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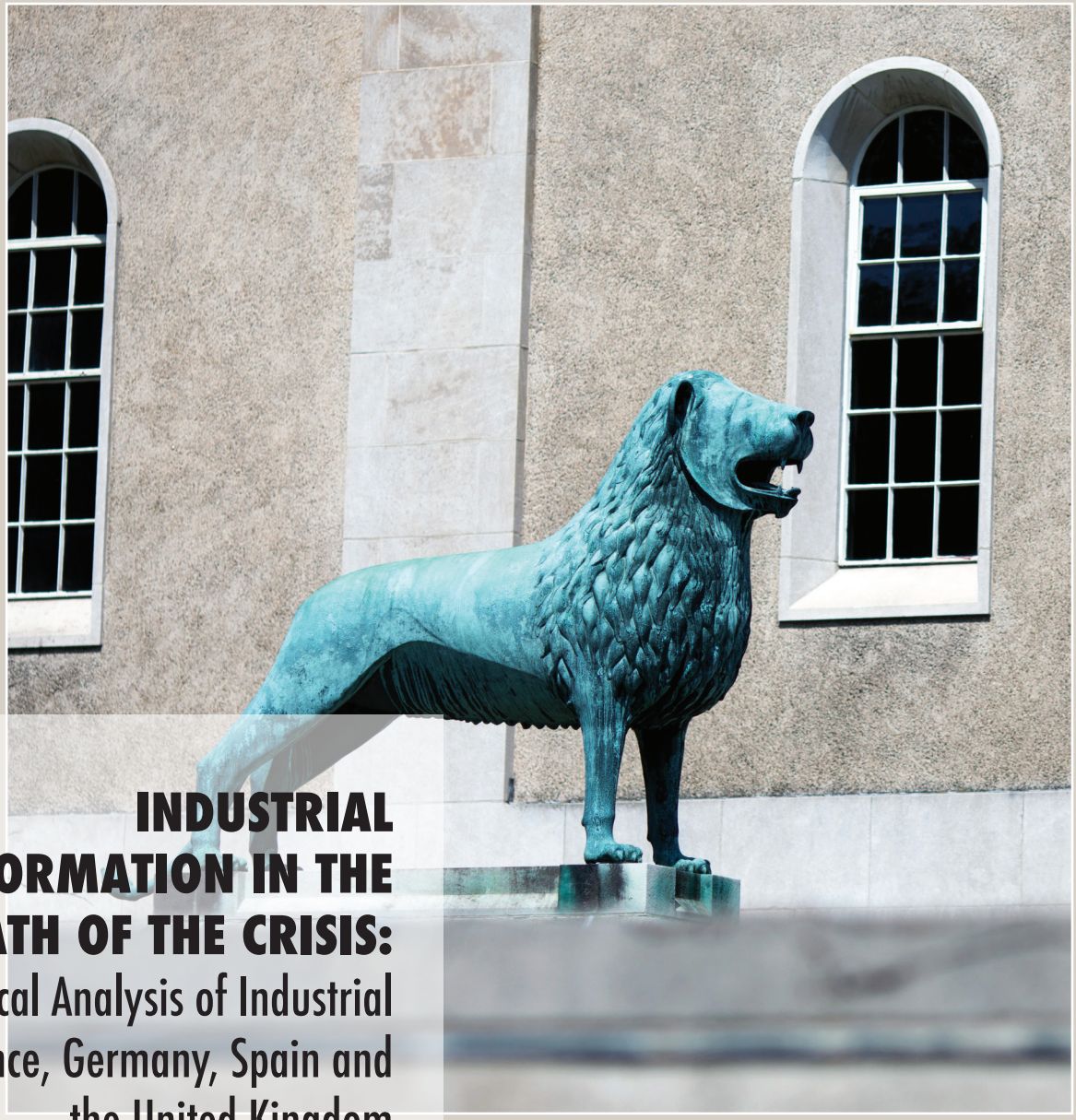

INDUSTRIAL TRANSFORMATION IN THE AFTERMATH OF THE CRISIS:

An Empirical Analysis of Industrial Policies in France, Germany, Spain and the United Kingdom

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Industrial Transformation in the Aftermath of the Crisis: an Empirical Analysis of Industrial Policies in France, Germany, Spain and the United Kingdom[1]

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Abstract

This paper gauges the forces and structures that shape economic transformation through an analysis of industrial polices in four European economies since the 2008 crisis: France, Germany, Spain and the United Kingdom. We argue that differences across recent European industrial policies respond to variations in national historical and institutional legacies; the characteristics of productive structures and the capabilities of the state. Path-dependency shapes views regarding the acceptable role of the state, although institutional legacies need to be balanced against historical institutional consistency and the intensity of the crisis. The characteristics of industry in terms of size, specialization, and position in the global division of labor affect preferences for framework versus sector-specific policies and the ambitiousness of goals. Finally, the state's coordination capacity is essential to the design and efficient implementation of interrelated actions across multiple areas whereas financial capacity establishes commitment, signals priorities, and determines the feasibility of forward-looking projects.

1. Introduction

The financial crisis and ensuing Great Recession have forced governments of advanced industrialized countries to re-examine their economic models in a search for more sustainable paths to growth. Reflecting on the economic and social devastation, scholars and policymakers in many European countries quickly identified two major causes for concern: the future of their manufacturing industries and national innovation capacity. As physical proximity between production and development is required for subsequent rounds of innovation (Berger 2014), these issues are obviously related. Accordingly, policymakers have energetically developed twin-track public strategies to buttress their manufacturing capacity and their models of innovation. Increasingly, this approach has involved prioritizing certain sectors and identifying specific areas for dedicated state support rather than focusing, as before, on supporting a broad range of industrial inputs. In short, many European governments have rediscovered industrial policy.

All countries intervene in public markets to some extent and there are often similarities when measures are taken in response to a common shock, but a cursory examination of industrial policies since the 2008 crisis reveals national differences in goals and the strategies to achieve them. What determines the type of interventions European countries choose? And to what extent do they contribute to overhauling growth models that are becoming exhausted? By looking at differences between national industrial policy plans, our purpose is to engage in ongoing debates about the forces and structures that shape economic transformation in the globalization era, and the more focused discussions about the scope for reinvention among advanced European economies.

To answer these questions we look at differences in recent industrial policies through the prism of different models of capitalism. We focus on four large European countries: France, Germany, Spain and the United Kingdom because they showcase Europe's institutional diversity and a variety of productive structures. Germany is the archetype of an institutional system based on inclusive non-market coordination, whereas the United Kingdom's is based primarily on market allocation. France and Spain stand

somewhere in the middle, with political economies that combine market and non-market institutional elements to varying degrees and in different spheres. Germany's specialization in high-quality manufacturing typically situates it at the top of the global value chains in which it participates, whereas Spain, often occupies the middle to lower rungs. France, by contrast, has a two-headed productive structure composed of some large, world-leading manufacturing firms and a population of small and mid-sized firms that is no competitive match for Germany's. On the other hand, the United Kingdom and Spain have world-class complex service firms, but weaker manufacturing capacity.

We argue that to explain differences across recent European industrial policies we need to take into account three factors: historical and institutional legacies; the characteristics of the national productive structure and the capabilities of the state. A country's previous experience with industrial policy influences predominant views regarding the role of the state in the economy and the types of public interventions that are deemed acceptable. Historical legacies are often reflected in institutions, which act as constraints against policy shifts that work against the grain of a pre-existing model. Industrial policy requires close cooperation with business, but industry is not homogeneous, and neither are its needs. Therefore the types of sectors a country specializes in, their composition in terms of size and ownership (local or global), and their position in the global division of labor will influence industrial policy priorities. Finally, the capacity to coordinate public and private sector actors across various economic spheres is critical in designing and implementing multipronged, interrelated actions across multiple areas. In addition, plans to transform industry, expand capacity, and generate and bring to market new and more sophisticated outputs, are contingent on the availability of long-term, affordable capital. However, not all states have the same capacity to articulate an effective coordination strategy, due to the structure of their civil service and the presence of more or less developed intermediary organizations with which the state can interact. Furthermore, some states have greater financial resources than others.

The rest of this article is structured as follows. Section two discusses the perspectives that frame our paper. Section three examines recent industrial policies in the four countries selected through the prism of our argument. Section four concludes and discusses avenues for further research.

2. Influential Views on Industrial Policy

Nearly all governments intervene in private markets to some extent, whether or not they admit to conducting industrial policy. Controversy largely revolves around the types of interventions that are included and whether they should comprise sector-specific "vertical" policies in addition to "horizontal" or sector-neutral policies. In practice, both sets of initiatives may be difficult to tell apart because so-called horizontal policies will affect sectors differently, benefiting some, while possibly having neutral or even negative effects for others (Cohen 2006). Accordingly, industrial policy has become a synonym for proactive state interventions broadly. In keeping with this approach, we adopt a general definition of industrial policy that embraces all government initiatives intended to transform the basis of national industrial competitiveness whether or not a sectoral target is involved.

Our analysis is framed by three related debates, each of which makes an important contribution to understanding the forces and structures that shape economic transformation, but also has limitations when it comes to explaining variation in recent industrial policy. The first discusses historical differences in the scope of industrial policy, the second debates the capacity of states to influence social and economic processes since liberalization. The third explores the connection between national institutional structures and transformational reforms.

The recent literature on industrial policy (Warwick 2013, Owen 2012, Pryce 2012) rightly points out the distinction between contemporary and historical approaches. In doing so, these authors emphasize the importance of context and prevailing ideology. Warwick (2013) for instance, characterizes different 'generations' of industrial policy, and connect them with infant industry, economies of agglomeration, neoclassical, and institutional arguments. Historical context features strongly in our argument because the common surge in industrial policy in the aftermath of the crisis cannot be understood without reference to a radical change in context and its impact on European competitiveness. By contrast, ideological change is less relevant because even if renewed interest in sector-specific

policies involves at least a partial shift away from the neoclassical argument, the market approach is still the prevailing frame of reference. Despite its value, the existing literature on industrial policy is limited by a tendency to refer to states and firms as abstract entities, without much consideration for their characteristics and dynamics or the impact of these on industrial policy measures.

A second influential debate complements the industrial policy literature by questioning the capacity of states to transform the economy after liberalization deprived them of many instruments of control over industry. Two groups of authors have taken a stance on the matter. One sustains that globalization and liberalization have irreparably eroded state capacity to influence social and economic processes (Coates 1999; Glyn 2006; Strange 2000). According to this group, trade openness and financial liberalization prevent the nurturing of infant industries and increase the power of business, which can threaten exit, over labor and governments, which cannot. Rapidly developing ICT also permits the "decomposition" of production into global value chains, obliging countries to compete with each other to ensure their inclusion in these (Breznitz and Zysman 2013; Dicken 2003; Lane 2007). The second group of authors counter-argues that the global division of labor may provide new opportunities for agency, not just an exogenous constraint (Evans 1995, Weiss 2003). Porter (1990) has also suggested an idea of constructed comparative advantage that includes government policies alongside other endowments. Levy (2006) echoes the Neo-Polanyian perspective that market-making is itself a governmental responsibility by pointing out that employers want an effective —although not overbearing—state, rather than a weak one. States are centrally involved in institution-building at critical moments when existing institutions become exhausted. For instance, on an empirical level, Mazzucato (2013), points out the renewed need for activist states to lower the risks inherent to the massive, long-term, uncertain investments necessary to transform a productive structure and Berger (2014) highlights that the shift from vertically integrated to atomized firms increases the need for coordination across a broader set of economic agents. In fact, according to a number of authors (Aiginger 2011, Amable 2003; Smith 2000; Smits and Kuhlmann 2004) greater need for coordination is precisely the reason why industrial strategies have broadened from discrete policies to twin industrial-

plus-innovation policy tracks, with links to education, regional policy and labor market policy.

Our analysis shows that states are the main driving force behind recent industrial policy plans. States across the four countries examined have taken the lead by adopting multipronged, long-term strategies based on interrelated actions across multiple areas. They have developed coalitions behind reform by building partnerships with industry; created and shaped intermediary actors such as strategic planning bodies and industrial credit banks; distributed responsibilities between different levels of the public administration and non-government actors and committed capital resources to lower the risks inherent to economic transformation. Nonetheless, while we support the claim that states have indeed critical leadership and coordination roles to play, we also observe that not all states possess such capabilities to the same extent, leading to substantial differences in industrial policy goals and in the types of measures to ensure their implementation. The relevance of state coordinating capacity is most obvious when we compare plans from countries that have a thick network of intermediary agents with which the state can easily cooperate and a tradition of non-market coordination, with those countries that need to create coordinating "nodes" almost from scratch. Differences in the financial capacity of states are partly path dependent, but also derive from the impact of the crisis and of the austerity measures that have followed.

In addition, an analysis that concentrates only on the state but does not take into account the characteristics of industry is necessarily limited. The rise in the power of business since liberalization is unquestionable, and is reflected in industrial policies that imply partnerships with industry and greater alignment of long-term investment and policy planning with industry's needs (O'Sullivan et al 2013). Among the features of industry that matter, we contend that size, pre-existing specializations and industry position in the global division of labor are the most relevant. Sector-specific organizational and technical features shape industry needs and priorities, and the roles that states can play to support them. The larger the size of a nation's manufacturing capacity, the greater the benefits of having national coordination institutions. The size of individual firms also influences the channels through which industry interacts with the state; larger firms often have direct relationships with the state, whereas small and medium enterprises rely more on intermediary

representatives to articulate their needs. Finally, the closer a given industry is to the efficiency frontier, the more ambitious are industrial policy goals likely to be.

The third relevant debate that frames our paper explores the connection between national institutional structures and transformational reforms. While the Great Recession has made industrial policy fashionable again and encouraged governments in many countries to look afresh at using the state to adapt and improve capitalism, policy is designed and implemented within tight institutional constraints that dictate what is and is not feasible, albeit without determining the outcome. Political economists have been interested for some time in how diverse sets of institutions shape the incentives of economic actors, producing continuing divergence in the organization of productive relations (Dore et al 1999, Whitley 1999). The Varieties of Capitalism framework (Hall and Soskice 2001, Hancké, Rhodes and Thatcher 2007) posits that national institutional structures are composed of several interlinked elements and divides advanced industrial countries into two main types, according to whether market or non-market modes of coordination between economic actors predominate. These are labelled liberal (LME) and coordinated (CME) market economies respectively. Germany is the archetypical CME, strongly reliant on non-market coordination, whereas the United Kingdom embodies the LME system based primarily on market allocation. France and Spain stand somewhere in the middle, with systems that combine market and non-market institutional elements to varying degrees.

The web-like nature of national institutional structures and the interconnections between their various nodes means that transformational reforms that target one institutional area require simultaneous action in all other areas of the economy. Otherwise reforms may become ineffective or evolve in a different direction than originally intended. However, designing and implementing a holistic industrial policy entails a significant coordination effort, one that will normally require a certain degree of non-market coordination. This could be problematic in LMEs because they lack an established tradition of non-market coordination and therefore coordinating agents need to be created from the ground up. Nonetheless, the features of some industries make them particularly amenable to non-market coordination regardless of the national institutional structure in which they

operate. We can understand the United States and the United Kingdom's successful historical support of their defense industries in this light.

As a consequence, comparative advantages derived from national institutional frameworks are path dependent. Over time, companies favored by a given institutional environment will outperform, creating political and economic coalitions behind them (Mares 2001; Wood 2001). Such coalitions are bound to support industrial policy reforms that build upon the institutional advantages they depend on, but will naturally oppose reforms that weaken their advantages. This suggests that policies that seek to address gaps in existing industrial ecosystems, build upon a country's existing specialization to develop new breakthrough outputs, or branch out into closely related sectors with compatible institutional needs have better chances of achieving their objectives than policies that seek to establish new industrial specializations from the ground up because the latter policies will encounter strong opposition from established economic groups.

Thus, according to this view, while policymakers have an incentive to be bold in responding to problems thrown up by the crisis, they face numerous constraints to do with institutional legacies and/or opposition from veto players. Successful policies will tend to work with, rather than against, the grain of their existing model of capitalism. We see this logic at play in our analysis, but it is not the whole picture. Within the broad and largely path-dependent directions taken by national industrial policies it is still possible to discern policy innovations in some countries that do not obey these constraints. Also apparent is a degree of institutional borrowing, suggesting the possibility of cross-learning between countries with different institutional configurations and policy traditions. This underlines the need to foreground theories of institutional change when examining responses to severe economic shocks. Streeck and Thelen's (2004) analysis of ways in which institutions adapt to change without necessarily abandoning their original character and purpose is instructive in this regard. None of the four countries examined in this article has abandoned their economic models but there is, nevertheless, ample evidence of institutional adaptation within the constraints provided by these models, which the next section examines in more detail.

3. Industrial Policy Strategies

This section examines recent industrial strategies in France, Germany, Spain and the United Kingdom and uses the three criteria discussed above: historical legacies, the characteristics of the national productive structure and the capabilities of the state to discuss variation in industrial policies in large European countries.

3.1. Historical Legacies

The influence of previous industrial policy legacies is visible in predominant views regarding the role of the state in the economy and the types of public interventions that each country considers acceptable. To the extent that historical legacies are reflected in formal and informal institutions, they also shape the allocation of responsibilities for policy design and implementation and can act as potential barriers against policy innovation. Nonetheless, the impact of historical legacies needs to be balanced against historical institutional consistency and the intensity of the crisis itself. Where industrial policy is historically consistent and the crisis has been mild there is little pressure for institutional innovation. But, if an intense crisis is seen as the result of abandoning tried and tested historical institutional foundations, the government may respond with a "back to basics" strategy that strengthens pre-existing institutional patterns.

On the other hand, where industrial policy has been less historically consistent, an intense crisis appears to lead governments to respond with pragmatic approaches that may involve a higher degree of institutional and policy innovation. The intensity of innovation, however, may depend on the degree to which measures clash with the rest of the country's institutional structure. In our analysis, France and Germany are examples of consistent historical legacies, even though France suffered a more severe crisis than Germany. The United Kingdom and Spain have historically swung between interventionism and laissez

faire and both have experienced significant crises. However, the United Kingdom introduced a greater number of institutional innovations than Spain.

The 1949 German constitution enshrines Germany's "ordo-liberalism" belief in free markets, vigorous competition policy and a limited role for government. Germany's federal structure and the dominant view of government as an "enabling state" means that industrial policy since the 1950s has centered on strengthening horizontal institutional features that enabled firms to thrive such as the vocational training system, cross-firm cooperation on basic research and close bank-industry cooperation. Sector-specific strategies such as the attempt to build a software industry in the 1970s, or the short-lived *NeuMarkt* stock exchange, are generally seen as failures and were quickly abandoned. On the other hand, Germany has suffered much smaller falls in total employment and GDP than other European countries during the crisis –hence its government was arguably under less political pressure to modify its approach. Unsurprisingly, Germany's principal industry policy strand, the "High Tech Strategy 2020", which is tasked with retooling German industry for the digital age, does not introduce any major changes to Germany's approach and relies primarily on cross-sector initiatives, although the federal government has developed sector-specific initiatives in industries whose performance has an overarching impact across many others such as ITC.

Post-war French industrial policy has also been historically consistent. The French approach was based on direct state activism, a centralized, hierarchical civil service apparatus and coordination of interventions through elite public-private sector networks and state ownership of controlling stakes in strategic companies (Hancké 2002). State activism never completely disappeared, nor was it openly questioned, even after it fell out of fashion in other countries. Nonetheless, since the mid-1980s the state shifted toward horizontal, sector neutral policies and also decreased or completely sold its stakes in many national champions. However, the 2008 crisis revealed the progressive deterioration of competitiveness, reflected in high relative production costs and growing negative trade balances. Since the structural nature of the crisis became evident the French government has felt intense pressure to redress the situation. France's response to the crisis can be characterized as a "back to basics" strategy based on strengthening its commitment to state-led direction of the economy and relying more intensively on sector-specific policies and

public-private elite networks The 2012 French National Path for Growth, Competitiveness and Employment, states that providing strategic direction and stimulating industry is the responsibility of the state[i].

The state's strategic function and traditional reliance on public and private elite networks has been enhanced with the establishment of the *Conférence Nationale de l'Industrie* (CNI), a consultative entity composed of eleven ministers, representatives of labor, industry and the senate. The CNI is responsible for developing reports on the state industry, issuing recommendations and follow up on implementation. Since 2013, the CNI can also foster agreements among firms operating in the same *filière*, or integrated value chain. In 2010, the French executive also created the *Commissariat Général à l'Investissement*, a high-level civil service body whose role is to elaborate, coordinate and supervise the state's investment policy. Finally, the elaboration of tactical plans have been entrusted since 2014 to a committee composed of civil servants and representatives of industry acting under the authority of the prime minister (*Comité de Copilotage or Copil*). France's "back to basics" approach is also evident in the revitalization of sector-specific policies. The French National Path for Growth, the backbone of French industrial strategy, outlines 34 sector-based initiatives for industrial renewal. In 2015, a revised version of the plan combined these initiatives into 6 broader ones.

By contrast, the United Kingdom approach to industrial policy since the post-war era has swung between state interventionism and market coordination and then back again. Following nationalization in the 1940s and 50s, UK governments attempted French-style dirigisme, but failure led directly to the Thatcherite backlash and a shift toward market coordination. In the mid-1990s policymakers identified numerous failures in product and labor markets manifested in widening trade deficits in manufactured goods and the inability of UK firms to prosper in high-tech industries and by 1997 Tony Blair's "New" Labour government appeared to herald a lurch towards a more active industrial policy. However, it was three years before an industrial strategy was announced, and even then, it contained few concrete policies or institution-building. The meltdown of the UK's systemically important financial service industry and deep and prolonged recession after 2008, heightened the sense of urgency and encouraged the Conservative-Liberal coalition government which took power in 2010, to take a pragmatic approach to "rebalance the UK

economy away from financial services and toward manufacturing" by deepening New Labour's swing towards a moderately interventionist, sector-specific industrial policy.

To this end, the UK government has designated 12 key sectors for government support[ii]. However, as an institutional environment in which the state has been restrained from direct intervention from decades, the government was obliged to establish a number of new coordinating institutions for implementing policies. These include a network of Catapult centers, Innovate UK, a public body responsible for innovation policy, a major expansion of the apprenticeship system, a new "Business Bank" and some regional and sector level coordinating institutions such as the Local Enterprise Partnerships (LEPs) and the Automotive Council (see section 3.2 for further detail). However, not all of proposed institutional innovations have taken root in the UK system. Some of the more radical market-correcting suggestions included in a major report by a former industry minister, the Michael Heseltine report, for example over adoption of German-style compulsory Chambers of Commerce, were ignored in the face of opposition from business groups.

Spain abandoned French-style state indicative planning in the early 1980s. Since then, the Spanish approach simultaneously combines elements of state activism in a few strategic sectors with reliance on markets for most other industries. Spain's liberalization of most manufacturing sectors in the 1980s did not represent the endorsement of neoliberal ideology (De la Dehesa 1993); it was a practical measure intended to alleviate the financial constraints that many Spanish firms suffered as a result of the 1970s crises and to accelerate modernization via facilitating foreign investment. In fact, the socialist governments did not hesitate to simultaneously protect strategic sectors such as banking and invest in firms and industries they considered to have future competitive potential such as aeronautics or defense. After the 1996 government shift, policy relied strongly on horizontal policies, and the state sold its remaining stakes in most firms, or liberalized others. However, Spain continued to rely on sector-specific initiatives for some critical manufacturing industries, as did the socialist government that took over power in 2004. The 2008 crisis burst the real estate bubble, forced Spain to request a European bailout, and left behind unemployment levels above 20 per cent. The depth of the crisis and the government's slow and tepid reaction forced Prime Minister Zapatero to resign and call for an early election in 2011.

Incoming premiere Rajoy took office with a specific mandate to make structural reforms. Nonetheless, Spain's industrial strategy has continued to be based on a mix of state activism and market coordination. The 2014 Industry Action Plan established 6 broad horizontal priority areas such as increasing the competitiveness of input factors and stimulating demand for industrial goods, but also foresaw sector specific actions in Spain's traditional strategic sectors (see section 3.2). In the midst of major efforts to cut costs, policies have concentrated on cutting labor costs, simplifying administrative procedures, combining some existing public bodies, improving processes and using existing resources in the new and more efficient ways rather than creating new institutions.

3.2. Characteristics of National Industry

Recent industrial policy initiatives in Europe aim to support competitiveness and foster innovation. But the terms of competition and the types of innovation needed vary from industry to industry and even within specific industries according to the position of firms in the global division of labor. Therefore, national industrial policy cannot be understood without reference to the characteristics of the national industry it aims to transform. The characteristics of industry in the four countries analyzed are sensibly different in terms of size, specialization, and position in the global division of labor, all of which affect policy.

Germany's manufacturing accounts for approximately 20 per cent of its GDP, compared to only 9, 12 and 14 per cent in the United Kingdom, France and Spain respectively[iii]. A large national manufacturing capacity translates into a greater number of sectoral specializations, which favours strategies based on sector-neutral policies that may simultaneously benefit several related sectors and maximizes the benefits of having centrally coordinating institutions. On the other hand, France's, Spain's and the United Kingdom's smaller manufacturing capacities tend to cluster around fewer globally competitive industries. The larger industries in these three countries are likely to support policies that will benefit them therefore strengthening the case for sector-specific rather than general framework policies.

The influence of large firms over policy-making also tends to be greater in countries where institutionalized public-private elite networks dominate the commanding heights of the economy, such as France, because such networks provide a sanctioned channel for private sector elites to influence the policy-making process. Yet, the influence of large firms is also evident in Spain's continuous support for large "strategic sectors" and in the United Kingdom, where policymakers have spoken openly about using industrial policy selectively to encourage specific growth sectors rather than leave outcomes to the market. The governments in France, Spain and the United Kingdom have, nonetheless, committed to support the development of SMEs, usually through institutional innovations borrowed from Germany. We can interpret the creation of French and British public banks modelled on Germany's *KfW*, and Spain's introduction of specific lines of credit for firms of specific sizes in this light.

A country's competitive specialization is also critical in the selection of preferential sectors. France states this explicitly when it establishes that the sectors selected for "industrial re-conquest" are based on: (1) positive market prospects; (2) reliance on technologies in which France is already a leader; and (3) the presence of a well-established French profile through firms, academic, technological, commercial or industrial elements[iv]. The United Kingdom and Spain have not made equivalent explicit statements, but a brief review of their preferential sectors supports the same conclusion. Among the 12 sectors the UK government plans to build special partnerships with are nuclear energy, oil and gas, offshore wind, life sciences, aeronautics, automotive, international education and professional services[v], which are the UK's top industries. Although Spain's Industrial Action Plan is built around a cross-sector platform, it also includes specific actions in sectors in which Spain has a well-established position such as automotive, defense, the naval industry and aerospace. By contrast, sector specialization is less explicitly relevant in Germany's industrial strategy in line with the country's historical legacy, a wider industrial specialization, and Germany's high population of SMEs. Germany reinforces its productive structure by paying particular attention to SMEs via regional clusters, and through links between firms and public research bodies and finance institutions.

Finally, a country's position in the global division of labor shapes the ambitiousness of its industrial policy goals. Countries whose industry is already world-class competitive

tend to concentrate on strengthening existing advantages through technology and innovation and have the broadest, most ambitious goals. Countries that have identified specific competitive bottlenecks concentrate primarily on addressing those specific needs, while countries whose firms occupy the middle-rungs of the global division of labor may compromise ambitious long-term goals for shorter-term survival. A comparison of industrial strategy goals in the four countries is illustrative.

In line with Germany's global competitive position, the High-Tech strategy aims to maintain advantage in core industrial sectors through technology and innovation while addressing demographic and resource bottlenecks undermining its leading industries[vi]. Germany's original 2006 High-tech strategy aimed to increase Germany's already high proportion of R&D and foster more innovative companies. Re-launched in 2010 and renamed High-tech Strategy 2020, the plan adopted a new focus on so-called "selected forward-looking projects". Its goal was to foster Germany's scientific and economic potential and find solutions to global and national challenges such as climate change, population changes or shortages in global food supply. Since 2014, a newly revised High-tech Strategy aims to "strengthen economic growth and prosperity by means of a coherent innovation policy"[vii]. The updated strategy also concentrates on scientific transfers to accelerate product, process and service development and to improve the innovation environment.

France and the United Kingdom concentrate less on overarching future-looking goals and more on addressing the specific shortcomings of their industry. Two consecutive diagnoses reports[viii] commissioned by the outgoing and incoming French governments and reflecting on the condition of industry identified competitiveness as the main shortcoming of France's industry. The 2012 CNI report issued recommendations and a follow-up for competitiveness and the 2012 Gallois report proposed "a competitiveness shock" requiring a "national pact involving all relevant economic actors for the purpose of fostering competitiveness, growth and employment"[ix]. Both reports were ultimately shelved, but the 2012 National Pact for Growth, Competitiveness and Employment, still makes competitiveness the backbone of its strategy and the 2013 plan speaks of "reconquering" France position in global markets. Similarly, the United Kingdom has identified four themes of cross-cutting relevance to industry: access to finance, procurement, skills and

technologies and much of the UK's institutional innovation zeroes on these areas. Shortfalls in business financing are addressed by the new Business Bank. The perceived skills gap with other advanced nations is being addressed through a major expansion of apprenticeships, with almost 1 million of these created since 2010. To aid in technology transfer from university to industry, the government has launched a network of Catapult centers inspired on Germany's Fraunhofen and Helmholz institutes and the creation of Innovate UK, an executive public body responsible for innovation policy, as well as the aforementioned LEPs.

Spain's outputs tend to occupy the middle of the global division of labor and there remains a persistent gap in innovation capacity and investment relative to countries such as Germany or France[x]. Intense global competition in the markets Spain competes in, a sharp drop in demand and credit constraints since the onset of the crisis has resulted in numerous downsizings and closedowns since 2007. This correlates with an industrial policy embedded in a broader legal framework that aims to palliate the fall in economic activity that resulted from the crisis and accelerate the transformation of the Spanish economic mode to ensure its future sustainability[xi]. Recent goals are significantly more modest than those of the other three countries, such as increasing competitiveness for factor inputs through plans to lower unit labor costs, or fueling demand through sector-specific public stimulus packages. In fact, innovation plans have scaled down pre-crisis goals. Spain's 2013-2016 innovation strategy aimed to "guarantee the sustainability of the innovation system, and foster the competitiveness of industry"[xii], whereas its predecessor explicitly aimed to close the R&D investment gap with more advanced European economies.

3.3. State Capacity

Realistic industrial policy plans cannot be designed or implemented without considering the state's coordination and financial capabilities. Government capacity to engage in productive dialogue with industry is necessary to ensure policy is aligned with industry's needs. Coordination across government departments and with other economic agents such as service firms and labor representatives is necessary to ensure that multipronged,

interrelated actions across multiple areas are designed and executed efficiently. In addition, transforming industrial capacity requires significant outlays of capital over a long period of time while managing risks that the commercial sector is unwilling or unable to take.

The relevance of a central, nation-wide coordination capacity is evident in the fact that the main thrust for industrial policy in the four countries analyzed comes from the central government, even in Germany and Spain, which have the most decentralized public governance structures. That said, the multifaceted nature of recent industrial policy is evident in the involvement of sub-national institutions. State decentralization should be correlated with stronger contribution of sub-national institutions. German *Länder* contribute organizationally and financially to the development of cluster policies for which organization and spatial proximity with local firms and their networks is vital, whereas French regions are only involved in policy execution. The United Kingdom, lacking a sophisticated regional institutional infrastructure, has introduced LEPs, autonomous, business-run institutions tasked with drawing up local growth plans for their region that can access a centrally-administered pot of funding, the Single Growth Fund. The LEPs have functions for business coordination with responsibilities for training, product innovation and raising funds[xiii]. Despite its quasi-federal structure, Spain is an exception to the idea that decentralization is correlated with greater involvement of sub-national institutions. The 2014 Action Plan attributed responsibility for plan development and implementation to ministers with little mention for Autonomous Regions. Arguably, high regional debts —and in some cases insufficient organizational resources, prevent Spanish Autonomous Regions from being engaged more actively.

Establishing channels for communication with manufacturing firms is essential to ensure that industrial policies are fit for purpose. Furthermore, recent European industrial policies expand well beyond the strict realm of manufacturing and involve initiatives in innovation, communication infrastructures, energy, education, labor markets, taxation and financial markets among other areas. The efficient design and implementation of these measures requires coordination across government departments and with economic agents other than manufacturing firms such as service firms and labor representatives. None of the countries analyzed have deviated significantly from their pre-existing coordination mechanisms, although some countries have tended to reinforce them. Continuity, even as

national economies address major flaws in national productive structures, strengthens the idea that different coordination mechanisms are a defining feature of different models of capitalism and enables us to distinguish industrial policy strategies with regards to the type of capitalism in which they originated.

Germany relies on self-governing organizations such as the Max Plank and the Fraunhofen institutes to undertake policy implementation in cooperation with firms. French ministers, representatives of labor, industry and the senate sit together in the CNI, whereas responsibility for the elaboration of tactical plans is allocated to the Copil. Linkages to industry in the United Kingdom are maintained via the Ministerial Advisory Group on Manufacturing (MAGM), which was created by Labour in the mid-2000s and comprises civil servants and the main industry bodies. In line with the UK's tradition of soliciting informal input from experts, the MAGM provides a macro-focus for industrial policymaking and it contributed heavily to the 2008 Manufacturing Strategy Review, which identified the importance of high technology in global value chains and deficient skills as key challenges for the UK economy. Spain has no statutory mechanisms for government-firm dialogue but, as in the past, the preferences of large firms loom large. In this regard, the opinions of the *Consejo Empresarial para la Competitividad*, a think-tank created in 2011 by the 15 largest Spanish firms, are arguably paramount.

Finally, public financial resources play a vital role in economic transformation by signaling the state's long term commitment to fulfilling industrial policy goals and by assuming long-term risks that private entrepreneurs are unlikely or unwilling to assume in the first instance. To date, all four countries have made economic pledges to support the objectives of their industrial policies. These vary significantly, in line with the ambitiousness of national goals, the size of the industry they need to support and the current economic predicament of the country. Other differences, such as the type of commitment involved, the origin of the funds and the types of initiatives they support, also send important signals as to the commitment of government to industrial transformation and the prioritization of different areas.

Germany's financial commitment reflects the ambitiousness of its goals for economic transformation, a strong pledge to leading innovation and a healthy economic position. Spending reflects that priorities are focused on three areas: research, education

and infrastructures. The German government allocated a budget of €8.4 billion for the period 2012–2015 to implement the various measures of the High-Tech Action Plan[xiv]. Education received a total of over €7 billion between 2011 and 2015 from the federal government. Between 2016 and 2020 the government will invest an additional €6 billion in education alone and a further €3 billion in research. Thanks to a healthy economy, Germany is also increasing its investment in infrastructures and will dedicate €10 billion to infrastructures and energy efficiency between 2016 and 2018[xv] . Germany's strong economic position becomes clearer when contrasted with France and the UK's commitment. In 2013, France announced a pledge to dedicate €3.5 billion to achieve support the implementation of its industrial strategy[xvi] without specifying priority areas. At the end of 2015, the UK government announced its commitment to dedicate £4.7 billion in real terms to science and research for the 2016–2020 legislature. High quality apprenticeships are also a priority. The apprenticeship scheme will be supported via an apprenticeship levy to be raised from employers' tax bill starting in 2017. The United Kingdom also plans to invest £100 billion in infrastructure, and £250 billion in an ambitious nuclear energy research program[xvii]. Spain's capital commitment is much more modest, in line with its more limited goals and the precarious situation of the Spanish economy. Funding tends to be spread among a number of siloed programs. For instance, Spain will devote €800 million in public funds to stimulate demand for motor vehicles. Two separate loan programs worth €754 will be devoted to creating, expanding or improving industrial firms divided into two separate programs, and €3,000 million to stimulate research and innovation between 2014 and 2015, a third of which in the form of loans[xviii].

4. Conclusions

The Great Recession has made industrial policy fashionable again and encouraged governments in many countries to look afresh at using the state to adapt and improve capitalism. The four countries we examine responded to the crisis with a plethora of public

policy instruments intended to foster industrial growth and competitiveness. Detailed analysis of recent industrial policy strategies furnished us with an opportunity to contribute to political economy debates on the forces and structures that shape economic transformation and the ability of governments to influence these.

This article addresses the contention, made explicit in much of the new institutionalist literature on advanced capitalism, that national institutions strongly shape decision-making through the internal coherence of their structures and the influence of political and economic groups. It largely agrees with this literature in finding that recent industrial policies, while ostensibly being about ambitiously rebooting manufacturing and technology industries, remain heavily conditioned by structural factors. Existing production regimes; position within global value chains; state structures —and particularly the state's ability to form linkages with industry—are significant determinants of industrial strategies.

The force of path dependency is strong, indicated by the fact that only the United Kingdom appears to have departed significantly from previous policy pathways through its, admittedly tentative, experiments with new institutions for building coordination between firms and other actors. Even so, none of the UK's recent policy innovations could really be said to mark a radical departure from its fundamentally liberal-market model. For example, there is absolutely no suggestion of encouraging greater coordination of wage bargaining to reduce wage dispersion. This is considered essential for overcoming the free rider problem bedeviling provision of firm-specific technical skills, and might therefore be expected if the United Kingdom was seriously attempting to develop a more coordinated market economy. France, meanwhile, appears to have reacted to the crisis by lurching back towards its state-led model of industrial coordination, which had been in the process of being quietly abandoned throughout the preceding two decades. This implies continued divergence in policy in line with the institutional legacies of the four countries.

Nevertheless, this article provides support for the claim that even in the age of globalization, national governments continue to have a critical role to play in industrial transformation, by providing the thrust for change, establishing priorities, coordinating with relevant economic actors and assuming risks for forward-looking projects that firms and commercial financial institutions are unable to assume. Examples of institutional

innovation discussed here suggest that institutional systems are flexible structures subject to continual reinterpretation and readjustment, as outlined by Streeck and Thelen (2007). Debate about the extent of this flexibility should not, of course, be conducted independently of the circumstances in which production regimes evolve. While institutional structures tend generally to be subject to gradual, evolutionary change, the experience of the crisis also suggests that sudden catastrophic events can serve to accelerate change along its existing path. The crisis has obviously galvanized governments and disrupted the consensus around laissez faire, permitting a greater role for the state in the economy. We see this in the radicalism and urgency of many of the industrial strategies produced in response to the economic and social trauma, as well as the willingness of governments to experiment with new forms of policy design and delivery.

Institutional legacies should therefore be seen as constraints rather than straightjackets and, accordingly, where combined with a history of radical institutional change and an intense recession, some countries may still seek to move away from previous institutional legacies to form new equilibria. So, while a country's model of capitalism is still important, it is the interaction of this with other factors that increasingly matters. Large national industries that include a greater number of different specializations are more likely than small, concentrated industrial structures to favor the development of horizontal or non-sector specific policies, whereas countries whose industries occupy higher rungs in the global division of labor will have broader, more forward looking goals than those that are addressing specific competitive issues or are still struggling to catch up. Finally, government capacity for coordination and the availability of financial resources affect the formulation of meaningful goals and sets ambitious goals in practical perspective.

Interestingly, national industrial policy strategies are also finding their echo at EU level. Policy statements from the European Commission calling for a "European Industrial Renaissance" (European Commission 2014) augment the EU's "Agenda 2020" focus on modernizing Europe's industrial base. As with many of the national strategies examined in this article, the Commission is increasingly calling for sector specific policies aimed particularly at high-technology industries. While it is not clear at the moment how Europe-wide initiatives could mesh with national policies, it seems evident that industrial policy activism is firmly back on the agenda at the multilateral as well as national level.

With interest in comparative political economy increasingly shifting towards the political foundations of diversity across advanced capitalism, scholars are beginning to examine the political coalitions that underpin production regimes, given the distributional consequences of these, and how these may have shifted since the crisis (Thelen 2014; Beramendi et al 2015). These investigations are appealing in a time of obvious flux because they suggest more allowance for contingency and a greater role for agency. What is perhaps missing in some analyses of the political foundations of modern capitalism is an idea of the mechanisms for translating shifting preferences, voter coalitions and economic groupings into policy change. A renewed interest in the position of the state via à vis the organization of production could go some way towards redressing this.

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