As previously introduced in the literature, industrial policy should be addressed under an interdependency umbrella, where not only the focus is on specific industries but also on the infrastructure, communications or qualified workforce that leverages a fruitful local production (Rodrik 2004). On top of that, the role of the innovation and science policies is a core fundamental of the proper industrial development, as companies and especially small-medium size ones, cannot achieve all the potential benefits without public support (Myro 2021). In close collaboration with the private sector, the governmental actions should be leading and focusing on high-risk technologies and innovation actions that wouldn't be addressed solely by private investors due to their high potential risk. These innovation fields are the ones related to energy, security, new materials, healthcare, medicine and artificial intelligence (Yergin 2020)

Finally, in order to incorporate all these new measures and initiatives, it is the State the one in charge of leading this transformation strategy towards a collaborative public-private environment where the State together with the SME, big companies, trade union, academia and research centers together define the objectives to be achieved from the overall industry while also materialize the creation of new agencies and organism similar to some of the already existing and are already properly working such as ICEX (Instituto Español de Comercio Exterior), CDTI (Centro para el Desarrollo Tecnológico Industrial) or ENISA (Empresa Nacional de Innovación Sociedad Anónima): Together they will define the strategic options for the future and also their perspectives for the manufacturing activities, helping in their deployment and implementation, horizontally specialized and if consider necessary, also sectorial (for example aeronautic or automotive)(Myro 2021).

In order to turn around the low-mid technology capabilities of Spain, Molero & Granda, (2014) propose four criteria for a new industrial policy

Four pillars	From an axial point of view:
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<ul style="list-style-type: none"> <li>• to have a long-term perspective and keep sustainable over time, so that results can be properly measured</li> <li>• internationalization should have a critical role, both inward and outward.</li> <li>• incorporate different policy areas apart from innovation such as education, labor market among others, to launch an aligned strategy.</li> <li>• to be centered around competitive factors and not specific direct subsidies, these competitive factors should foster a higher productivity and service creation together with new industrial development styles</li> </ul>	<ul style="list-style-type: none"> <li>• to combine trade, investment, and technological collaboration for unfolding national capacities into a focused technology intensive investment.</li> <li>• to incorporate and upgrade the Low-tech and medium-tech industries into high technological advanced industrial capabilities.</li> <li>• to improve the education and training levels of Spanish entrepreneurs in order for them to achieve the knowledge enough to incorporate these new technologies in their markets</li> <li>• to increase the size of the average industry, small and medium companies often find it more difficult to innovate and therefore to increase their productivity.</li> <li>• to incorporate horizontal technologies such as biotechnology, new materials or ICT</li> </ul>
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Foremost, as a coordinated response to the unexpected covid-19 pandemic affecting Spain, among many other countries, the European Union launched its support package for Member States known as the Next Generation EU funds (Comisión Europea 2023). This programme was an unprecedented boost to industrial policy in the different countries. Each country prepared an implementation plan for obtaining access to this

funding. In Spain it was known as "Plan Nacional de Recuperación y Resiliencia". The plan is structured around 4 transversal axes (ecological transition, digital transformation, territorial and social cohesion and gender equality) which in turn are projected into 10 lever policies: Each of these levers was linked to a series of components, which articulate coherent investment and reform projects. Lever 5, aimed at the modernisation and digitisation of the industrial fabric and SMEs, the recovery of tourism and the promotion of Spain as an entrepreneurial country and was coupled to the so-called component 12 "Política Industrial España 2030" (Gobierno de España 2023b, 2023a).

Component 12 entails two main reforms, the first being the "Estrategia Española de Impulso Industrial 2030" and the "Política de residuos e impulso a la economía circular". These reforms include steps such as the reform of the Industry Law, which dates back to 1992, to adapt it to today's economy and industry.

Component 12 is also materialised in a series of investments such as: Sectoral data spaces (designed to set up large common data spaces fostering business innovation in the main strategic productive sectors). The plan to support the implementation of environmental waste legislation and the promotion of circular economy and third, the programme to boost industrial competitiveness and sustainability coupled with a reform of the current Industry Law dating back to 1992 (Gobierno de España 2023a). These initiatives, promoted by the National Plan for Recovery, Transformation and Resilience, incorporate the identification of projects considered to be strategic, the so-called "PERTEs". These projects are considered strategic for the development of the Spanish economy in the short and long term. These are the: PERTE for the development of electric and connected vehicles. PERTE for cutting-edge healthcare. PERTE for renewable energy, renewable hydrogen and storage. PERTE Agroalimentary. PERTE New language economy. PERTE Circular economy. PERTE for the shipbuilding industry. PERTE Aerospace. PERTE for digitalization of the water cycle. PERTE for microelectronics and semiconductors. PERTE for the social and care economy. PERTE for industrial decarbonization. These PERTEs aim to transform and improve the development of these specific capabilities and sectors, maintaining the focus on the digitalization, modernization and sustainability of the industry as well as the drive towards a circular economy strategy (Gobierno de España 2023c).

## CONCLUSIONS

This analysis contributes to the literature for several reasons: The identification of the successful drivers which have contributed to economic growth, e.g. the role of innovation policies, helps future policy makers shape effective policies, as well as analyse the best case practices. This is determining both at national and international level, as future decision makers are likely to take advantage of successful policies in Spain. Finally, it is important to highlight the contribution to the public debate, the evidence of the impact of industrial policies can help to feed the debate on the role of the state in the economy and in society as a whole.

Taking a forward-looking approach, and picking up on the initial point raised in the introduction regarding the need to place the need to boost the economy, its diversification, dependencies and sovereignty at the centre of the public debate, the PERTES will be strategic for the future of Spain.

These projects will boost investment and public-private cooperation in strategic sectors such as digitalisation, mobility, sustainability or health, among others. They would have a significant impact by boosting private and public investment in strategic sectors, creating more jobs as well as increasing demand for services and goods, which in turn may boost employment. Regarding competitiveness, for example, improved digitisation capabilities can help enhance the competitiveness and efficiency of companies, improving their position in the national and international market. Regarding sustainability, enhancing capabilities towards economic progress and evolution within a more sustainable framework can contribute to lower economic dependency on fossil fuels, reaching stronger environmental profiles and ESG ratings, which in turn can impact on better corporate reputation in order to better attract future international investments. There might be a risk of cost overruns and delays in the implementation of projects running under PERTES. Poor management can generate larger costs than expected, as well as possible delays that may worsen the competitiveness of the business fabric.

PERTES have the potential to have a positive impact on Spain's economic development, but these risks may affect the country's economic prosperity. Therefore, it is important to properly undertake the investment

in the projects and to continue a correct evaluation of the milestones achieved, in a traceable and transparent way.

Based on authors opinions, the evolution of the Spanish productive model shaped by the industrial policy can be summarized within the following conclusions: This analysis reflects the potential implications these insights could have for the different stakeholders.

Spain's industrial policy framework would have to focus on innovation, support for small and medium-sized enterprises, the establishment of a stable regulatory framework and the improvement of education and training. This would allow Spain to make the best use of available resources and increase the competitiveness of its companies to compete in the international market. In addition, these measures would contribute to improving the quality of life of the Spanish population by generating quality jobs and greater economic prosperity:

- Promoting innovation: Stimulate research and development to increase the competitiveness and productivity of companies.
- Support for small and medium-sized enterprises: Facilitate financing and access to resources for innovation and the internationalization of these firms.
- Establish a stable regulatory framework: Establish clear and stable rules to facilitate the development of companies.
- Improve education and training: Provide workers with the knowledge and skills necessary to perform their jobs in the 21st century.

This analysis has its limitations in terms of the volatility of emerging events in society that can impact industrial policy, for example the recent war in Ukraine and its impact on the world economy, supply chains, etc., as well as other events such as the covid 19 pandemic. Future studies may incorporate new analysis of the outcomes of these events, not yet so tangible at the academic level.

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## Annex 1: Summary of evidence

Number	Authors	Publication Year	Source Title	Article Title	Research question	Methodology	Type
1	Floysand, Arnt; Jakobsen, Stig-Erik; Luis Sanchez-Hernandez, Jose	2015	ENTREPRENEURSHIP, HUMAN CAPITAL, AND REGIONAL DEVELOPMENT: LABOR NETWORKS, KNOWLEDGE FLOWS, AND INDUSTRY GROWTH	Regional Industrial Policy in Norway and Spain	How have industrial policies at a regional level in Spain affected the economy?	Qualitative	Case study
2	Scepanovic, Vera	2020	REVIEW OF INTERNATIONAL POLITICAL ECONOMY	Transnational integration in Europe and the reinvention of industrial policy in Spain	How can Spain improve its industrial policy?	Qualitative	Case study
3	Goni, Igor	2021	REVISTA DE HISTORIA INDUSTRIAL	Industrial Policies in Spain: Past, Present and Future	How have specific measurements affected public policies?	Qualitative	Case study
4	Molero, Jose; Granda, Ines	2014	STRUCTURAL CHANGE, COMPETITIVENESS AND INDUSTRIAL POLICY: PAINFUL LESSONS FROM THE EUROPEAN PERIPHERY	The industrial sector of Spain in search of a new policy	How can Spain improve its industrial policy?	Qualitative	Case study
5	Myro, Rafael	2021	REVISTA DE ECONOMIA MUNDIAL	THE FUTURE OF INDUSTRY IN SPAIN	How can Spain improve its industrial policy?	Qualitative	Case study

6	Uyarra, Elvira; Mikel Zabala-Iturriaga goitia, Jon; Flanagan, Kieron; Magro, Edurne	2020	RESEARCH POLICY	Public procurement, innovation and industrial policy: Rationales, roles, capabilities and implementation	How can Spain improve its industrial policy?	Qualitative	Case study
7	Jurado-Sanchez, Jose; Jimenez-Martin, Juan-Angel	2019	POLICY STUDIES	Revisiting the guns vs butter dilemma. Was Spain different in the implementation of public policies? Defence, growth and education	How have specific measurements affected public policies?	Qualitative	Quantitative analysis
8	Hintzmann, Carolina	2015	HACIENDA PUBLICA ESPANOLA- REVIEW OF PUBLIC ECONOMICS	An Analysis of Differences in Labour Productivity in Manufacturing. Displaying the Need for a Resurgence of Industrial Policy: Spain vs Germany, 1993-2007	How can Spain improve its industrial policy?	Qualitative	Case study
9	Arteaga, Felix	2014	DEFENCE AND PEACE ECONOMICS	A Proposal for restructuring the security and defense industrial sector in Spain	How have specific measurements affected public policies?	Qualitative	Case study
10	Bulfone, Fabio	2019	JOURNAL OF EUROPEAN PUBLIC POLICY	The state strikes back: industrial policy, regulatory power and the divergent performance of telefonica and telecom Italia	How have specific measurements affected public policies?	Qualitative	Case study

11	Fonfria, Antonio; Correa-Burrows, Paulina	2010	DEFENCE AND PEACE ECONOMICS	EFFECTS OF MILITARY SPENDING ON THE PROFITABILITY OF SPANISH DEFENCE CONTRACTORS	How have specific measurements affected public policies?	Qualitative	Case study
12	Domenech, Jordi; Roses, Joan Ramon	2016	INDUSTRIAL DISTRICTS IN HISTORY AND THE DEVELOPING WORLD	Technology Transfer and the Early Development of the Cotton Textile Industry in Nineteenth Century Spain	How have industrial policies at a regional level in Spain affected the economy?	Qualitative	Case study
13	Carlos Salazar-Elena, Juan; Paloma Sanchez, M.; Javier Otamendi, F.	2016	SUSTAINABILITY	A Non-Parametric Delphi Approach to Foster Innovation Policy Debate in Spain	How can Spain improve its industrial policy?	Qualitative	Case study
14	Gonzalez, Luis Sanzo	2020	SOCIAL POLICY & ADMINISTRATION	From industrial restructuring to the financial crisis: Mainstream nationalism and minimum income in the Basque Country	How have industrial policies at a regional level in Spain affected the economy?	Qualitative	Case study
15	Magro, Edurne; Wilson, James R.	2019	RESEARCH POLICY	Policy-mix evaluation: Governance challenges from new place-based innovation policies	How have specific measurements affected public policies?	Qualitative	Case study

16	Florio, Massimo ; Moretti, Luigi	2014	EUROPEAN PLANNING STUDIES	The Effect of Business Support on Employment in Manufacturing: Evidence from the European Union Structural Funds in Germany, Italy and Spain. There is a positive relation between the European Union Structural Funds in Germany, Italy and Spain and the employment growth in manufacturing within these regions.	How have industrial policies at a regional level in Spain affected the economy?	Qualitative	Case study
17	Jose Ruiz-Ortega, Maria; Parra-Requena, Gloria; Manuel Garcia-Villaverde, Pedro	2016	INTERNATIONAL REGIONAL SCIENCE REVIEW	Do Territorial Agglomerations Still Provide Competitive Advantages? A Study of Social Capital, Innovation, and Knowledge	How have specific measurements affected public policies?	Qualitative	Case study
18	Matti, Cristian; Consoli, Davide; Uyarra, Elvira	2017	ENVIRONMENT AND PLANNING C-POLITICS AND SPACE	Multi level policy mixes and industry emergence: The case of wind energy in Spain	How have industrial policies at a regional level in Spain affected the economy?	Qualitative	Case study con entrevistas

19	Xavier Molina-Morales, Francesc ; Teresa Martinez - Fernandez, Maria	2010	JOURNAL OF SMALL BUSINESS MANAGEMENT	Social Networks: Effects of Social Capital on Firm Innovation	How have industrial policies at a regional level in Spain affected the economy?	Qualitative	
20	Dolores Gadea, Maria; Gomez-Loscos, Ana; Montane s, Antonio	2012	SERIES-JOURNAL OF THE SPANISH ECONOMIC ASSOCIATION	Cycles inside cycles: Spanish regional aggregation	How have specific measurements affected public policies?	Qualitative	
21	Alonso-Nuez, Maria J.; Rosell-Martinez , Jorge; Munoz-Porcar, Antonio	2015	JOURNAL OF COMPETITION LAW & ECONOMICS	DOES DEREGULATION ENCOURAGE ANTICOMPETITIVE BEHAVIOR?	How have specific measurements affected public policies?	Quantitative	Quantitative analysis
22	Belso-Martinez , Jose A.; Diez-Vial, Isabel; Lopez-Sanchez, Maria J.; Sanchez, Maria D.	2021	ZEITSCHRIFT FÜR WIRTSCHAFTS GEOGRAPHIE	How can R&D programs induce unplanned R&D collaborative networks in clusters?	How have specific measurements affected public policies?	Qualitative	Case study
23	Calvo, Angela Garcia	2021	NEW POLITICAL ECONOMY	State-firm Coordination and Upgrading in Spain's and Korea's ICT Industries	How can Spain improve its industrial policy?	Qualitative	Case study

24	Madeira, Paulo Miguel; Vale, Mario; Mora-Aliseda, Julian	2021	ECONOMIES	Smart Specialisation Strategies and Regional Convergence: Spanish Extremadura after a Period of Divergence	How have industrial policies at a regional level in Spain affected the economy?	Qualitative	Case study
25	Zabala-Iturriaga goitia, Jon Mikel	2022	SMALL BUSINESS ECONOMICS	Fostering regional innovation, entrepreneurship and growth through public procurement	How can Spain improve its industrial policy?	Qualitative	Case study
26	Castano-Martinez, Maria-Soledad; Mendez-Picazo, Maria-Teresa; Galindo-Martin, Miguel-Angel	2015	MANAGEMENT DECISION	Policies to promote entrepreneurial activity and economic performance	How can Spain improve its industrial policy?	Qualitative	
27	Hervas-Oliver, Jose-Luis	2022	COMPETITIVENESS REVIEW	Industry 4.0 in industrial district SMEs: understanding collective knowledge transfer by research and transfer institutes	How can Spain improve its industrial policy?	Qualitative	
28	Guerrero Gonzalez, Antonio; Robles Quinoneiro, Daniel; Fraile Vega, Samuel	2021	ENGINEERING ECONOMICS	Assessment of the Degree of Implementation of Industry 4.0 Technologies: Case Study of Murcia Region in Southeast Spain	How can Spain improve its industrial policy?	Qualitative	Case study



29	Estensoro, Miren; Larrea, Miren	2016	EUROPEAN PLANNING STUDIES	Overcoming policy making problems in smart specialization strategies: engaging subregional governments	How have industrial policies at a regional level in Spain affected the economy?	Qualitative	Case study
30	Kiefer, Christoph P.; Carrillo-Hermosilla, Javier; Del Rio, Pablo	2019	RESOURCES CONSERVATION AND RECYCLING	Building a taxonomy of eco-innovation types in firms. A quantitative perspective	How can Spain improve its industrial policy?	Qualitative	Case study
31	Carlos Salazar-Elena, Juan; Lopez, Asuncion; Guimon de Ros, Jose; Cancino, Christian A.	2020	JOURNAL OF INTELLIGENT & FUZZY SYSTEMS	Sincerity is a dangerous thing: On how appropriability regimes shape innovation strategies	How can Spain improve its industrial policy?	Qualitative	Case study
32	Fernandez-Esquinas, Manuel; Pinto, Hugo; Perez Yruela, Manuel; Pereira, Tiago Santos	2016	TECHNOLOGICAL FORECASTING AND SOCIAL CHANGE	Tracing the flows of knowledge transfer: Latent dimensions and determinants of university-industry interactions in peripheral innovation systems	How can Spain improve its industrial policy?	Qualitative	Case study

33	Francisco Perles-Ribes, Jose; Rodriguez-Sanchez, Isabel; Belen Ramon-Rodriguez, Ana	2017	CURRENT ISSUES IN TOURISM	Is a cluster a necessary condition for success? The case of Benidorm	How have specific measurements affected public policies?	Qualitative	Case study
34	Pedraza, Luis; Saez, Francisco; Delgado-Marquez, Blanca L.	2022	SMALL BUSINESS ECONOMICS	Macroeconomic lockdown and SMEs: the impact of the COVID-19 pandemic in Spain	How have specific measurements affected public policies?	Qualitative	Case study