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Regulating via Conditionality: The Instruments of the New Industrial Policy

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ABSTRACT

Conditionality was a central concern in the development literature of the 1990s. With the significant expansion of targeted public support to private firms since the Great Financial Crisis, the issue of conditionality has once again become a focal point in industrial policy debates. Despite the growing interest in the concept, the existing literature lacks a systematic conceptualization of conditionality within the context of industrial policy and does not outline the political factors that enable state actors to introduce it. This article addresses this gap by critically reviewing the existing literature and providing a systematic political economy of conditionality. We offer an overview of the literature on conditionality, examining different industries, historical periods, and national contexts. In doing so, we make three key contributions to the debate on industrial policy and regulatory instruments more broadly. First, we distinguish between two broad approaches to encoding conditionality in industrial policy: hard-coding and soft-coding. Next, we map the coalitional, institutional, ideational, and global contextual factors that facilitate conditionality. Finally, we present two vignettes of recent industrial policy initiatives in the European Union and the United States as illustrative cases. This conceptual exercise, intended to lay the foundation for future causal research on conditionality, demonstrates that the presence of conditionality is not merely a technical matter of political design but is instead shaped by configurations of political economy factors.

1 | Introduction

The resurgence of industrial policy is increasingly seen as a central example of the renewed activism of states. An array of ambitious policy packages like the US CHIPS and Science Bill, and Inflation Reduction Act (IRA), the EU Green Deal Industrial Plan (GDIP), and Korea's Green New Deal, demonstrate that the return of industrial policy has become more than an erratic "backlash against globalization" (Crouch 2019). Instead, scholars observe a more profound "reconfiguration of capitalism" (Durand 2023), in which the boundaries between markets, institutions, and states are being gradually redrawn.

The characterization of historical political-economic change as a pendulum swing from mercantilism to laissez-faire and back is, of course, an oversimplification. The heyday of the neoliberal order did feature extensive regional experiments with industrial policy—most notably in East Asia (Amsden and Chu 2003; Yun-han Chu 2002; Linden 2004). Likewise, some of what goes in the name of industrial policy is in fact a semantic cover for the

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substantive continuation of neoliberal policies (Bulfone 2023). According to Daniela Gabor, public policies such as the IRA or GDIP can be understood as a form of business-friendly "derisking," which "shifts demand, political or climate risks from the private sector to public balance sheets, with profound distributional consequences" (Gabor 2023). At the same time, there have been significant shifts in the global governance of industrial policy, which has given governments increasing leeway to actively pursue economic development under all kinds of semantic umbrellas. How do we make sense of these developments? Does the return of industrial policy mark a significant break from the pro-business interventions of the neoliberal era, or is it merely the continuation of business-friendly policy by other means?

Addressing these questions, we argue, requires re-focusing scholarly attention on a necessary feature of transformative industrial policy: the presence of *conditionality*, defined here as an array of regulatory instruments used by state actors to align corporate behavior with the fulfillment of broad public policy goals beyond profit maximization (Koch 2015). Classic examples are Amsden's (1989) concerns about "performance standards," Wade's (1990) distinction between states in positions of "leadership" and "followership" vis-à-vis industry, and Rodrik's (2009) emphasis on designing industrial policies that incorporate both "carrots" and "sticks."

While conditionality was a central concern for development scholars in the 1990s, in later decades scholarship on the "neo" or "networked" developmental state questioned the relevance of this classic feature of the developmental state, treating the problem of state discipline as increasingly irrelevant in globalized capitalism (Block 2008; Negoita 2014; Ó Riain 2004). The "question of who pushes whom around ... becomes less and less relevant over time," Linda Weiss asserted in 1998, "when one of the operating principles is to find win-win solutions, it may be inappropriate to seek out who the winner is as a central research strategy" (Weiss 1998, 79). What is more, the globalization of production and financial circuits may have undermined core disciplinary tools of the classic developmental state, and multiplied the structural, and infrastructural (Braun 2020; Cooiman 2023a), power of business (Bulfone et al. 2023; Naseemullah 2022). Conditionality may hence be increasingly difficult to introduce and enforce.

We share the concern, prevalent in the industrial policy literature, about the tendency to fetishize states as dominant forces manipulating corporate actors. However, we argue that the issue of conditionality is even more central to 21st-century industrial policy than it was in the past. Conditionality remains one of the few interventionist tools available to states confronting segments of capital with significant structural power, and as such, it should occupy a prominent place in both academic and policy discussions on the state's role in the economy. In this regard, our analysis of contemporary industrial policy aligns with recent literature on regulation, which similarly explores the instruments contemporary states can use to influence private sector behavior and examines the evolving relationship between the developmental and regulatory state (Dewey and Di Carlo 2022; Levi-Faur 2013; Thatcher 2014).

In order to advance an agenda on the political economy of conditionality, we build on recent efforts to map conditionality (Mazzucato and Rodrik 2023; Meckling and Strecker 2023) by combining an analysis of the policy design of conditionality measures with attention to unit- and system-level political economy factors that influence their adoption. Our policy design typology—based on the regulatory *coding logic* underpinning conditionality measures—complements existing classifications. In parallel, our focus on the political economy conditions that enable state discipline advances the literature by shedding light on key determinants of both the likelihood and variation in the adoption of conditionality (Breznitz and Gingrich 2025). Specifically, we examine the institutional, ideational, coalitional, and global-contextual factors that shape conditionality outcomes. In doing so we aim to address the "thin politics" (Doner et al. 2005, 329) that has characterized the traditional literature on developmental efforts in high-income and low-income countries.

This political economy approach complements prevailing power-based interpretations in the literature, which often interpret the absence of state steering (Gabor and Braun 2025) or the proliferation of unconditional transfers to corporate actors (Bulfone et al. 2023) as evidence of the structural or infrastructural weakening of the state (Cooiman 2023a) in the neoliberal age (Breznitz and Gingrich 2025). While we acknowledge that the introduction of conditionality has become increasingly difficult—and that this reflects a broader erosion of state capacity—we also identify instances of robust state steering in both high-income and low-income economies. We argue that our political economy mapping provides a valuable foundation for future research into the conditions under which effective state steering can—or cannot—be achieved in contemporary capitalism.

Our taxonomy of conditionality is based on a critical review of previous empirical studies, which we use to map the design of conditionality measures and to examine the political-economic configurations that enabled their adoption. This critical review aims to provide a theoretical framework for future research seeking to advance a causal understanding of the political economy mechanisms that drive—or hinder—the implementation of conditionality measures.

The article is structured as follows. Section 2 introduces the concept of conditionality as a relational dynamic between business and state actors. Sections 3 and 4 form the conceptual core of the article, where we map the policy and political economy dimensions of conditionality through a critical review of the existing literature. In Section 3, we approach conditionality from a policy design perspective, classifying it into two broad categories: hard-coded and soft-coded conditionality. Section 4 turns to the political economy of conditionality. The first subsection identifies institutional, coalitional, and ideational factors that expand or constrain the scope for introducing conditionality. The second subsection highlights how global contextual forces—such as geopolitics, supranational agreements, and corporate strategies—interact with domestic-level factors to shape the implementation of conditionality. Finally, Section 5 presents two vignette studies of recent industrial policy initiatives in the European Union and the United States, which serve to illustrate the analytical value of our conceptual framework.

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2 | Conditionality: What Is It and Why Does It Matter?

Following Juhász et al. (2024), in this paper, we adopt a broad conception of industrial policy as "government policies that explicitly target the transformation of the structure of economic activity in pursuit of some public goal." The long-term transformative goals of industrial policy can include industrial upgrading, increasing employment and human capital, tackling environmental problems or reducing interregional disparities. Regardless of the specific goal, achieving these outcomes typically requires state actors to channel public investment toward targeted sectors, firms, technologies, or tasks (Warwick 2013). Public incentives can take many forms including grants, low-cost loans, tax breaks, tax credits, access to state-designated territories and zones, export incentives, R&D subsidies, land concessions, trade protection, and more (for an overview see Zheng and Warner 2010, 329). Yet, as we know from the rich scholarship on industrial policy, the mere provision of public support is far from sufficient to achieve long-term transformative goals (Amsden and Chu 2003; Meckling and Strecker 2023). Equally important is guaranteeing that firms treat assistance not as *welfare transfers* but rather as *implicit contracts* (Chibber 2014).

Commitments tying financial support to the goals of industrial policy constitute a form of conditionality. In broad terms, conditionality can be defined as "an incentive instrument in the relationship between two actors, in which one actor aims at changing the behavior of the other by setting up conditions for the relationship and by manipulating its cost–benefit calculation by using (positive and negative) material incentives" (Koch 2015, 99).

Conditionality revolves around a 'principle of reciprocity' (Amsden 1989, 106), whereby public support—the "carrot"—is accompanied by enforceable and monitorable conditions—the "stick." Under this principle, firms may be required to meet specific targets as a condition of access to financing. This form of ex-ante conditionality leverages "the interest of the conditionality recipient in receiving the benefit is used by the conditionality actor as a lever for desired behavior change" (Koch 2015, 99). Alternatively, conditionality can take an ex-post form, embedded within an ongoing contractual relationship, where compliance is monitored over time and enforced through the threat of government sanctions (Meckling and Strecker 2023). The effectiveness of such sanctions depends on a state's disciplinary capacity—that is, its ability to withdraw support when firms underperform or when assistance is no longer warranted (Maggor 2021b, 556). Discipline is a crucial ingredient of effective industrial policy as it is the central channel through which states can raise the probability that public support yields publicly desired outcomes (Amsden and Chu 2003; Mazzucato 2015; Mazzucato and Rodrik 2023; Wade 1990). If the transfer of financial resources is accompanied by weak or no conditionality at all, state intervention instead amounts to corporate welfare with uncertain, if not regressive, developmental effects (Bulfone et al. 2023; Gabor 2023).

From an industrial policy perspective, conditionalities represent a regulation-based instrument through which state actors seek to influence the behavior of corporate actors (Meckling and Strecker 2023). While the use of regulatory instruments as industrial policy tools may appear at odds with the traditional view of the regulatory state—where regulation primarily serves market liberalization (Majone 1994)—we align with David Levi-Faur and Mark Thatcher in emphasizing that regulatory instruments can pursue a variety of objectives, including developmentalism and redistribution (Levi-Faur 2013; Thatcher 2013). Although market-making and deregulation were central goals during the era of the regulatory state, the current phase of renewed state activism—driven by geopolitical tensions and environmental challenges—has seen regulatory tools deployed in more discretionary and developmental ways to shape the conduct of individual firms or targeted sectors (Bulfone et al. 2025; Ergen and Schmitz 2025, 384; Gräf 2024).

Focusing on conditionalities also highlights the strategic role of sequencing in industrial policy (Finnegan 2022): subsidy "carrots" can be used to secure corporate buy-in for regulatory "sticks" that advance long-term public policy goals (Meckling and Strecker 2023). As we elaborate below, conditionality can serve multiple aims, such as promoting employment or enabling green transitions. However, it is crucial to distinguish these public goals from the profit-maximization logic that drives business actors. An exclusive—or predominant—reliance on profit-based indicators signals weak, not strong, conditionality—and risks devolving into corporate welfare (Cooiman 2023a).

Conditionality is the subject of lively academic debates in the contexts of development aid, social policy, European studies, and international political economy (Molica 2024). In development aid and social policy, discussions of conditionality often focus on the design of transfer instruments. In these contexts, conditionality refers to behavioral mandates and sanctions imposed on aid recipients, typically tied to individual-level transfers. Conditional Cash Transfers (CCTs) have spread widely over the past few decades, particularly in the Global South, where they are often linked to schooling or environmental protection (Lomelí 2008; Zhao et al. 2017). In OECD countries, the conditionality of benefits in social programs has been a central feature of so-called Active Labor Market Policies (ALMPs), where eligibility for or generosity of transfers is linked to behaviors intended to improve re-employment prospects (Bonoli 2010; Clasen 2000).

In international political economy, conditionality often takes the form of contractual agreements between two public actors—typically a lending state or multilateral institution and a borrowing state facing a balance of payments crisis. Notable examples include the (often highly controversial) conditionalities attached to multilateral loans from the IMF or the European Union, which aim to promote reforms aligned with prevailing ideas of good governance (Holz 2023; Kentikelenis et al. 2016).

Such forms of conditionality differ from those found in industrial policy in two important respects. First, they typically involve contractual relationships either between two public entities or between public actors and individuals. In contrast, the defining contractual relationship in industrial policy is between public entities on the disbursing side—such as national governments, regional authorities, development banks, or specialized agencies—and private recipients of public support,

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usually profit-oriented domestic or foreign corporations. From a regulatory perspective, the core challenge of industrial policy conditionality lies in how public actors can structure and govern reciprocal relationships with these corporate beneficiaries. Conditionality, in this context, becomes a question of corporate control embedded within the contractual architecture of industrial interventions.

Second, whereas conditionalities in welfare policy or IMF lending typically involve the imposition of rules by strong actors on weaker counterparts—such as borrowing governments or low-income individuals, who are often further weakened by the very measures imposed—industrial policy conditionalities, by contrast, are instruments that comparatively weaker state actors can use to discipline increasingly powerful corporate entities (Mazzucato and Rodrik 2023, 5–6).

Building on this conceptual understanding of industrial policy conditionality, we develop our analytical take on conditionality in two directions. In a first step, we focus on the regulatory design of conditionality measures (Section 3). In a second step, we systematize the role of political economic factors in favoring or hindering the introduction of conditionality (Section 4).

3 | Varieties of Conditionality: Hard-Coded and Soft-Coded Instruments

Building on a regulatory notion of conditionality, this section develops a typology of how public actors design industrial policies to alter corporate behavior, distinguishing between hard-coded and soft-coded conditionalities.

While we draw on earlier contributions by Mazzucato and Rodrik (2023), Laplane and Mazzucato (2020), and Meckling and Strecker (2023), our typology is anchored in a distinct theoretical orientation. Prior taxonomies tend to emphasize distributional mechanisms, shedding light on the mechanisms through which states ensure that private firms share the upsides of public investment. This includes tools such as reinvestment clauses, pricing regulations, IP access provisions, and profit-sharing mandates. These are crucial from a public purpose and legitimacy perspective, and central to what Mazzucato and colleagues describe as "mission-oriented" conditionality.

Meckling and Strecker (2023), by contrast, introduce a political economy lens that distinguishes between one-time and ongoing "green bargains" and whether firms deliver discrete services or accept broader regulatory shifts. While this framework helpfully foregrounds implementation challenges and commitment dynamics, it is tailored to the environmental policy domain and less suited for capturing the broader regulatory logics of industrial policy across sectors.

Our typology shifts the analytical focus away from distributional outcomes or specific policy domains and toward the regulatory structure of conditionality itself, particularly the forms of influence it enables over corporate actors. Drawing inspiration from Katharina Pistor's (2022, 344) ideas about "[legal] coding [as] a process that adapts and molds formal law over time," we propose understanding industrial policies as varying in the ways reciprocal obligations are inscribed—or encoded—within them. At the core of our typology is the distinction between *hard-coded* and *soft-coded* conditionality, a metaphor borrowed from software development. In programming, hard-coding refers to the embedding of fixed rules or values directly into the source code—rules that are explicit, rigid, and difficult to change without rewriting the code itself. In contrast, soft-coding enables key parameters to be modified externally, allowing for more flexible and adaptive configurations. We use this distinction to conceptualize how different industrial policy designs structure state-firm reciprocity and shape the conditions under which firms are expected to comply.

Applied to industrial policy, hard-coded conditionalities refer to clearly defined, directly monitorable requirements that tie financial support to specific firm behaviors. These often pertain to observable outputs or processes, such as meeting employment thresholds, achieving export quotas, expanding productive capacity, or investing in designated technologies.

Soft-coded conditionalities, by contrast, involve more indirect and open-ended obligations. Rather than mandating a particular behavior or output, they reshape the institutional, strategic, or governance environment in which firms operate, thereby influencing future behavior. These might include obligations to restructure corporate boards, develop long-term strategic plans, institutionalize mechanisms for collective bargaining, or participate in sectoral inter-firm coordination. Because they do not specify a single measurable deliverable, such conditionalities are harder to enforce and often politically more contentious, yet they may generate durable behavioral change and raise the probability of regulating corporate behavior in uncertain future contexts.

This parsimonious typology helps illuminate how conditionality operates not just through what it demands of firms, but through the regulatory form in which those demands are encoded—and with what implications for monitoring, enforcement, and political feasibility. We will return to the latter factor when discussing the political economy conditions favoring conditionality. We want to emphasize that our distinction between hard- and soft-coded conditionality is not a categorical one, but meant as an ideal-typical construction in the Weberian sense of the term. It represents a continuum of two poles, and most empirical industrial policies do contain aspects of both forms of coding to varying degrees.

3.1 | Hard-Coded Conditionality

The most prominent and widely debated example of hard-coded conditionality is the use of so-called performance standards. In the classic literature on industrial policy in catch-up development, these standards were often aimed at benchmark notions of business success, designed to encourage domestic firms to compete in global markets. Classical performance standards encompass a wide array of conditions intended to discipline specific behaviors or outcomes. Examples include local production or investment requirements (Maggor 2021b; Zheng and Warner 2010), production standards (Sabel 1995; Perez-Aleman 2003; Thurbon 2016; Wade 2004), local content requirements along

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supply chains (Chen and Lees 2016; Doner 2009; Lewis 2013; Natsuda and Thoburn 2014; Schrank 2017), export and employment quotas (Amsden and Chu 2003; Wilhelm 2023; Zheng and Warner 2010), and various forms of price caps and ceilings (Carrasco and Madariaga 2022; Wade 2010).

Hard-coded conditionalities imposing export quotas and local content requirements played a key role in the successful industrial catch-up of East Asian countries (Schrank 2017; Chibber 2003; Amsden and Chu 2003), but also in the Latin American context (Schrank and Kurtz 2005), and more recently in South-East Asia (Doner 2009; Natsuda and Thoburn 2014) and the United States (Block 2008). Hard-coded conditionalities can be linked to strict sanctioning mechanisms. In South Korea, companies that failed to source locally or meet predetermined export targets would lose preferential access to credit and in some cases even have their assets transferred to competing firms (Amsden 1989; Woo 1991).

As emphasized by Mazzucato and Rodrik (2023), Laplane and Mazzucato (2020), and Heinrich et al. (2024), such hard-coded conditionality has also been a key tool of innovation policies targeting frontier industries. In this context, conditionality measures are typically centered around knowledge-related conditions (Block 2008), and often governed via intellectual property rights (IPR) regimes. For example, in Taiwan, the ownership of technologies developed with state assistance has often been shared equally between the state and private companies. In this framework, firms receiving financial support either commit to scale up production locally and employ local workers or face the risk of losing their IPRs entirely (Amsden and Chu 2003; Amsden 2004). Often, state support was tied to commitments concerning future investment in R&D (Amsden and Chu 2003). In Israel, state-assisted firms enjoyed full ownership over IPRs, yet were obliged to produce locally and prohibited from transferring their IP abroad. Firms that ignored these restrictions could be sanctioned with the loss of current and future financing streams, while the unauthorized transfer of state-funded IP was classified as a criminal offense (Maggor 2021b). A similar approach was recently applied in China, as local officials used a set of targeted measures and technological requirements to get firms to move away from sectors such as real estate or entertainment and toward high-tech manufacturing (Gomes and ten Brink 2023; Lei 2023).

The growing salience of climate change as a policy issue over the last two decades has led to the proliferation of environment-related conditionalities hard-coding certain behaviors. These conditions can take a wide variety of forms ranging from the imposition of fuel efficiency standards or electric vehicles production quotas for carmakers, to green-house emission caps related to transport or production processes, to the enforcement of building efficiency standards (Meckling and Nahm 2018; Meckling and Strecker 2023). At times, environmental conditions are tied to economic goals, aimed for instance at tackling the welfare and employment repercussions of green transition policies.

Industrial policies have routinely been hard-tied to the corporate support of wider societal goals and development projects. An example is South Africa's *Renewable Energy Independent Power Producer Procurement Programme* that mandated Black South African shareholding across the supply chain as well as representation of local communities (Morris et al. 2020).

3.2 | Soft-Coded Conditionality

The second pole of conditionality is less concerned with concrete behaviors and outcomes and instead links public support to a change in recipients' corporate organization or patterns of coordination and cooperation with external actors, thereby creating the conditions for yet unspecified future changes in corporate behavior. This can be done for instance by giving direct leeway to corporate actors or by altering the relationship between companies and their competitors or other stakeholders. At first glance, soft-coded conditionality can appear as containing very little discipline, or "directionality" (Rothstein 2024), as compared to clearly prescribed behaviors and outcomes. Yet, particularly when it involves direct impact on the internal structure of corporate recipients, it can be extremely encompassing. Importantly, soft-coded conditionality can raise the probability of tying corporate behavior to public goals with regard to uncertain future developments, which can be particularly beneficial in frontier sectors in which productive benchmarks, profit margins, or technological dynamics are not yet known. We distinguish three major subtypes of soft-coded conditionality—corporate control-based, coordination-based, and transparency-based ones.

The first, and arguably most encompassing, form of soft-coded conditionality pertains to changes in the recipient's structure of corporate control. These changes may involve forms of public ownership but can also be implemented through regulatory mechanisms or informal arrangements. Historically, industrial policies across the globe have frequently been accompanied by various forms of ownership transfer. Today, one of the most common conditions related to corporate control is the acquisition or transfer of equity to the state. Such equity transfers represent the most direct form of gainsharing (Block et al. 2024). However, even more importantly, the state can also use its role as a patient equity investor to support long-term investment goals that go beyond the realization of financial profits like firm scale-up (Amsden and Chu 2003; Bulfone 2019, 2024), environmental protection (Meckling and Strecker 2023), or knowledge-retention (Amsden and Chu 2003). Equity transfers to the state can either come ex-ante (Block et al. 2024), such as in (potentially hard-coded) time-bound restrictions on stock buybacks, or ex-post when forced nationalization is used to discipline corporations.

Transfer of equity is just one among a very large number of devices states have used to encode degrees of public control into corporate decision-making. As aptly expressed by Kapczynski and Michaels (2024, 322), the "colloquial idea that 'public ownership' is a coherent category that implies definitive state control" is misleading. Examples of non-straightforward alterations of support recipients' corporate control structure involve public bailouts. Both financial and non-financial corporations' bailouts entail complex negotiations over the restructuring of ownership and control during and post-bailout—including provisions regarding board compositions, shareholder power, corporate

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strategy, environmental commitments, and worker representation (Weber and Schmitz 2011; Wilson and Borowitz 1984). European Golden Shares provisions that commonly grant public minority owners veto powers are an example of ongoing public voice in privately owned corporations (Werner 2017).

Strategic involvement of state-owned, state-backed, or state-controlled financial institutions in industrial policies can be examples of public alterations of corporate control mediated through the financial system (Mertens et al. 2021; Li and Ban 2025). Even without directly owning a stake in a company, state actors can still monitor corporate behavior by conditioning financial support to the appointment of independent directors representing the state, local governments, workers, or representatives of research institutions to corporate boards (Meckling and Strecker 2023), or at least force companies to publicly share information, for instance about their pollution levels as part of green conditionality packages (Meckling and Strecker 2023).

A second subtype of soft-coded conditionality involves devices meant to influence how corporations will interact with other actors in their environment. State actors can use the carrot of financial support to encourage (or impose) intra-sectoral or cross-sectoral cooperation among domestic companies. The 1970s and 1980s' steel and shipbuilding restructuring programs in many European nations involved state aid in return for rationalization concessions, (partial) mergers, and agreements to cooperate on technological development (Esser et al. 1983). In the 1980s, the US Department of Defense lured 14 US semiconductor manufacturing firms into the Sematech Consortium to jointly work on catching up with Japanese competitors (Browning et al. 1995). State-induced coordination can occur formally, for example with the creation of state-sponsored industry associations, like in the case of the Chilean agro-industry business association promoted by the Pinochet dictatorship (Perez-Aleman 2003) or through "bridging" institutions that provide a coordinative platform for business representatives, research centers, and local governments (Block et al. 2024; Samford 2017; Schrank 2017; Weiss 2014). Coordination may be informal, for instance via state-promoted (and monitored) peer-coordination. Policymakers can also influence firms' relationships with organized labor, for example, by imposing the acceptance of collective bargaining agreements as a condition of access to state support (Sabel 1995).

A third subtype of soft-coding relates to devices meant to manipulate information flows from corporations. States use industrial policies as a vehicle to mandate publicly oriented disclosure obligations for corporations. Such disclosure can be hard-coded into industrial policies, such as when project-specific IP is regulated, or firms are required to disclose business information to be admitted to certain support programs. Beyond such clear codings, future handling of information and knowledge can be mandated on an ongoing basis and with regard to unspecified regulatory goals. Canada's Large Employer Emergency Financing Facility (LEEFF) during COVID-19 required recipients to disclose information about their current and projected greenhouse gas emissions on an ongoing basis (Meckling and Strecker 2023). One of the most common applications of soft-coded conditionality, particularly in innovation policy, relates to transparency and information sharing, especially concerning production knowledge and intellectual property (IP). Stipulations requiring recipients of state support to share future knowledge have been well-documented in the American developmental state. These provisions can range from cost, ingredient, and process disclosures to regulators, to obligations for sharing the results of state-funded research with institutions, platforms, and even competitors (Kapczynski and Michaels 2024; Traficonte 2020). Soft-coded IP-sharing arrangements can reach deep into corporate operations. Pre-liberalization, German producers of telephones had to run a jointly owned company hosting design and technical IP to produce for the state-owned telephone provider (Ziegler 1997, 67; Table 1).

TABLE 1 | Varieties of conditionality.

Conditionality type	Conditionality measures
Hard-coded	Production, investment, employment, and export quotas; environmental and safety standards; training and skill programs; technological or local content requirements; geographical location, price controls; regulation of intellectual property rights
Soft-coded	Public or domestic ownership; promotion of intra-firm or intra-sectoral cooperation; acceptance of collective bargaining rules; accepting joint ventures; inclusion of independent directors; disclosure of information instrumental to ongoing regulation

Source: Authors' elaboration based on the reviewed literature.

4 | Unpacking the Political Economy of Conditionality

In the second step, we analyze the politics of conditionality, mapping the political economy factors that have enabled the implementation of disciplining mechanisms, as identified by the literature. This reconstructive exercise has practical and theoretical implications. For while we do not deny the importance of reflections on the optimal policy design of conditionality measures and industrial policy efforts more generally, optimally designed measures are of little practical use if the political conditions for their implementation are not met (Doner and Schneider 2016). We first focus on the country-level, following a long tradition in political economy to distinguish between coalitional, institutional, and ideational drivers behind the introduction of conditionality (cf. Hall 1997). We then move to the system-level, identifying three contextual global factors that interact with domestic factors to shape the space for conditionality: geopolitics, supranational legal agreements, and global corporate strategies.

4.1 | Institutional Factors and Conditionality

Institutional explanations have figured prominently in the literature tracing the politics of conditionality. The first, and arguably

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most controversial, institutional mechanism relates to the *type of governing institutions*. According to a prominent perspective, authoritarian regimes would have more instruments at their disposal to achieve compliance by disciplining recalcitrant business leaders and, when needed, to achieve developmental goals (for an overview of the argument see Schrank 2017, 2031–2033).

The relationship between authoritarian institutional structures and strong conditionality has been subject to long-standing critique (Chibber 2014, 47–52). Scholars have pointed out the presence of executive disciplining capacities in democratic countries like France, Japan, and Germany (Johnson 1982; Weiss 1998; Zysman 1984). More recently, in her accounts of the Korean and Taiwanese developmental trajectories, Elizabeth Thurbon finds that, even after democratization and liberalization, both countries have successfully implemented conditionality measures (Thurbon 2016, 2019). In light of these contradictory findings, one can conclude that conditionality could, in principle, be implemented in both democratic and more authoritarian contexts.

A second factor identified in empirical studies relates to the *level of centralization* of policymaking structures. Earlier works on the developmental state found an autonomous and highly powerful industrial planning agency with a centralized Weberian bureaucracy to be a decisive factor behind the introduction and enforcement of monitoring mechanisms (Doner et al. 2005; Evans 1995; Johnson 1982; Wade 1990; Weiss 1998). This point was echoed by contributions focusing on China, which argue that the top-down leadership by the central Communist Party apparatus was decisive in imposing local content requirements and green conditionalities on foreign corporations seeking access to the Chinese market in different sectors (Gomes and ten Brink 2023) ranging from renewable energy (Chen and Lees 2016; Lewis 2013) to carmaking (Noble et al. 2005). Provincial governments were left with a more ancillary role, essentially adding subsidies and tax exemptions to the centrally agreed conditionalities to outcompete other provinces as investment destinations. Centralization with the direct involvement of the Presidency was also found to be an important institutional facilitator in the negotiation of conditionalities related to profit-sharing and employment protection in Guinea's mining sector (Wilhelm 2023).

Another strand of literature argues that the implementation of conditionality is instead favored by the presence of *decentralized governance structures*. These accounts have focused primarily on low-profile or "hidden" innovation agencies such as the US's DARPA, Finland's Sitra, or Israel's Office of the Chief Scientist that operate at the periphery of the public sector, making them less vulnerable to capture and thus more likely to adopt conditionality measures (Block 2008; Breznitz and Ornston 2013, 2018; Fuchs 2010; Maggor 2021a). Crucially, decentralization and the division of tasks between different local authorities and research institutions can foster strong conditionality in two ways: by allowing the use of a diverse pool of expertise, which in turn can help state actors in defining highly technical innovation-related goals, and by shielding state activism from criticism in a political environment characterized by a deep-rooted distrust of industrial policy (Block 2008; Block et al. 2024; Block and Negoita 2016; Schrank and Whitford 2009; Schrank 2017). In sum, centralized structures seem to be favored when the state bureaucracy has a strong development orientation and enjoys broad public support, as in Japan and Korea, and more recently in China, and in sectors characterized by high levels of fixed investment, such as renewable energy. A more flexible, covert approach may be strategically preferable when state actors implementing industrial policy face political opposition, and in sectors such as high technology that are characterized by the need for rapid and flexible adaptation of conditionality measures and industrial policy goals in general.

4.2 | Coalitional Factors and Conditionality

Another main source of conditionality emerges from coalitional politics.[1] The importance of a structured relationship between the state and societal actors (i.e., embeddedness) has been a main feature of the literature on industrial policy (Evans 1995, 12). Indeed, only through such dense networks are state managers able to negotiate developmental goals and gauge whether these targets are being attained. But how do state managers guarantee their close relations with private actors yield effective conditionality and are not manipulated toward predatory behavior?

To address this question, scholars have pointed to policymakers' ability to construct broad political coalitions in support of conditionality. Such alliances can help to produce legitimacy for developmental goals and strengthen policymakers vis-a-vis factions of industry that are more hostile to conditionality measures.

In many cases, policymakers' ability to construct robust coalitions depends on mediating factors that facilitate collaboration between the state and business (Johnson 1999; Woo-Cumings 1999; Kohli 2004; Haggard 2018). In his comparative study of late industrialization in Korea and India, Vivek Chibber demonstrated that, whereas Indian industrialists launched a powerful campaign to curtail the state's attempt to construct disciplinary institutions, Korea's industrial elites—the *Chaebol*—were supportive of such state-building efforts (Chibber 2003, 2014). According to this account, the divergence between Korea and India can be explained by examining these nations' development strategies. In India, an import-substitution industrialization (ISI) campaign protected local firms from international competition thus significantly weakening their compulsion to upgrade and innovate. In Korea, on the other hand, the adoption of an export-led development model made local firms highly dependent on state assistance as a means to compete in global markets, giving state managers the leverage to make demands on firms in return for state support.[2]

Another source of broad consensus for conditionality has emerged out of collaboration between the state and powerful industrial unions. Work by Darius Ornston (2013) has shown that labor has played a crucial role in upgrading coalitions in Finland, Denmark, and Sweden. Political coalitions with organized labor have proved crucial as a means to institute conditionality even in the face of private sector opposition. In this regard, labor is used as an effective counterbalance to industry. This was the case in Israel, where in the context of postwar industrialization conditionality was generated by leveraging the state's embedded relations with collective enterprises owned

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and managed by Israel's trade union federation (Maggor 2021a). A similar dynamic played out in Brazil and Bolivia during the 2010s under the left-wing governments of Lula da Silva and Evo Morales, respectively (de Gaspi 2024a; Naqvi 2021; for a systematic take also see de Gaspi 2024b).

Finally, there have even been times when coalitional politics has enabled governments to practice conditionality even when they "lack bureaucratic features generally associated with high degrees of state autonomy" (Meckling and Nahm 2018). A classic example of using non-state actors as conduits for effective industrial policies was the German state's reliance on the organizing capacity of the banking sector (Deeg 1992). While classical corporatist industrial policy in German bank-based capitalism almost amounted to what Deeg termed a "private" industrial policy with large banks at the core, the increasing role of the state since the 1970s has led to the emergence of various state-bank conduits and hybrids in supporting industrial development (Deeg 2006). A good example of this non-state administration of industrial policy is the use of *Hausbanken* in the administration of government subsidized loans to firms. Only after *Hausbanken* had approved firms' loan applications did they pass on applications to development banks who, in turn, relied on industry associations for expertise to determine final approval of government support. Hence, in "contrast to other countries ..., the policy priorities embodied in ... allocational objectives are generally determined through decision-making bodies involving representatives from government, industry, and the financial community and not the state acting over and above the private sector" (Deeg 2006, 60). As demonstrated in work on development banks during European integration, such forms of non-state administration of industrial policy can keep industrial policies alive even in situations of adverse institutional developments and hostile ideological climates (Naqvi et al. 2018).

A more recent case of social coalitions as conduits appeared in the Obama administration's strengthening of environmental regulations that included various punitive measures in return for a variety of subsidies for both consumers (purchase incentives) and producers (R&D funding and loan guarantees for EVs). To get this legislation passed, policymakers strategically leveraged the cross-sectoral impact of green subsidies to form an "ad hoc" coalition between sections of industry, environmental groups, national security interests concerned with oil dependence, and organized labor (Meckling and Nahm 2018, 2021).

4.3 | Ideational Factors and Conditionality

Given its strong focus on state capacity and administrative strength, much of the classic industrial policy literature has downplayed the role of "soft" factors such as ideas in shaping state–business relations. There are, however, notable exceptions, which we address in this section. In particular, we argue that in the current post-neoliberal conjuncture—where renewed industrial policy ambitions confront the institutional legacies of decades of neoliberal discourse and regulatory state-building—ideational dynamics are crucial for understanding both the possibilities and constraints surrounding the reemergence of industrial policy. This section examines two major strands in the literature on the role of ideas in industrial policy: first, ideas as surrogates for missing institutional or coalitional foundations in challenging policy environments; and second, ideas as fundamental drivers shaping how states conceptualize and implement industrial policy.

Notable classic accounts of the developmental state described ideational factors as surrogates of strong state capacities. Ideas, or "legitimacy beliefs," were thought to solve the puzzle of how democratic or "soft-authoritarian" regimes justified catch-up policies and imposed costs on societies despite their ongoing reliance on majority support, particularly in East Asia (Stubbs 2009). As emphasized by Chalmers Johnson, shared ideas about developmental goals can raise the chances of business acquiescence to government sanctioning even under conditions of high degrees of business power (Johnson 1982; Schrank 2017).

An elaborate account of ideas as surrogate stabilizers of industrial policies has been developed by Thurbon in her analyses of East Asian financial liberalization (Thurbon 2016, 2019). Thurbon calls the style of financial market governance typical of the traditional East Asian developmental states financial activism, comprising the channeling of finance into strategic sectors and the heavy use of economic performance standards. She shows for both Korea (Thurbon 2016) and Taiwan (Thurbon 2019) how the institutional and coalitional pillars of financial activism were partially eroded during the 1990s. The driving factors of erosion were economic shocks, neoliberal thinking, American political influence, and pressure from transnational institutions. Notwithstanding this coalitional and institutional dismantling, both countries resurfaced activist strategies since the 1990s in the face of the growth of Chinese exports and the post-2008 woes in international finance. Deep-seated ideas—or what Thurbon calls a developmental mindset—functioned like dormant recipes to respond to new problems. An example of this logic is the 2009 Korean Hidden Champions program, meant to create a sector of export-intensive SMEs. Firms in the program benefited from financing and assistance, but had to negotiate binding plans for developmental goals with administrators (Thurbon 2016, 136).

A similar perspective on ideas has been suggested for Chinese industrial policy in the 2000s. Relating to a view of Chinese industrial policy as institutionally weak and marked by inter-regional rivalry, Chu has described how a "catch-up consensus" has enabled policymakers to develop disciplining strategies in the automotive industry (Wen Chu 2011). Contrary to the logic of hard-coding conditionality in classic accounts of performance standards, Chu observes that regionally devised industrial policies for the automotive industry showed high degrees of variation in instruments and strategies—ranging from heavy reliance on joint ventures, unauthorized development of indigenous brands, and various supply chain strategies. Centrally sanctioned industrial policies for the sector have evolved in reaction to decentralized experimentation. Chu explains the functioning of this loosely coupled, but still heavily disciplined, policy regime with underlying ideas: "The central state had not always been able to devise consistent performance standards to induce satisfactory results at different stages of industrial development. Nonetheless, the fact that there are always critics who judge policy results by the nationalist goal of catching up with the West turns this goal into a performance standard. What distinguishes

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this performance standard … is that this is ex post, long-term, and enforced by social consensus to monitor the government" (Wen Chu 2011, 1236).

Ideas can also be major drivers of industrial policy change and shape how states devise industrial policy. Fuentes and Pipkin have argued that policy paradigms can act as the "switchmen" by which states translate economic shocks into policy responses (Fuentes and Pipkin 2022). Political-administrative systems with dominant statist, hamiltonian, or neoliberal ideational currents can be shown to make sense of similar economic shocks through different ideational "lenses." In turn, policy reactions to economic problems can be expected to aim for higher or lower degrees of state control of beneficiaries of industrial policies. These ideational factors point to a key obstacle to the introduction of conditionality stemming from the fact that many state agents currently in charge of implementing industrial policy were trained in the era of hegemonic neoliberal ideas (Fuentes and Pipkin 2022). This means that they often share a distrust of activist industrial policy, believing that intervention should be limited to setting incentives to get markets to "do their job." Thus, except for East Asian economies with a long tradition of developmentalism, most high-income and low-income economies lack the "developmental mindset" Thurbon has highlighted.

The intricacies of devising industrial policies in a hostile ideological climate have been highlighted by Ó Riain and Breznitz (Ó Riain 2010, 2016; Breznitz 2012). Debating the case of Ireland since the 1980s, they suggest that different approaches to conditionality can emerge in the same polity. Next to attraction policies for multinationals with weak conditionality, Irish policymakers aimed for extreme levels of control in their support of venture financing to indigenous firms. Set against the backdrop of the growing influence of neoliberal ideas and kick-started by two publicized cases of supported firms "selling out" to foreign owners, program designers developed a managerialist ideology focused on the dangers of capture and fraud (Breznitz 2012, 101). As a consequence, state agents demanded equity stakes, board seats, and immediate results from firms, leading to the situation that "the Irish state had more power and ownership over the industry than in many 'old-style' developmental states" (Breznitz 2012, 104).

4.4 | From Unit to System: Global Factors and Conditionality

Our taxonomy so far has mapped the political mechanisms at the unit level that may increase or decrease the scope for implementing conditionality measures, as identified in the literature. However, in a politically and economically interconnected global field, the space for implementing local development strategies is mediated by global factors.

Thus, the scope for ambitious policies centered on conditionality will be influenced by the different configurations between the unit-level ideational, institutional, and coalitional mechanisms and the system-level dynamics mapped here. We identify three system-level factors that we consider particularly influential in shaping the space for conditionality: geopolitics, supranational legal agreements, and global corporate strategies.

4.4.1 | Geopolitics

Geopolitical dynamics have historically had a profound impact on the scope for implementing conditionality measures and industrial policy strategies in general (Breznitz and Gingrich 2025). Geopolitical tensions in the form of external threats to the political stability of a territorial unit have been found to increase the scope for the implementation of place-based conditionality measures (for an overview see Pipkin and Fuentes 2017), most notably in East Asia (Doner et al. 2005). Thurbon (2019) similarly cites the geopolitical rise of China as a direct cause for the revival of financial activism in Korea and Taiwan. Recent events seem to corroborate this finding. The growing interpenetration between economic and geopolitical goals has been identified as one of the key factors in the transition from a neo-liberal to a–still unsettled–post-neoliberal order (McNamara 2023). The declining influence of the US hegemonic power, one of the key pillars of the neoliberal order, with the rise of China as a rival global state actor and increasing multipolar tensions, has given new impetus to the inclusion of place-based conditionalities in subsidies and other forms of support to strategic sectors, as will be discussed in more detail in the following section.

4.4.2 | Supranational Legal Agreements

The development literature has long reflected on the extent to which supranational legal agreements affect the policy space available to countries, particularly low-income countries, to implement conditionality-based development strategies (Amsden and Hikino 2000; Amsden 2004; Shadlen 2005; Wade 2018; Aggarwal and Evenett 2014; Weiss 2005). Some authors have argued that the proliferation of multilateral trade agreements like the WTO rules on IPRs would significantly reduce the scope for introducing conditionality (Wade 2004). This famously led prominent voices in the debate to revive List's accusation that high-income economies "kick away the ladder" (Wade 2004; Chang 2003) by preventing low-income economies from implementing the very measures behind their success. This initial pessimism was later tempered by studies showing that supranational agreements leave ample room for the implementation of conditionality measures (for a detailed analysis of the legal origins of the loopholes in the WTO system see Aggarwal and Evenett 2014). For example, science and technology, regional development, environment, infrastructure, human capital, and capacity building are all possible under the WTO. Governments can require foreign firms to transfer technology by requiring a certain proportion of R&D activity to be carried out locally or by licensing a particular technology to a local firm, and they can still influence foreign firms' employment practices with the aim of improving human capital and skills (Amsden 2004; Natsuda and Thoburn 2014; Shadlen 2005). While it is perhaps not surprising that an economic heavyweight like China could evade or at least dilute WTO obligations (Noble et al. 2005), smaller economies like Israel, Thailand, Malaysia, and Guinea could exploit the many loopholes in international trade agreements to implement conditionality. This led some authors to argue that WTO rules pushed state actors to implement more efficient open-market industrial policies combining the support for strategic industries with the opening of markets to competition and the imposition of conditionalities (Noble et al. 2005).

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4.4.3 | Global Corporate Strategies

The scope for implementing conditionality measures has also been decisively curtailed by the growing assertiveness of global segments of private capital, whether large multinational corporations or financial investors. The growing importance, and complexity (Cooiman 2023a), of global value and wealth chains centered on a handful of (high-tech or financial) companies (Wade 2019), mainly located in core economies such as the United States, the European Union, Japan, and, increasingly, China, has in itself been decisively facilitated by the proliferation of multilateral trade agreements (Hauge 2023). Multilateral trade liberalization strengthened the position of large private corporations vis-à-vis national governments, thus diminishing the prospects for conditionality in at least two ways. First, by expanding the structural power of large corporations, nation-states have been forced to increase the generosity of subsidies while reducing the stringency of conditionality (Bulfone et al. 2023). Second, multilateral agreements gave large private corporations the ability to directly sanction public actors when their policies were not in line with existing supranational legal agreements (Shadlen 2005, 766), most prominently in relation to patent protection (Hauge 2023, 1971–1972; Wade 2018, 538). Taken to an extreme, this dynamic would lead to the replacement of developmental state strategies based on conditional industrial policies with competitive state strategies centered on unconditional corporate welfare measures, a dynamic epitomized by the case of Ireland (Ó Riain 2016). However, there are cases where governments have succeeded in imposing comprehensive conditionality on foreign multinational enterprises (MNEs). Again, China in the 2000s is an example: by exploiting the possibility of access to its domestic market, the Chinese government was able to impose strong conditions related to local production and technology transfer through patent pooling, but also green conditionalities, in bilateral negotiations with foreign MNEs (Linden 2004; Lewis 2013). Smaller countries, most famously Taiwan, have also been successful in incorporating meaningful conditionality in their relationship with MNEs. Thus, while we recognize that the structural strengthening of mobile segments of capital, coupled with the 'encasement' of the economy since the 1980s, has made all states *structurally weaker* vis-à-vis business, conditionality remains one of the few interventionist tools available to the post-neoliberal state.

While we acknowledge that the scope for implementing industrial policies is critically influenced by the power asymmetries that characterize global dynamics, our argument is not entirely structuralist. Developmental experiments such as those observed in Bolivia (Naqvi 2021), Guinea (Wilhelm 2023), Thailand (Doner 2009), Malaysia (Natsuda and Thoburn 2014), Chile (Perez-Aleman 2003) and the Dominican Republic (Schrank and Kurtz 2005) clearly show that countries occupying peripheral nodes in the global production networks still have scope to introduce and enforce strong conditionality. Thus, we do not consider post-neoliberal activist industrial policies to be a policy tool available only to the nations in privileged positions.

Figure 1 summarizes our framework as a multilevel representation.

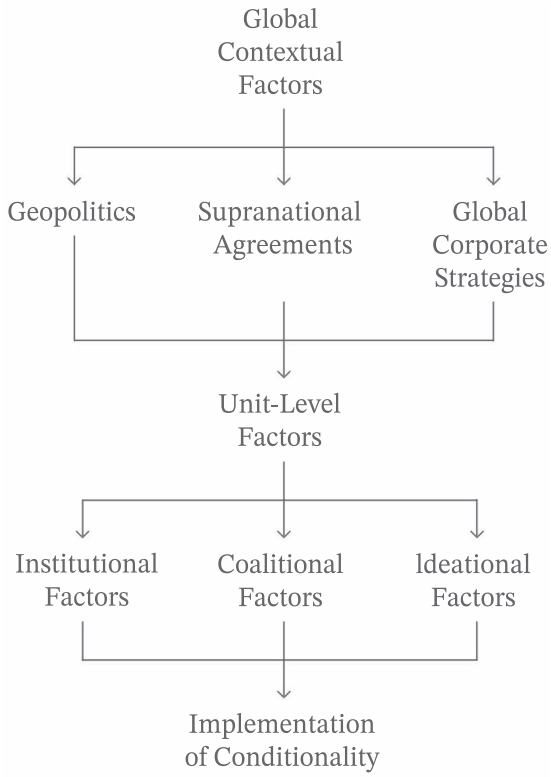

FIGURE 1 | Conditionality implementation factors.

5 | Back to the Unit: The Politics of Conditionality in the New Industrial Policy

In this final section, we provide brief empirical illustrations of the conditionality measures introduced as part of recent industrial policies in the United States and the European Union. Our vignettes show that the US government has been able to attach relatively strong conditionality to its industrial policies, particularly under the Biden administration. At the same time, the European Union has done so less systematically. Drawing on our taxonomy, we argue that this comparative outcome relates to case-specific combinations of coalitional, institutional, and ideational factors, coupled with a changing geopolitical context. Our choice to focus on the United States and the European Union is motivated by two reasons. First, the scale of the interventions, as the United States and the European Union implemented some of the most significant targeted funding efforts in the world. Second, the groundbreaking nature of this activism, given the widespread skepticism about government intervention in the economy that has prevailed on both sides of the Atlantic since the 1980s.

5.1 | Conditionality and the Political Economy of Bidenomics

Nowhere has the "return" of industrial policy been more visible than in the United States. While its roots trace back to the Trump presidency, the process accelerated under Biden with the enactment of four major laws: the American Rescue Plan, the CHIPS and Science Act (CHIPS), the Infrastructure Investment and Jobs Act (IIJA), and the Inflation Reduction Act (IRA). Collectively, these authorized over $4 trillion in

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investment—"the closest thing … to a broad industrial policy [the US has had] for generations" (Scheiber 2021).

Some argue Bidenomics merely extends previous pro-business efforts to derisk private investment (Gabor and Braun 2025). However, the inclusion of hard and soft-coded conditionalities demonstrates a distinct policy shift. This section maps their content and the global and domestic forces behind their adoption.

5.1.1 | Policy Design

One clear example of hard-coded conditionalities exhibited in the Biden industrial policy agenda is related to promoting well-paying, high-quality jobs. To advance this goal, Congress has applied a "prevailing wage" clause dictating that wage and benefit rates for federally funded projects must pay existing market levels. These standards cover nearly all IIJA funds, including all energy infrastructure provisions (U.S. White House 2021); the construction of manufacturing facilities under the CHIPS and Science Act (U.S. White House 2022a); and the IRA's clean energy construction. Prevailing wage clauses function as both ex-ante and ex post conditionalities. For example, under the IRA, firms can only receive the full value of key tax credits if they commit to pay prevailing wages (ex-ante). Yet the legislation also includes penalties for non-compliance, with a $5000 fine per affected worker, increasing to $10,000 if the violation is due to intentional disregard (ex post) (U.S. White House 2022c; U.S. I.R.S 2024a).

Another form of hard-coded conditionality is the principle of "upside sharing" that was incorporated in the CHIPS act. As outlined in a memo by the Commerce Department, the program's corporate subsidy recipients will be required to "share with the U.S. government a portion of any cash flows or returns that exceed the applicant's projections above an established threshold" (U.S. NIST 2023). Under the CHIPS Act, the Commerce Department also prohibits companies from using government funding for stock buybacks or dividends—common corporate practices notorious for enriching shareholders and executives—for a specific period (typically 5 years) after receiving the grant or loan, and favors applicants that commit to refrain from stock buybacks altogether (U.S. NIST 2023). Another much-discussed example concerns provisions requiring corporate recipients of the CHIPS Act to provide high-quality childcare to construction and production workers as well as local training and skills provision.

A final instance of hard-coded conditionality is domestic content and sourcing requirements intended to onshore production supply chains and ensure that state support remains in and contributes to local economic development. For example, to qualify for consumer tax credits under the IRA, a significant portion of the minerals used in EV batteries must come from the United States or US trade partners, whereas final assembly must take place in North America (U.S. DOE Alternative Fuels Data Center 2023). The law also offers bonus tax credits for a range of clean energy projects tied to compliance with domestic content standards (U.S. White House 2022b), while the IIJA includes the *Build America, Buy America Act* requiringconstruction materials be produced in the United States (Painter 2021).

Bidenomics also included some soft-coded conditionalities. For example, the Department of Energy's Loan Program has encouraged firms applying for IRA-funded grants to submit a Community Benefits Plan in which they detail how their proposal advances "meaningful community and labor engagement," "quality jobs," "diversity, equity, inclusion, and accessibility in the workplace," as well as "President Biden's Justice40 goal" (according to which 40% of the overall benefits of clean energy investment flow to disadvantaged communities) (Draklellis and Richardson 2023).

Both CHIPS and the IRA incorporated numerous ex post monitoring mechanisms. CHIPS recipients are required to file regular financial and programmatic reports, while funds are disbursed in tranches linked to milestones (U.S. NIST 2023). Policymakers also provided the agency with the necessary disciplinary mechanisms. For example, the Commerce Department can temporarily withhold, suspend, or terminate awards already made available. It is also authorized to progressively claw back previously distributed awards or disqualify firms from future funding (U.S. NIST 2023). Clawback mechanisms and milestones also exist in the IRA. For example, the Investment Tax Credit (ITC) is subject to recapture if the qualifying energy project ceases to operate or if recipients fail to satisfy the prevailing wage requirements (U.S. I.R.S. 2024b). These examples demonstrate that the administration made conscious efforts to ensure massive subsidies did not become corporate giveaways.

5.1.2 | Political Process

Our analysis of the United States identifies the relevance of two of our proposed unit-level factors: ideational and coalitional politics, as well as one of our global factors, mainly intensifying geopolitical tensions with China.

Bidenomics represented a notable retreat from neoliberal economic policy and an embrace of a new set of economic ideas that some have called post-neoliberal. While far from fully formed, at the core of this emerging paradigm was a view of government as the designer and manager of markets, rather than as the corrector of market failure (Lemann 2024). The roots of this change date back to the financial crisis of 2008 and the election of Donald Trump in 2016. It was in these years that long-held beliefs regarding the benefits of free markets, free trade, and a hands-off role for governments began to be upended.

Producing an alternative to neoliberal commonsense was advanced on various fronts. The first was a concentrated effort by a group of philanthropists, academics, and think-tank researchers led by the Hewlett Foundation. In 2018 Hewlett launched the "Beyond Neoliberalism: Rethinking Political Economy" initiative (later renamed "Economy and Society Initiative"), which has since committed $140 million to fund economic and policy research in universities, think tanks, and media outlets focused on "examining potential successors to neoliberalism" and developing a new "commonsense about how the economy works" (Lohr 2022; Stockman 2024). A key pillar of this emerging post-neoliberal economic paradigm was industrial policy with conditionality or "corporate guardrails," a principle stressed in several policy papers released

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by the Hewlett-sponsored Roosevelt Institute (Estevez 2023; Tucker 2019). The second front advancing a post-neoliberal agenda was the progressive wing of the Democratic Party, where progressives like Sanders, Warren, and Ocasio-Cortez also championed these ideas—some embedded in the Biden-Sanders Unity Task Force documents written during the Biden presidential campaign. A third and final front was organized labor. For example, a UAW policy paper from 2018 advocating for green industrial policy was perhaps the first to promote IRA provisions like local content rules and job standards (Scheiber 2021).

The emerging ideas of this post-neoliberal paradigm were channeled into the administration as numerous grantees or partners from the Hewlett initiative took on prominent roles in the Biden administration.

Jennifer Harris, the Founding Director of Hewlett's Economy and Society Initiative, became a senior White House advisor, while Heather Boushey, co-founder and president of the Hewlett-sponsored Washington Center for Equitable Growth, joined the Council of Economic Advisers. Labor interests also obtained key positions. Jennifer Granholm, the former governor of Michigan with close ties to labor, was appointed energy secretary, while Katherine Tai, who helped secure stronger worker protections in NAFTA's revision, became US Trade Representative (Scheiber 2021).

Another factor leading to strong conditionalities was the formation of broad-based societal coalitions. Both CHIPS and the IIJA passed with considerable bipartisan support. Needless to say, this meant that the original, far more ambitious legislative proposals, including far more substantial pro-labor conditionalities, were watered down if not entirely gutted due to Republican political opposition (Harris 2022). Still, the fact that both bills eventually received some Republican support speaks to the broad political acceptance of conditional industrial policy (more on this below). In the case of the IRA, Democrats were forced to negotiate against the conservative wing of their own party in the form of Senator Joe Manchin. Although Manchin vetoed numerous proposals, including a labor-friendly clause that would have provided consumers of union-built cars with more generous subsidies, his negotiations with leaders of the Democratic Party eventually secured an agreement that made the IRA a reality (Bolton 2022a). Although the IRA passed without Republican support, and Trump has committed to repealing the Act, 21 House Republicans, whose districts have drawn billions in new investments due to IRA incentives, have recently urged the Trump administration to preserve the law's key components, demonstrating the bill's appeal beyond the Democratic Party (Siegel and Bikales 2025).

Of course, the implementation of conditionalities required more than just political maneuvering in Congress. It also necessitated crafting a broad social coalition, including labor, the environmental movement, and segments of private industry. Organized labor was a crucial member of this coalition. During the political haggling over legislation, labor representatives mobilized and lobbied Congress financing multimillion dollar advertising campaigns to pressure undecided Democrats to vote for the bill (Mullins and Mann 2021), while the United Mine Workers of America, representing West Virginia coal miners, put pressure on Senator Joe Manchin to reconsider his opposition to the legislation (Evers-Hillstrom 2021). Environmental groups and progressive think tanks were no less important parts of this coalition, drafting significant parts of the IRA and advising members of Congress and the administration. Finally, it is unlikely that conditions would have passed without some industry backing. To be sure, a mobilized campaign by business interests was able to remove many of the more progressive elements originally proposed by the Biden administration, including a more significant corporate tax reform, a host of social policies and the labor-friendly conditionalities mentioned above (Yamakawa Elrod 2024). Nevertheless, important factions in the corporate community remained committed to Biden's industrial policy agenda and were therefore willing to accept some conditionality in order to see it implemented. Semiconductor manufacturers were the main supporters of CHIPS, and renewable energy interests played a key role in passing the IRA. Also essential was collaboration from what Kupzok and Nahm (2024) have called the "decarbonizable sector," which includes US steelmakers, utilities, and the auto sector. These same business interests have recently mobilized to lobby the Trump administration to maintain the IRA's clean energy tax incentives (Evers-Hillstrom 2022; Bikales 2024; Gelles 2025).

The ideological shift and coalitional realignment in favor of industrial policy conditionality measures outlined above were, in part, triggered by growing geopolitical tensions, first and foremost the perceived economic and military threat of China (Donnelly 131). Jennifer Harris began her career in the State Department, where she was one of the first in Washington to question the United States's position toward China, push for tariffs, and argue that free trade had put the United States at a geopolitical disadvantage. Following Trump's victory in 2016, she and Jake Sullivan (later appointed as Biden's national security advisor) authored an influential article in *Foreign Policy* where they advocated for a 'return to industrial policy' to address various geopolitical challenges, including climate change and growing competition from China (Harris and Sullivan 2020).

The relationship between coalitional realignment and geopolitics is also demonstrated in the growing bipartisan support for industrial policy. Most Republicans voting for the CHIPS cited national security, reshoring, and concerns about Chinese manufacturing dominance as the main reasons for supporting the Act (Bolton 2022b; Schnell 2022). This growing consensus facilitated the application of forceful conditionalities geared explicitly toward countering China. The bipartisan consensus around the need to counter China also paved the way for the enactment of the IIJA (Kine 2021), while also playing a role in garnering support for the IRA among reluctant Democrats (Manchin 2023).

5.2 | The Political Economy of Fragmented Conditionality in the European Union

In what follows, we map the conditionality measures introduced in three key EU industrial initiatives: the Recovery and Resilience Facility (RRF), the EU Chips Act, and the European Defense Fund (EDF). The RRF was selected because, with a budget of €672 billion, it is by far the largest spending plan

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approved under the EU's industrial policy framework. It carries a clear industrial policy dimension, as the funds distributed by the European Union to member states are intended to support long-term transformative goals such as the green transition, digitalization, and strategic autonomy.

The EU Chips Act was included because it was implemented as a direct response to the US CHIPS Act, while the EDF was chosen as a flagship initiative in the defense sector—an area that has become a key priority in the European Union's industrial policy agenda over the last decade.

Our analysis shows that EU industrial policy efforts have generally been characterized by less comprehensive conditionality than their US counterparts. Local content requirements have been introduced at times, though less systematically than in the United States, and "social" conditions—such as employment performance standards or corporate control provisions related to collective bargaining—remain largely absent. A partial exception is the EDF which, although smaller in scale, features strong hard-coded conditionalities related to local production and IPR transfers.

We argue that the European Union's comparatively selective use of conditionality stems from a combination of distinct ideational, institutional and coalition dynamics compared to the United States, as well as a more heterogeneous impact of geopolitical competition with China across EU member states.

5.2.1 | Policy Design

Initially designed as a response to the economic impact of the COVID pandemic, RRF has been hailed as a landmark moment in the process of European integration. With a budget of €672 billion to be distributed in the form of grants and loans, the sheer size of the RRF is remarkable compared to previous redistributive instruments adopted by the European Union. The industrial policy dimension of the RRF relates to its transformative ambitions related to economic resilience, strategic autonomy, and the green and digital transitions.

To access funding from the facility, EU member states have to draft detailed plans about how they will allocate their grants and loans. The Commission has established various ex-ante and ongoing conditionality mechanisms to make sure that member states' governments fulfill these commitments. From an industrial policy perspective, however, these conditionalities are not relevant as they involve the relationship between two public actors. The most relevant dimension relates instead to the conditions member states attach to the grants and loans received from the Commission once they distribute them to *private* companies on their territory. In this regard, the RRF regulation establishes vague conditions mainly related to the prevention of fraud leaving it to the member states to introduce and enforce relevant conditionalities (European Parliament and European Council 2021). The European Court of Auditors has noted that the lack of common indicators weakens the capacity of the Commission to monitor the execution of the plan (European Court of Auditors 2023, 21). Furthermore, both the Commission and the member states have a strong political interest in the plan's success, as measured by the amount of money spent (Viță 2017, 141), thereby potentially creating a tension between the strict monitoring of conditionality and the swift distribution of the funds (Bocquillon et al. 2023).

Designed to enhance the European Union's strategic autonomy in the production of semiconductors (European Commission 2023), the EU Chips was a direct response to the protectionist elements of the US CHIPS, as well as to the growing geopolitical tensions between the United States and China over Taiwan (Donnelly 2023). The EU Chips Act allows channeling targeted funding from the European Union and the member states to semiconductor producers in derogation to the EU state aid regime which restricts targeted vertical funding. The EU Chips has a funding of €43 billion, of which however only €3.3 billion comes from the EU budget, while the rest is (forecasted to be) provided by member states or private actors (2023, 134–135). As detailed by Bulfone et al. (2024, 15): since member states are primarily responsible for the distribution of funds, the Commission has less flexibility to introduce and enforce conditions than the US government under the US CHIPS. Nevertheless, some hard-coded conditionalities are included in the bill. If a group of countries decides to provide targeted subsidies to semiconductor producers, the Commission can introduce a clawback mechanism to ensure that companies redistribute any extra profits gained from public funding back to the governments that initially financed them[3]. Other conditions in the EU Chips Act come into effect if the Commission and member states certify the occurrence of a supply-chain crisis. In such a scenario of geoeconomic tension, the Commission can activate a soft-coded conditionality asking semiconductor factories that have received financial support under the EU Chips Act to share information about their production capacities and, if necessary, to prioritize domestic orders for critical products. If companies do not comply with these requirements, the Commission can impose fines or other sanctions.

Approved in 2021, the EDF is a framework allowing the distribution of grants, loans, and procurement orders to private companies for the co-financing of military research and development projects. The total funding is a little less than €8 billion to be allocated over the 2021–2027 period. Despite its small size, the EDF signals a growing assertiveness by the European Union in the realm of defense and security policy and was passed in response to a combination of rising geopolitical tensions related in particular to the outbreak of the conflict in Ukraine and growing tensions with the Trump administration over NATO. All these factors contributed to increasing the perceived vulnerability of the European Union (Hoeffler 2023, 160). The Commission explicitly mentioned the link to the geopolitical context that "has changed dramatically in the last decade" in the opening paragraph of the regulation establishing the EDF (see also Hoeffler 2023, 160). Crucially, the feeling of urgency concerning geopolitical tensions in the field of defense led to an alignment within the Council in favor of the introduction of encompassing hard-coded standards. Notably, due to security concerns the regulation restricts access to EDF funding to companies established in at least two EU member states, or associated members part of the European Economic Area. Third-country entities can participate only in exceptional cases. The regulation also includes conditions related to the use of IPRs resulting from funded

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projects, which should not be controlled by any third countries or third-country entities. If these IPR conditions are not met, the Commission can claw back the initial funding. IPR-related conditionalities were met with a harsh reaction from the US administration that unsuccessfully lobbied for their withdrawal (see Hoeffler 2023; Fiott 2024).

5.2.2 | The Politics of Conditionality in the European Union

The main *institutional* element limiting the systematic introduction of conditionality is the lack of a large-scale centralized borrowing and taxing system in the European Union, leaving the Commission with very limited spending capacity (Redeker 2021). While the EU budget increased substantially after Covid (McNamara 2023), the EU's financial firepower pales in comparison to the budgetary resources of the US government. Most of the targeted subsidies distributed as part of the EU's industrial policy efforts come from the budget of the member states (Di Carlo and Schmitz 2023) or special funding sources like the Emissions Trading System (Ergen and Schmitz 2025), with the Commission called upon at best to *coordinate*, but more often simply to *approve*, these subsidies. Lack of a centralized budget, coupled with the shortage of expertise and manpower, weakens the Commission's capacity to introduce strong conditionality. As a result, the Commission sets vague conditions (Cooiman 2023b), like in the RRF, leaving it to the member states to regulate their relationship with companies receiving funding under EU industrial policy programs. This in turn leads to cross-country variation in the introduction of conditionalities due to heterogeneous levels of administrative capacity or political will to enforce discipline (Ducastel et al. 2023).

From a coalitional perspective, geopolitics has had a more uneven impact on the European Union as a driver of conditionality. On the one hand, rising tensions between the United States and China—coupled with the acquisition of strategic European firms by Chinese multinationals, particularly in Germany (Di Carlo and Schmitz 2023)—revived the long-marginalized idea of using industrial policy to defend "Fortress Europe" against geopolitical threats and economic decline (Lavery 2023). Reframed under the banner of "strategic autonomy," this neo-mercantilist ideational toolkit contributed to shifting the balance within the Council toward a more activist industrial policy centered on targeted subsidy carrots (Schmitz and Seidl 2022). On the other, there is still great variation in the way in which member states perceive Chinese competition from a geoeconomic perspective. Indeed, while some member states align with the United States, other member states perceive China more as an economic competitor and important trading partner (McNamara 2023). As a result, "the geopolitical turn happened earlier and more strongly in the US than in the EU" (Donnelly 2023, 130). This in turn prevented the emergence of consensus within the Council in favor of strong place-based performance standards against Chinese companies as in the United States, with France supporting a "Buy European Act," while the German government remains more critical of IRA-like conditionalities (Financial Times 2022).

Only in the realm of defense policy—where geopolitical tensions with China converged with Brexit, the growing threat of US disengagement from NATO during the first Trump presidency (Fiott 2024), and Russia's aggressive expansionism near the EU's eastern border—did the balance within the Council tip in favor of strict hard-coded conditionalities (Fiott 2024, 1015). In this context, the European Commission's ideational framing of the need to strengthen the defenses of the European market and polity acted as a powerful coalition-building narrative, persuading even liberal-Atlantist actors within the Council (Hoeffler 2023, 160). It is telling, in this regard, that also the most robust hard-coded and soft-coded conditionalities in the EU Chips Act are activated specifically in response to geoeconomic supply crises.

Coalitional dynamics can also help account for the lack of "social" conditions for job creation and collective bargaining in the European Union, in contrast to the United States. Indeed, trade unions and labor movements have played a marginal role in shaping the EU industrial strategy, most notably in the case of the RRF and its implementation (Munta et al. 2023) and their influence has therefore been more limited than with the US Democratic Party. It is not surprising in this regard that the European Trade Union Confederation lamented the lack of employment targets in the EU's industrial policy and issued an "urgent" appeal to EU authorities to include IRA-style conditionalities to protect workers' rights (Moller-Nielsen 2024). On this latter point, however, it is worth bearing in mind that the social conditionalities introduced in the United States involve employment protections that are well-established in Europe with the support of *both* trade unions and employers.

6 | Conclusion

In recent years, the question of "corporate guardrails" has sparked an extensive political debate. Particularly in North America and Europe, commentators have warned against unconditioned industrial policies as distributionally one-sided, doomed to produce unsustainable change, and politically unstable (Mazzucato and Rodrik 2023; Palladino and Estevez 2022). Our article contributes to debates on the return of industrial policy by highlighting how conditionality should be a key concern for scholars and policymakers alike. Indeed, we see conditionality as one of the few remaining instruments available to high-income and low-income economies limited by structural constraints.

Bringing a political economy perspective to the debate, we argue that conditionality is not only a matter of instrument *choice* (for a review of this dimension see, Mazzucato and Rodrik 2023), but also a matter of political struggle over policy instruments. While we see conditionality as a necessary condition for transformative industrial policy, we also recognize that structural and geopolitical dynamics associated with the post-neoliberal pattern of accumulation make it difficult for both high-income and low-income countries to implement and enforce disciplining mechanisms. This is not to say, however, that conditionality is a tool available only to a restricted club of core economies. In fact, our review identified instances where coalitions, institutions, ideas, and global system-level factors enabled peripheral economies to introduce and enforce industrial policies based on conditionality. Our efforts to map the political economy of conditionality should therefore be pursued and systematized. We want to highlight three avenues for future research based on our typology.

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First, the main goal of our article was to map the political economy of conditionality to provide a conceptual framework for future causal studies of the topic. As such, our analysis was necessarily static and could not give due space to historical and dynamic issues—not to speak of systematic causal analysis. As noted in our two vignettes, there is ample evidence that typical configurations of coalitions, ideas, institutions, and global mechanisms exist in specific periods and geographic contexts. The same is true for the types of conditions that are commonly used.

Future work should make the role of time and space more central to the analysis (see Pipkin 2023) by tracing which of the policy and political economy configurations identified in the literature are still highly relevant today and which others have become increasingly obsolete because they are difficult to implement in a globalized economy. This is an important exercise as the goals of industrial policy interventions have broadened beyond the traditional focus on upgrading to include achieving the green transition or strategic autonomy. With respect to the latter goal, future research should also systematically unpack the implications of the growing importance of geopolitical factors for the introduction of conditionality in high-income economies. Future research could also compare these successful examples with dynamics of unconditional corporate welfare or weak directionality to unpack the causality behind transformative industrial change, or lack thereof (Rothstein 2024; Pipkin and Fuentes 2017).

Second, we have deliberately omitted issues of economic efficiency and normative evaluation. There is a tendency in public debates to equate good industrial policies with politically demanding, highly conditional ones.[4] We are cautious about such claims, as a systematic review of the effectiveness of different conditionalities is beyond the scope of our article. In recent work on the European Union, Schmitz et al. (2025) have documented significant costs associated with conditionality, particularly in relation to recruitment and small firm inclusion in industrial policies. Future studies should use the conceptual framework provided here to explore the reasons behind the implementation of (more or less) poorly designed conditions.

Lastly, we have omitted systematic questions about how the proliferation of financial chains involving private and public actors, financial intermediation, and public-private partnerships affects the state's ability to exert discipline. An emerging literature bridging critical finance and industrial policy investigates power dynamics along the investment chain (Cooiman 2023b, 2023a; Mertens et al. 2021; Mocanu and Thiemann 2023; Rothstein 2024). As discussed in our treatment of coalitional dynamics and institutional structure, the design of industrial policies is likely contingent on who formulates obligations, monitors compliance, and manages enforcement and sanctioning. While a systematic analysis of these dynamics is essential, it is best addressed in a dedicated study. We hope that our conceptual framework will help stimulate further discussion on this topic.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

Endnotes

[1] In line with Hall (1997), we argue that coalitions reflect the *interests* of heterogeneous interest groups, including business, trade unions and non-governmental organizations.

[2] The positive relationship between conditionality and export-led development was also highlighted by Schrank and Kurtz (2005) in their analysis of 'open economy industrial policy' in Latin America. For a somewhat different interpretation of the Korean case, see Doner et al. (2005).

[3] The claw-back mechanism was introduced as part of the Important Project of Common European Interest on Microelectronics and Communication Technologies, also approved in the framework of the EU Chips Act.

[4] For a recent reflection on the trade-offs associated with the introduction and enforcement of conditionality in relation to other objectives such as subsidiarity, see Molica (2024).

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