ANNUAL REVIEWS

Annual Review of Political Science

Industrial Policy Revisited

Dan Breznitz[1] and Jane Gingrich[2]

[1]Munk School and Department of Political Science, University of Toronto, Toronto, Ontario, Canada

[2]Department of Social Policy and Intervention, University of Oxford, Oxford, United Kingdom; email: jane.gingrich@spi.ox.ac.uk

Annu. Rev. Political Sci. 2025. 28:329–50

First published as a Review in Advance on April 9, 2025

The *Annual Review of Political Science* is online at polisci.annualreviews.org

https://doi.org/10.1146/annurev-polisci-033123-020253

Keywords

industrial policy, developmental state, economic growth, public policy, governance, state–business relation

Abstract

In the past decade, there has been a global resurgence in attention to industrial policy (IP), a resurgence that cuts across political ideologies and geographic regions. IPs are inherently political, intimately connected to the roles of the state in the economy and of states within an international economic system. This review demonstrates that while overt IPs have waxed and waned in their political acceptability in the aftermath of World War II, IPs have always remained part of the policy tool kit. In using IP, policymakers have had to navigate three common governance domains: building coalitions to support productive investments, building the state's capacity to collaborate with and discipline the private sector, and creating political incentives for credible commitments to firms. Nonetheless, the political dynamics in each of these domains have shifted over time. Historically, IPs focused on export-based catch-up strategies, requiring the mobilization of coalitions around manufacturing investment and export discipline. Today's IPs often target frontier technologies and aim to address perceived vulnerabilities in global supply chains and new geopolitical competition, demanding greater experimentation with more uncertain economic outcomes and higher risks of failure. We trace the evolution of the literature on IP through four phases: state-led developmental policies, the changing coalitions and institutions in a globally fragmented production system, neoliberalism, and the more recent renewed focus on transformative IP.

INTRODUCTION

In the last decade, there has been a worldwide revival of industrial policy (IP).[1] Its lure crosses the political spectrum: Indeed, in a moment of intense political polarization in the United States, it is striking how IPs are a mainstay of both major parties (Donnelly 2024). After decades of limiting explicit IPs, both the European Union and its member states have increasingly focused on them (Di Carlo & Schmitz 2023, McNamara 2023). Similarly, in Africa, Latin America, and Asia, IPs have seen growing use (Naseemullah 2023). In this article, we argue that while IPs never left the policy tool kit, their politics has changed substantially over time. We make two broad arguments.

First, we conceptualize IPs as the product of three governance domains: state–business–labor coalitions, state capacity to discipline and collaborate with the private sector, and political incentives to make credible commitments to firms. The coalitions that produce a specific policy do not always support institutions of private sector discipline or longer-run durability, and vice versa, creating fundamental political dilemmas around IP. Second, we argue that these dilemmas have changed over time: As some IPs have moved to riskier technologies, and as their salience has waxed and waned with the changing geopolitical context, so too have the coalitions and institutions producing them.

The political landscape influencing the adoption and success of export-based catch-up-oriented IPs during the early years of the developmental state differs from that of today's world, which is marked by growth strategies focused on frontier technological innovation and increasing competition with China. In the past, the fundamental challenges were mobilizing and sustaining coalitions around investment in manufacturing, enforcing export-based discipline on the private sector, and facilitating overtime learning. While these dynamics remain key to many developing economies, newer IPs often target novel technologies where there is more need for experimentation and a higher chance of failure. These changing technologies intersect with changing geopolitics. In moments of greater geopolitical competition, the political viability of large-scale IPs increases by allowing broader coalitions to form. But that same heightened attention can limit policymakers' ability to experiment. By contrast, the lower salience of IP in periods of lower geopolitical competition can create political insulation that allows riskier IPs but also incentivize policymakers to target sunset industries and provide rents to firms.

We start by defining IPs and the intersection of core governance domains with the technological and geopolitical context. We then outline four phases of the literature: work examining state-led developmental policies; work examining the changing coalitions and institutions in a more globally fragmented system of production; work examining quieter forms of IP in the neoliberal period; and work examining the recent resurgence of attention to high-visibility, transformative IP. We conclude by arguing that IPs are as much about politics as they are about economics and that these politics have changed substantially over time.

DEFINITIONS AND DILEMMAS OF GOVERNANCE

IP is a contested concept with unclear boundaries. In their recent *Annual Review of Economics* article, Juhász et al. (2024, p. 216) define IPs as "government policies that explicitly target the transformation of the structure of economic activity in pursuit of some public goal." This definition encompasses a wide range of policies, from subsidies to educational investments, yet in defining policies partly by their intentionality—policymakers' transformative goals—it also

[1]There is no standard over-time measure of IP. Recent work using text-based policy measures (Juhász et al. 2023), policy counts (Evenett et al. 2024), and expenditures (Criscuolo et al. 2023) shows substantial growth of IP instruments.

excludes core political questions. For these reasons, much research in political science considers IP as a narrower bundle of instruments that rest on a broader range of intentions.

In this review, we consider works that theorize the politics of economic instruments targeting business, which are more ambitious than general development policies, and that use state intervention to alter economic structures (Warwick 2013). IPs include policies directed toward sectors or firms, such as those involving tariffs, subsidies (direct and indirect), foreign technology acquisition and transfer, public procurement, infrastructure investment, research and development funding, innovation, and information provision and brokering (e.g., manufacturing extension partnerships). These tools can be vertical (focused on specific firms and sectors) or horizontal (open to any producer in an industry). Some IPs come with heavy conditions, requiring producers to do something in exchange for support (e.g., sourcing products domestically and reaching export targets), while others do not. Some policymakers bundle IPs with complementary investments in training or workforce development, but many do not.

The main economic (if not necessarily political) rationale for IPs derives from market failures affecting domestic industries. Market failures occur when perfect competitive market conditions do not produce efficient—or socially optimal—outcomes. Juhász et al. (2024) identify three key market failures that emerge from intertemporal processes. Because there are often (*a*) positive externalities from the accumulation of learning, (*b*) cross-sector gains from large capital-intensive projects (e.g., ports), and (*c*) lack of coordination across the supply chain, markets can undersupply new growth-producing industries (for other rationales, see Oqubay et al. 2020). Critically, in the case of IP, these market failures are defined locally, not generally. That is, they are defined by factors preventing the emergence of domestic high-value-added industries. Proponents of IPs tend to see maximizing the welfare of a group in a defined territory as an integral part of socially optimal outcomes.

However, the presence of market failures in theory does not mean that all IPs intend to, or do, solve them in practice. When it comes to the success of IPs in promoting growth, there is substantial variation across and within countries [e.g., Noble (1998) on East Asia; Oqubay (2015) on Ethiopia; de Gaspi & da Silva (2024) on Brazil; Wong (2011) on Korea, Taiwan, and Singapore; and Ornston (2018) on the Nordics]. Discussion of IP often points to three key governance dimensions that shape it: the informational challenge of picking winners, potential capture by the private sector, and weak incentives to make a credible long-run commitment to productive business.

First, how do policymakers select specific IPs? Policymakers sometimes pursue policies in high-risk, high-reward sectors; sometimes support less productive sectors; and sometimes knowingly provide firms with rents (Bulfone et al. 2023). Critics of IP often argue that policymakers lack information to strategically target IP to areas of market failure. Much of the political science literature poses this question differently, asking when the political gains of supporting a sector align with the potential economic gains. This work focuses on the varied sectoral coalitions underpinning both effective and ineffective policies (e.g., Doner et al. 2005, Hassel & Palier 2021, Robinson 2009, Taylor 2016).

Second, what allows state action to be effective at supporting growth or sectoral transformation? Work on IP raises a Goldilocks question: When can states avoid private sector capture while remaining sufficiently connected to support effective coordination? Evans's (1995) classic work theorizes capacity in terms of embedded autonomy, arguing that IP requires a state capable of acting but also sufficiently linked to business to acquire the needed information as well as engage it. Much work has looked to move beyond a singular notion of embedded autonomy. The IP literature has long argued that conditionality is central to success but that disciplining the private sector is politically costly. Yet, equally, when states direct economic policy with a heavy

hand, they risk "seeing like a state" and undermining local innovation (Scott 1998). Substantial research has focused on the varied institutions and market structures that shape policymakers' capacity to discipline the private sector (Amsden 1989; Bulfone et al. 2023, 2024; Maggor 2021a,b; Schrank 2017; World Bank 1993) and permit effective coordination and information sharing (Breznitz 2021; Breznitz & Ornston 2013, 2018; Breznitz et al. 2018; Okimoto 1989; Schneider 2015).

Third, what shapes the long-run credibility of IPs? The economic rationales for IPs involve intertemporal processes—commitments to firms that last long enough for them to develop expertise, multi-period infrastructure investments, and institutions that support iterated coordination across the supply chain. The incentives for policymakers to make long-run productive investments or disengage from unproductive ones vary across institutions (Jacobs 2011). While private investors can pursue power-law strategies—investing in multiple firms with the hope that a small number of highly successful investments will compensate for failures—the risk of public backlash from failure can reduce public incentives for such investments (Breznitz & Ornston 2018), making effective policies rare (Taylor 2016). Moreover, IPs, like all policies, have distributive losers who can mobilize against them (e.g., Stokes 2020). Understanding the institutional conditions that allow policymakers to navigate the political costs of uncertainty and create credible commitments to both firms and voters is central to the growing research agenda, in particular regarding green IP (Gazmararian & Tingley 2023).

Since IPs often involve bundles of tools (e.g., incentives and conditions) used repeatedly over time, they create iterative dilemmas of governance. **Figure 1** brings these three features together, pointing to the different types of governance capacities needed across domains. Targeting resources to a particular sector might undercut or enhance the state's ability to discipline it (**Figure 1**, line a). Mobilizing resources for transformative policies increases attention to their costs and benefits, potentially limiting or entrenching them (**Figure 1**, line b). Social–business coalitions can facilitate effective IP but can also co-opt it for less transformative ends (**Figure 1**, line c). Political science research has looked to theorize these governance capacities, looking at the intersection of state–business coalitions with bureaucratic and political institutions that allow growth-producing—rather than stagnating or rent-seeking—paths to emerge. As IP has moved

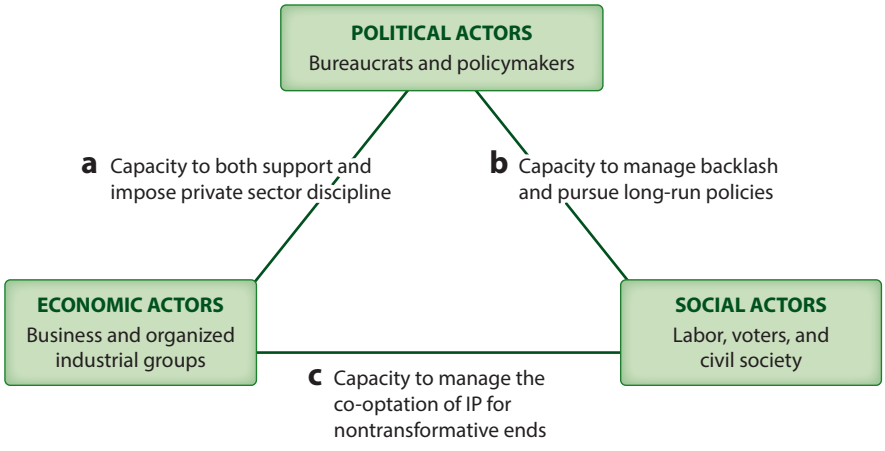

Figure 1

Conceptualizing governance challenges in IP. The figure depicts the overlapping relationships among economic, social, and political actors and points to the varying governance capacities needed to manage them. Abbreviation: IP, industrial policy.

from developmental to more uncertain frontier innovation, and as geopolitical competition has changed, different coalitional and institutional forms shape these intersecting domains.

In the past, most (but not all) IPs focused on learning and updating existing technology to pursue catch-up economic growth through the development of heavy industry within export-oriented sectors. This export orientation provided market-like discipline and served as a metric for success that allowed policymakers to make future resource allocations (Amsden 1989, 2001; Cohen & Zysman 1987; Johnson 1982; Wade 1990; Woo-Cumings 1999; Zysman 1983). Accordingly, the early literature focused on the varied coalitions and institutional capacities that allowed political leaders to both target (**Figure 1**, line c) and discipline (**Figure 1**, line a) successful export sectors and insulate IP from potential losers [e.g., consumers or labor groups (**Figure 1**, line b)].

However, with the rise of globally fragmented production, the scope of modern IPs is much broader. While developmental IPs aimed at diffusing existing technology remain important, many current IPs aim at the technological cutting edge, targeting emergent sectors (e.g., quantum computing, personalized medicine, novel forms of green technology) with substantial uncertainty about the return on investment and fewer clear metrics to provide private sector discipline. Where policymakers are betting on the unknown, the political questions change from asking what governance structures allow mid-term industrial restructuring with clear growth outcomes to asking what structures allow experimentation with high-risk policies and uncertain outcomes (Breznitz & Ornston 2013, 2018; Wong 2011). In this context, successful IPs require coalitions that are more open to policy experimentation (**Figure 1**, line c) and institutional structures that are both more networked with the private sector (**Figure 1**, line a) and more insulated from backlash to failure (**Figure 1**, line b).

With regard to geopolitics, IPs that are more overt, ambitious, and transformative often emerge where political powers perceive that they are losing competitive ground (Bush 1945, Samuels 1994). Conflict with the Soviet Union created coalitions in the United States for early cutting-edge investments in health and military technologies (Block & Keller 2015, Weiss 2014). The rapid growth of East Asia in the 1970s and 1980s focused political rhetoric on Japan as posing a direct threat to American economic dominance, increasing interest in IP (for a review, see Wraight 2024). Today, these same arguments exist regarding China. In contrast to Japan, a democracy and Western ally, current debates point to the threat posed by China as the champion of a different political ideology and its potential to weaponize interdependence (Farrell & Newman 2019). Accordingly, newer debates about IPs harken back to List's [1909 (1841)] view of national economies competing for power with growing concern about the negative impacts of free trade on national security.

For developing countries, which have fewer resources and less capacity to set global rules, IPs have often been constrained. Here, the rise of China as both an alternative global power and one that has made directed investments in developing economies has been both a boon and a limit (Lampton et al. 2020, Shirk 2022, Ye 2020). In both cases, geopolitical competition creates new security coalitions alongside economic ones (**Figure 1**, line c) and changes the visibility (and costs) of policy (**Figure 1**, line b) and the nature of disciplining tools (**Figure 1**, line a).

In the next sections, we examine the literature on IP across four periods: (*a*) work on the developmental and (*b*) neodevelopmental state, (*c*) analysis of IP in the neoliberal period, and (*d*) the more recent attention to IP, particularly green IP. While these works emerged at different points in time, the issues they raise are not fully temporally bound; older developmental questions remain relevant for many contemporary IPs, and current debates about frontier technologies harken back to early postwar debates about moonshot policies. **Table 1** places these works in their broad technological and global context, summarizing how each theorizes sectoral coalitions, the ability of the state to discipline and collaborate with the private sector, and the political incentives for longevity.

Table 1 Outline of the literature

Global environment		Growth paths	
		Developmental learning model	**Frontier innovation model**
Salience	Greater global competition	Developmental state literature ■ Export-oriented coalitions ■ Weberian state capacity ■ Political insulation from domestic policy losers	Contemporary resurgence ■ Security and green coalitions ■ Flexible structures ■ Uncertain longevity
	Lesser global competition	Market-based industrial policy ■ Sector-specific coalitions ■ Weaker capacity for private sector sanctioning ■ Scope for credit claiming varies by type of industrial policy	Networked and hidden states ■ Diverse coalitions across the supply chain ■ Institutions allow flexibility, and coordination is more effective ■ Political insulation allows more risk-taking

FROM THE DEVELOPMENTAL STATE TO THE NETWORKED POLITY

Early IP theorizing centered on the developmental state. This work arose both as a reaction to mainstream neoclassical accounts of development and in response to specific cases of successful state-led development. It theorized IPs as having a particular structural logic in a US-hegemonic global trading system, merging arguments about Weberian models of efficient bureaucracy and economic nationalism.

However, even as this literature was rethinking how to understand developmental strategies, these strategies were changing. In the mid-1990s, in response to both the Asian financial crisis and rising technological innovation, a new literature emerged pointing to the critical importance of networked structures in shaping development. Both the developmental and neodevelopmental literature initially started with a broad structural logic, but as they developed, they moved from singular notions of development and the state to a more disaggregated analysis of coalitions and underlying institutions.

Late Development and Developmental State Theories

Early work on the developmental state drew on Gerschenkron's (1962) seminal analysis of industrialization in late-developing European countries (e.g., France, Germany, Russia, Italy). In *Economic Backwardness in Historical Perspective*, Gerschenkron makes three critical arguments: that economic growth should be positioned within the process of modern nation-state building; that countries follow different paths of industrial development depending on the timing of industrialization; and that state actions, particularly IPs, are critical to growth. Gerschenkron draws on a linear understanding of economic development to argue that while backward countries must compete in product markets defined by the pioneering countries, they have the double advantage of entering known markets and having a clean slate to invest in cutting-edge technologies. To use these advantages, the state, through its planning capability, needs to direct substantial patient capital to enable the emergence of technologically advanced large-scale competitive producers.

Johnson (1982), in his formative study *MITI and the Japanese Miracle*, builds on this logic. Johnson argues that Japan's developmental agency, the Ministry of International Trade and Industry (MITI), acted as a pilot agency that planned growth via its control over foreign capital and access to foreign technology. MITI strategically targeted resources to competitive export

industries, encouraging the entrance and growth of a few competing domestic conglomerates, which it closely monitored for export performance. Hence, Johnson argues, Japan became a plan-rational economy, enabling it to generate an export-oriented catch-up industrialization that produced its postwar economic miracle.

While scholars of the developmental state debated the specific role of MITI (e.g., Freeman 1987; Okimoto 1989; Samuels 1988, 1994), many drew on Gerschenkron's (1962) core insights, developing their logic with regard to IP first in South Korea and Taiwan and later in other Asian states (Amsden 1989, 2001; Amsden & Chu 2003; Cheng 1990; Fields 1995; Haggard 2018; Kohli 2004; Park 2000; Wade 1990; Woo-Cumings 1999). Amsden (1989) characterizes these developmental strategies as shifting from industrialization based on invention and innovation to industrialization based on learning, arguing: "Learning, moreover, has been based on a similar set of institutions" (p. 4).

The institutions that permitted learning via IPs were linked to the bureaucratic state's control over finance, especially foreign currency, which acted as the nervous system for its power and knowledge (Woo-Cumings 1999, Zysman 1983). Through IP, the state shaped productive incentives, allowing actors across the supply chain to coordinate on a rapid movement into heavy industry. In emphasizing the centrality of the state to growth, this research raised new puzzles about it, ultimately questioning a single developmental model.

First, if policies are so effective at producing rapid development, why do only some countries adopt them? In East Asia, there is substantial evidence that ideas mattered: Bureaucratic actors supported domestic economists working with models at odds with mainstream economic theory (Gao 1997, Haggard 2018). Nonetheless, specific social coalitions, linked to the geopolitical position of these states, also underpinned the development of these more expansive IPs.

Doner et al. (2005) compare the experiences of North and Southeast Asia to argue that the developmental state arose in a period of systemic vulnerability. The geopolitical environment meant not only that states had to develop to survive but also that their leaders had to ensure that growth was widely shared to avoid internal challenges to their rule. The result was broad coalitions around export-based developmental strategy. This approach differed from the import-substituting industrialization (ISI) strategies in Latin America, India, Turkey, and elsewhere, where policy elites also pursued development policies (Prebisch 1950). These ISI policies rested on narrower political coalitions that did not aim at economy-wide prosperity but rather at gains to politically affiliated sheltered firms (Adler 1987, Chibber 2003, Mahoney 2010). Schneider (2013) argues that in Latin America, business actors often blocked more egalitarian developmental strategies, mobilizing to maintain access to pools of lower cost labor. The result was that leaders had few incentives and metrics to discipline firms, and policies underwrote lower-productivity sectors.

Second, even where states selected developmental strategies targeting export-competitive sectors, they varied in the extent of private sector discipline. Schrank (2017) finds that hard authoritarian states are more likely to impose strict standards, explaining this effect by pointing to the political difficulty of separating conditions for firms from those for workers. Where workers have more capacity to mobilize, politicians are more hesitant to sanction their employers. However, as the case of democratic Japan shows, imposing conditions on the private sector in a democracy is not impossible (nor are authoritarian regimes unconstrained), with the same finding in Israel during both its ISI and rapid innovation–based eras (Levi-Faur 2001; Maggor 2021a,b). This work on Israel suggests that social coalitions—including with labor—can allow more disciplinary approaches.

Third, historically, many successful IPs imposed tangible costs on some social groups, namely consumers and labor. There is a substantial debate about the role of authoritarian institutions in allowing early developmental strategies (e.g., Geddes 1994). Indeed, both democracies and

nondemocracies engaged in (and failed at) developmental IPs. However, as the literature looked to explicitly theorize how developmental IPs operate under conditions of democratic competition, it raised new questions about when these policies deliver broader gains (i.e., equality) that allow electoral coalitions to persist and when they rely on labor repression or other tactics that undermine them (e.g., Haggard 2018, section 5).

Neodevelopmentalism

The relative economic stagnation of Japan and the newly industrialized countries in Asia toward the end of the 1990s raised new questions about IP, which in turn ushered in new theorizing about the developmental state. Proponents of the neodevelopmental state proposed a restructured approach to understanding state–industry interactions, arguing that for states to initiate successful industrial development, especially in technologically intensive industries, they need to cultivate interaction and a dynamic division of labor with the local industry (Amsden & Chu 2003; Ansell 2000; Calder 1993; Evans 1995; Ó Riain 2004; Samuels 1988, 1994).

This work proposes a less linear model of development and a less fixed model of politics. These scholars argue that increasing global fragmentation in production processes creates new possibilities for countries to target diverse parts of the supply chain. While postwar Japan needed to master a complete set of activities to compete in semiconductors, Taiwan became globally dominant by mastering only their fabrication (Breznitz 2007). Within this environment, IP plays a central role in shaping an economy's competitiveness, but rather than relying on long-term planning and specific forms of sectoral coordination in exports, effective IP emerges from flexible state structures that enable policies to respond to the changing needs of varied industries at different points in global supply chains. The main attribute of a successful developmental state thus lies in its network structure, where different state agencies are deeply connected to different social–industrial–capital networks (Ansell 2000, Ó Riain 2004).

As this literature developed, it looked to theorize the differentiated coalitions and institutions allowing these structures. Breznitz (2007) argues that developmental strategies in Israel, Ireland, and Taiwan, far from drawing on the same social coalitions, built on different ones that targeted different parts of the global value chain. Similarly, Ornston (2012), looking at Denmark, Finland, and Ireland, explains the successful but different paths each took, repurposing old corporatist institutions to develop varied high-tech developmental strategies.

These varied approaches challenged the idea of a singular developmental ideal-type Weberian bureaucracy. While states writ large can face limits in the domain of IP—work on African IP points to the hard limits that a lack of domestic capital places on policy (Whitfield et al. 2015)—pockets of effective state action can exist, even within an overall weak state structure. For instance, McDonnell (2020) draws on the case of Ghana to propose the logic of a "patchwork Leviathan," looking at how effective state action can flourish in contexts not defined by organizational hierarchies or practices associated with Western bureaucracies. Indeed, in many cases, including China, the state is not a clear unit, and many IPs come from regional or local governments (Breznitz & Murphree 2011, Segal 2003, Thun 2006). This finding of the value of more varied and networked structures emerges in studies of not only Latin America, Africa, China, and Israel but also the United States (Block 2008, Block & Keller 2015, Schrank & Kurtz 2005, Schrank & Whitford 2011).

The question, then, is what institutional forms allow these pockets of capacity to emerge, producing IP that is networked but not captured. Answering this question led scholars to examine when developmental agencies can both act independently and have the flexibility to change their policies in step with the needs of specific industries (Breznitz 2021, Breznitz et al. 2018). Schneider (2015) looks at varied agency–corporatist structures in specific sectors in Latin America, examining

when more politically arm's-length (versus connected) agencies have greater success. This work suggests that the combination of sectoral coalitions with agency structures shapes IP outcomes. For instance, Gebreeyesus (2017) argues that in Ethiopia, stronger state–industrial coalitions allowed industrial upgrading in the floriculture sector but not in the metal engineering sector, despite similar institutions.

Neodevelopmental strategies also prompted a new examination of the political durability of IP. The networked literature highlights the centrality of institutions that allow repeated interactions between firms and the state, raising questions about how to insulate those interactions from electoral backlash while also creating accountability. Here, case studies point to some indeterminacy, with pitfalls in both programmatic and clientelistic competition. Appiah & Abdulai (2017) show that in Ghana, electoral competition can lead to substantial turnover in state agencies, as new leaders appoint loyalists, undermining IP longevity. By contrast, Odijie & Onofua (2020), examining the Nigerian cement industry, argue that producers were able to demand subsidies over a long period of time by co-opting opponents, creating continuity but also rent seeking. Questions remain as to how political competition and its different forms intersect with network structures.

In short, the literature theorizing IP as a developmental strategy initially focused on *the* state and *the* market. As it developed, it looked to theorize the programmatic capacity of agencies within the state based on their relationships to varied business and social coalitions supporting or undermining policies in specific sectors.

WITHDRAWAL OF THE STATE?

As political scientists were debating how to understand the more varied coalitional and institutional underpinnings of developmental strategies, these debates were occurring in an increasingly neoliberal global context in which governments were dismantling the tools of state intervention. Even as theorizing on active IP seemingly entered an intellectual winter, research on state–business relations made substantial advances.

In wealthy and middle-income democracies, research on both the visible politics of supporting inefficient businesses in the face of deindustrialization and the quieter politics of ongoing long-term growth-oriented policies offered new insights about IP. At the same time, while global trading rules and changed beliefs limited overt IP globally, IPs emerged as central to China's rapid growth, producing new developmental theorizing.

Collectively, in examining state intervention in an era when it was supposed to be off the agenda, this work theorizes the coalitions and institutions allowing growth-producing policies under conditions of lower global salience. Unlike past work, however, this literature is more fragmented, without a dominant developmental theoretical framework linking the economic logic of IPs to their political articulation.

Protection, Subsidies, and Radical Innovation in the Neoliberal Era

In countries with mature manufacturing sectors, the challenge of structural adjustment to the knowledge economy, combined with perceived or real constraints on state intervention, led some policymakers to repurpose IP for more compensatory and less transformative ends. Work examining these policies flips the puzzle of early developmental state scholarship, asking why policymakers often knowingly provide highly visible rents to firms and engage in unproductive smokestack chasing without anticipated long-run economic payoffs.

Jensen & Malesky (2018) theorize the underlying electoral incentives for the selective provision of firm benefits in an era of greater capital mobility. They argue that subsidies to attract firms to specific locales often do not target market failures and largely provide rents. Competition

across areas can produce inefficient bidding wars (Sobel et al. 2024), increasing land values without positive employment spillovers (Bartik 2020). Nonetheless, attention to policies claiming job creation via subsidies—what Jensen & Malesky (2018) label as "pandering"—is a dominant political strategy, providing short-run tangible electoral payoffs that outweigh future economic benefits from productive investments that politicians cannot capture.

Rickard (2018) argues that politicians' incentives to subsidize firms vary across electoral systems; where industries are spatially concentrated and electoral systems reward this concentration politically—as in plurality systems—politicians have more incentives to "spend to win" (see also McGillivray 2004 on trade). Using the case of fisheries, Rickard (2022) shows that these dynamics lead to not only concentrated subsidies but also spillover into how countries approach international negotiations regarding trade policies. In an era of weaker growth, coalitions demanding compensation rather than transformation can emerge around IPs, pushing funds toward less efficient industries with fewer conditions.

However, more recent work on subsidies suggests more varied paths. Katitas & Pandya (2024) find that real incentives (i.e., direct support, not just tax credits) for foreign direct investment through the American Recovery Act worked as an economic strategy: States receiving more stimulus aid successfully used it to promote job growth. They theorize that market failures around firm location choices do exist and that incentives can provide information, not just rents. The questions are when local electoral coalitions actually coalesce around tools that address market failures (over pandering) and when governments have the capacity to do so.

A distinct European and Latin American literature on corporate welfare also points to the potential for unproductive coalitions to emerge. However, it starts from a less electoral, more structural (Polanyian) premise that states cannot credibly disengage from markets (Bulfone 2023).

In the postwar era, much of the European political economy literature pointed to the central role of IPs in shaping national productive and distributive trajectories (e.g., Hall 1986, Katzenstein 1985, Tyson & Zysman 1983, Zysman 1983). The rise of the European Union and capital market deregulation limited explicit vertical IPs, leading to a more regulatory form of politics (Majone 1999). However, even with restrictions on direct subsidies and protectionism, state involvement in the economy continued. A revisionist literature on the European political economy points to the way in which states repurposed IP throughout the 1990s and 2000s to address institutional constraints: new regulatory forms of IP aimed at creating markets in telecommunications and other sectors (Levi-Faur 1998, Thatcher 2014), carve-outs from EU rules in the process of marketizing utilities (Bulfone 2020), and the restructuring of former state banks to maintain domestic advantages (Massoc 2022).

Sometimes, these processes produced rents. Politicians committed to the dominance of market instruments but governing economies with sluggish growth and weaker countervailing labor power were responsive to lobbying from less competitive firms. Market-based IPs with weak conditionality often rest on a more collusive relationship between the state and (less competitive) business (Hathaway 2020), signaling weaker state capacity (Bulfone et al. 2023). In other cases, low-visibility IP was more productive (e.g., Bruszt & Karas 2020).

To explain the coalitions permitting these varied outcomes, work on growth models has pointed to the role of dominant sectors in shaping economic policy (Baccaro & Pontusson 2016, Hassel & Palier 2021, Lazonick 2009). Building on the Varieties of Capitalism perspective (Hall & Soskice 2001), much theory of firm strategies focuses on how particular institutions create equilibrium competitive strategies rather than theorizing policy per se. The growth models approach argues that national economies rest on growth-oriented economic sectors (e.g., exports, finance, tourism-related sectors), which coalitions of economic and political elites look to preserve through policies. IPs that build on national growth configurations have a broader opt in, making them more durable.

Bohle & Regan (2021), for instance, examine the foreign direct investment–led growth models of Hungary and Ireland, arguing that state–business relationships shaped more manufacturing-oriented and labor cost–sensitive policies in Hungary and more technology-oriented and less labor cost–sensitive investments in Ireland. What delineates these policies from those that Jensen & Malesky (2018) discuss is not just that they target more classic market failures (e.g., coordination across the supply chain) but also that they rely on quieter coalitions in globally competitive sectors. However, limiting rents does not necessarily equate to transformative policies, and the coalitions that allow more effective policies also can produce a strong stability bias, thereby reproducing national economic specialization.

This finding resonates with work outside of Europe. de Gaspi & da Silva (2024), for instance, argue that more transformative and effective IPs have occurred under conditions of greater salience and broader coalitions: In the Brazilian automotive industry, where unions were more mobilized, the state developed IPs that imposed substantial (labor) conditions on subsidized firms, whereas in the animal protein sector, where there were fewer countervailing organizations, IPs provided more rents (see also Ban 2013). Schrank & Kurtz (2005) compare open economy industrial policies in Latin America to past rounds of closed economy ISI policies, arguing that export discipline in successful market-oriented IP can limit rent seeking.

Similar insights emerge from a distinct literature looking to explain variation in IPs targeted at frontier technology, where states face much more uncertainty about the likely success of investment. Works examining directed innovation strategies (Ornston 2018), the cultivation of technological deployment in particular sectors (Anzolin & Benassi 2024), and the growing importance of new financial institutions such as sovereign wealth funds in supporting development (Naqvi 2019, Thatcher & Vlandas 2022) find that state action remains important (but variable) for technological transformation. Here, the falling global salience of IP often allowed policymakers to redeploy investment into high-risk innovative activities but also restricted it to narrow domains.

Indeed, a large body of work in the United States argues that frontier innovation often requires state intervention, which the more hidden developmental components of the US state allowed. Block (2008) draws on the neodevelopmental literature to theorize these dynamics, arguing that the US government, via both the military and the National Institutes of Health, historically engaged in substantial spending, tax breaks, and derisking of private firms, which allowed critical technological development. This developmentalism was possible both because federal government had institutional authority in these sectors and because security concerns permitted stable coalitions to emerge around small, insulated agencies (e.g., the Defense Advanced Research Projects Agency) aimed at supporting pure research while allowing commercialization by private actors (Taylor 2016, Weiss 2014). These strategies were more contested in sectors where social coalitions and political authority were more fragmented, allowing more successful mobilized backlash (e.g., the solar energy sector; see Stokes 2020).

Breznitz & Ornston (2013) argue that being hidden is a necessary political condition for transformative IP in rapid innovation–based industries. They reexamine celebrated innovative success cases, finding that contra the strong and central pilot agencies of the developmental state era, more peripheral agencies, often working with limited resources under the political radar, were critical for allowing high-risk IP. While these agencies sometimes build on existing coordinating institutions (May & Schedelik 2021) or models of capitalism (Thelen 2019), the structures permitting innovative investments also cross them.

Collectively, as this work looked to theorize how policymakers used IP under the conditions of international openness and harmonization of standards, it pointed to two common features. First, new IPs tended to be lower visibility—more regulatory, market compliant, aimed at fixing specific market failures, and governed at an arm's length from the central state. Quiet policies emerged

because of the aforementioned limits on overt IP by global actors and because the uncertainty of success meant that policymakers looked to avoid publicizing failure. Second, IPs that avoided rents and remained credible over time rested on relatively broad coalitions that encompassed productive (often new) firms, moving beyond targeted protection.

Nonetheless, this literature leaves substantial questions as to the institutions delimiting effective policies from ineffective ones (Bulfone 2023, Bulfone et al. 2023). While it points to some common underlying factors across cases, without the defined logic of export-led growth or the emphasis on bureaucratic state structures, there is not a singular model for understanding the political economy of this variation, producing more theoretical indeterminacy about when growth-oriented coalitions emerge and survive.

Rise of China

Even as IP fell in global salience throughout the 1990s and 2000s, China was using it to become the fastest, longest running, and biggest growth miracle in human history. This growth changed both China and the global economy.

China was one of the first countries to start its rapid industrialization as part of the new global system of fragmented production. In targeting export-led catch-up, China's strategy in some respects parallels that of the early East Asian Tigers, but its growth differs substantially from that of the classic developmental state. As China started to open up to global markets in the 1970s, it possessed the world's largest population, with hundreds of millions living in abject poverty, making massive job creation a foremost policy goal. However, it did so under the auspices of a weak post–Cultural Revolution central state. These conditions led to IP much more in tune with the logic of the neodevelopmental state than the early Korean or Japanese approaches.

Until quite recently (e.g., the Made in China 2025 plan of 2015), the Chinese state did not advance a grand vision of the future or detailed IP plans. Deng Xiaoping, China's paramount leader during the opening-up phases, quipped the policy ethos for the first 20 years as "groping for stones to cross the river." This approach referred to a model of development that is acutely aware that it does not have the knowledge of how to reach its strategic goals and hence carefully casts for actions that would slowly move the polity toward them. Incidentally, that model transformed the loci of policy away from the center to the provinces. Until the late 2000s, Chinese central policy consisted largely of declaring policy areas within which provinces could experiment and providing local actors with incentives to do so by allowing them to retain a share of growth revenues. After a set of provincial policies were deemed successful, the center declared them desired policies (Baum 1994, Breznitz & Murphree 2011, Fuller 2016, Guthrie 2002, Huang 2008, Kennedy 2005, Lieberthal & Oksenberg 1988, Naughton 1995, Oi 1992, Shirk 1993). This model of development led to constant deinstitutionalization (Lieberthal 2004), creating an environment where economic actors face structured uncertainty (Breznitz & Murphree 2011) about policy goals and acceptable behaviors.

This developmental path thus raised substantial questions regarding the centrality of credible long-run state commitments (e.g., to property rights) as preconditions for growth. Indeed, unlike the East Asian Tigers, China has not democratized, and on many measures, under Xi Jinping, has moved toward more authoritarian politics (Shih 2022, Shirk 2022). Recent scholarship has examined how this political structure allowed successful sectoral growth (Hsueh 2022), despite extremely high levels of corruption (Ang 2020), and personalized leadership (Shih 2022) in some areas but fewer successes (e.g., around venture capital–based technological investments) in others (Ang et al. 2024).

China's growth and aggressive stances both internally and externally have changed the geopolitical environment (Shirk 2022). China's rapid export-based industrialization led to what was

colloquially known as "the China price" in global trade circles. This approach both put pressure on manufacturing in advanced economies and left fewer openings for developing countries to follow the classic export-led growth model. As China has grown richer, it has become one of the world's biggest markets; developed extensive international investment (notably the Road and Belt Initiative) aiming to expand its vision of global order; and become a dominant power in emerging technologies, such as artificial intelligence, next-generation computing, and green technologies. These shifts have expanded the scope for IPs in the global South (Lampton et al. 2020, Ye 2020) while stimulating competitive demand for it in advanced democracies, rebounding into the current global renaissance of IP.

THE POLITICS OF RAPID INNOVATION IN A CHANGING GLOBAL CONTEXT

In the post–Global Financial Crisis (GFC) period, IP has returned in more visible form (Aiginger & Rodrik 2020, Chang & Andreoni 2020). The International Monetary Fund famously pronounced in 2019 the return of the "policy that shall not be named" (Cherif & Hasanov 2019). While IP never disappeared, contemporary IP involves a turn to new highly visible, often protectionist (trade) and more vertically targeted policies. Far from a return to the developmental state, the current wave of IPs is occurring in a global and technological context that involves new coalitions of actors—security, ecological, and national populists (e.g., Naczyk 2022)—looking to manage interdependencies in sectors as diverse as semiconductors, green technology, natural resources, and health, where investment is both uncertain and highly salient.

In many Western countries, throughout the early 2010s, both a post-GFC challenge to market primacy and an elite and mass political backlash to China's growing economic role (Colantone & Stanig 2018) led to a questioning of a rules-based multilateral trading order and greater attention to IP as a way to support manufacturing workers. In the early 2020s, the emergence of supply chain disruptions during the COVID-19 pandemic—and the subsequent Russian invasion of Ukraine and disruptions to global shipping routes—laid bare the risks of globally fragmented production. These concerns were particularly acute in the semiconductor industry, where dependence on a single Taiwanese company, the Taiwan Semiconductor Manufacturing Company, to manufacture the most advanced chips posed security and technological risks (Miller 2023).

In the United States, these concerns first manifested in more subtle forms of IP and protectionism within the global trading system (Aggarwal & Evenett 2014). In the post-2016 period, the Trump administration took a more aggressive turn, adopting protectionist tariffs. During the COVID-19 pandemic, the administration further enacted proto-IPs through its Operation Warp Speed program to develop mRNA vaccines. This program demonstrated the effectiveness of large-scale IPs in not just promoting vaccine development but also invigorating American industry in multiple sectors (from glass manufacturing to biotech) across multiple regions (Adler 2021).

Post-2020, the Biden administration expanded IP. Throughout the 2010s, parts of the Democratic Party engaged in post-neoliberal rethinking in several domains—from antitrust policy to labor—that fed into the broader "Bidenomics" agenda. Building on COVID-era policies, the administration looked to enact (unsuccessfully) an expansion of social programs like the child tax credit and (successfully) new IP through the CHIPS and Science Act and the Inflation Reduction Act. The latter legislation collectively committed hundreds of billions of dollars to manufacturing, semiconductors, and green technology via tax credits and subsidies. The Trump administration appears positioned to continue with aggressive tariffs and some targeted subsidies, although at the time of writing, the exact character these policies will take remains to be seen.

In the European Union, the move toward more active IPs has been slower and less extensive than in the United States but is growing in momentum. Throughout the period of intensive market

integration in the 1990s and 2000s, the European Union ostensibly avoided supranational IP. As in the United States, these explicit limits often rested on a muddier reality, with regional development funding often operating similarly to IPs in terms of its functions and goals and more hidden developmentalism via the European Investment Bank (Mertens & Thiemann 2019).

However, in the post-GFC period, the European Union also began to consider more active IP. Initially, this action was largely at the fringes of its core activities, with the European Commission maintaining support for austerity throughout the Eurozone crisis. As in the United States, however, in the mid-2010s, it adopted initiatives targeting subsidies to green technology (including automotive and energy), the digital transition, semiconductors, and other strategic sectors, linking these approaches to both changing geopolitical aims and domestic growth (McNamara 2023). Di Carlo & Schmitz (2023) argue that EU agencies moved to more protectionist Europe-first approaches, doing so in ways that build on more networked structures.

Such shifts have emboldened new IP elsewhere. Developing countries, particularly those facing a long-standing middle-income trap, have questioned market-conforming IP, with a resurgence of interest in developmental IPs (Naseemullah 2023). As Madariaga (2017) argues, however, neoliberalism remains sticky, with new IP often layered onto older structures that continue to disperse resources through tax credits and public–private partnerships.

Nonetheless, current IPs are significantly different from both developmental and market-conforming IPs in their politics. In the developmental period, scholars debated the extent to which (soft) labor repression was necessary to enact effective IPs. In the current moment, IPs sometimes involve coalitions explicitly aiming at egalitarian ends (e.g., supplying childcare as a condition for subsidies) or addressing regional inequality. Equally, in the neoliberal era, quieter business–state coalitions were often at the heart of IP, whereas contemporary IPs are bigger, broader, and potentially higher-visibility targets for backlash. A central future research question involves whether the new political alignments of labor, business, local actors, and political parties around IPs will remain stable under conditions of both higher salience and greater uncertainty.

Green IP offers a window into these emerging questions. Beginning in 1990s and 2000s and accelerating in the last decade, many countries began to invest in targeted subsidies and protections for domestic production of green technology: batteries, solar, wind, biofuels, green hydrogen, and so on. Because green IP is explicitly linked to transformative change, there is broad consensus that the state has a significant role as the central coordinator (Zysman & Huberty 2013). Indeed, Rodrik (2014) argues that green policies can help overcome the problem of picking winners, providing a clear coordinating target for investment—where there are both obvious market failures and clear gains from coordination and large-scale infrastructural investments.

Despite this general attraction to green IPs, their actual use and longevity has varied. While early scholarship on the politics of green policies interpreted them through the lens of a collective action problem, over time the literature has shifted to seeing climate policies as a conflict among mobilized interests (Aklin & Mildenberger 2020, Colgan et al. 2021, Meckling et al. 2015). This work raises the dual question of what coalitions allow the state to promote rapid (domestic) and effective green technology investments and insulate it from potential countermobilization (Pahle et al. 2018).

Gazmararian & Tingley (2023) conceptualize these challenges in terms of questions of intertemporal policy credibility. They argue that much of the technology needed for rapid decarbonization already exists but that there often is heavy resistance to adoption, little investment in complementary skills, and proponents who are politically isolated. These outcomes emerge because states lack the ability to make credible commitments to the firms and voters who would benefit from new IPs and to compensate those working in energy-intensive sectors for whom decarbonization presents a more direct economic threat. Investment in novel

technology is equally challenging: Because of the potentially high political costs of failure, policymakers are hesitant to make risky bets. The US Department of Energy, for instance, faced substantial political costs following the bankruptcy of the firm Solyndra in 2011 after it received $535 million in loans during the Obama administration, reducing its willingness to make further investments. Theorizing the scope for both low- and high-tech IP requires thinking about what shapes political incentives under conditions of both mobilized antagonists and high political salience.

One line of work has looked at coalitions for investment in green IP, theorizing how its coalitional structure—involving ecological groups (Meckling et al. 2015, Nahm 2021) and often stronger public support (Abou-Chadi et al. 2024)—intersects with existing domestic firm structures. Allan & Nahm (2025) conceptualize the politics of green IP as a function of the degree of technological uncertainty and global integration, pointing to different targets and agents of change that emerge based on the configuration of these two dimensions. Some domestic actors and institutions will remain more able to address uncertain targets and varied parts of the global supply chain than others. As competition with China has increased, particularly in electric vehicles, states have increasingly used announcements about green IP to signal their competitive intents in particular sectors, leading to a potential trading-up dynamic of international competition (Meckling & Nahm 2019).

Another line of work looks at the dynamics of political backlash. Finnegan (2022) argues that institutions that allow either compensation or political insulation support more extensive policy change. While the public generically supports green IPs, groups of voters (e.g., workers in energy-intensive sectors) and sectoral interest groups can mobilize against them (Stokes 2020, Voeten 2025). Policies that either compensate these voters or groups, which are more likely in countries with corporatist systems, or insulate policymakers by removing decisions from the direct public sphere can allow more decisive and credible action.

Gazmararian & Tingley (2023) bring these insights to the question of policy design, asking what types of policies communicate longevity in ways that allow mobilized and supportive constituencies to emerge. As Schrank (2021) reminds us, it was while studying IP, not social policy, that Schattschneider (1935, p. 288) observed that "new policies create a new politics." The question of policy feedback from IPs remains a nascent area of research. It remains an open question as to whether more targeted local policies are more durable than broad universal policies or whether the dynamics look like those in the welfare state. But making policies harder to reverse is central not only to their longevity but also to securing coalitions to get policies off the ground in the first place (Gazmararian & Tingley 2023).

Our understanding of green IP is intimately tied to the debate over what role the state should play more generally (Mazzucato 2015). Revitalizing a long line of work thinking about IP through the lens of risk and uncertainty (e.g., Arrow 1962), Gabor (2021) argues that green policies constitute the emergence of a new derisking state. In underwritten costly risks for the private sector, from infrastructure to research and development, she argues that there is an emerging post-Washington consensus model of development that works through policies that change the rates of return for private capital, looking to enhance investability as a core mechanism for shaping markets. Whether we are entering a new developmental period of IP, with a new economic role for IP with distinct political dynamics, is the central question for future political science research.

CONCLUSION

This article examined the literature on IP through a series of phases. Given the relative success of highly structured manufacturing-based export-oriented strategies—relative to ISI—in the early

phase of the developmental state literature, scholars of IP had a clear puzzle to examine: What explained the structure of domestic (and international) coalitions allowing policymakers to select a particular policy path, and what explained the institutional and competitive structures that allowed these policies to succeed? The result was a focus on both a particular set of social coalitions that permitted investment in heavy industry and state structures that allowed policymakers sufficient capacity to achieve it.

With the rise of more globally fragmented systems of production, the dismantling of many tools of domestic IP, and growing limitations on trade protection, IPs for a long time became both more diverse and less overt. Without a defined economic puzzle (the adoption of export-oriented manufacturing strategies) or institutional ones (the variation in Weberian bureaucratic state structures), the academic analysis of IP fragmented. The result was that the political science literature looked to analyze variation in state–business coalitions, forms of state capacity that extended beyond traditional Weberian structures, and the competitive incentives for long-term policymaking, but without an integrated framework for applying this analysis to macro-level variation in IP or even labeling the object of their study as IP.

With the rise of new IP tools in the context of the post-GFC period, the questioning of neoliberalism, increasing support for trade protectionism in response to China's growing role, and the emergence of new coalitions around green IP, old questions have reemerged. When and where do growth-oriented economic coalitions emerge? How do they prevent rent seeking? Does new electoral visibility support or undermine these politics? New questions have emerged, as well. Can well-designed policy build long-run support? Can economic coalitions achieve egalitarian goals? However, both sets of questions are emerging in a world where production remains fragmented, networks are key to growth paths, and the global trading order is in flux.

Understanding variation in specific IPs around green policies, semiconductors, and new manufacturing as well as shifts in the global IP environment requires new synthetic theorizing that pulls together older questions about overlapping coalitions, capacity, and systems of credibility while placing them in the current context. Current IPs claim to offer a win–win–win—economic security, revitalized local manufacturing, and better conditions for workers. Nonetheless, the longevity of the broad coalitions underpinning these wins remains uncertain. Indeed, the rise of populist parties questioning the state and scientific expertise and taking a more nationalist economic stance raises an alternative vision for IP. Political science research that analyzes how different coalitions emerge across varied parts of the supply chain, what kinds of institutions permit risk-taking, and whether the state can enforce the forms of conditions and reciprocity with the private sector under these new conditions remains central.

DISCLOSURE STATEMENT

The authors are not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review.

ACKNOWLEDGMENTS

We would like to thank the *Annual Review of Political Science* Editorial Committee, Dustin Tingley, Fabio Bulfone, Erez Maggor, Stephanie Rickard, Andrew Schrank, John Zysman, Darius Ornston, the participants of the Consortium on the American Political Economy summer school, and the members of the Canadian Institute for Advanced Research Innovation, Equity and the Future of Prosperity group for providing feedback and support in writing this article. All errors are our own.

LITERATURE CITED

Abou-Chadi T, Jansen J, Kollberg M, Redeker N. 2024. *Debunking the backlash - uncovering European voters' climate preferences*. Policy Brief, Jacques Delors Cent., Berlin, Ger. **https://www.delorscentre.eu/fileadmin/2_Research/1_About_our_research/2_Research_centres/6_Jacques_Delors_Centre/Publications/20240307_Debunking_the_Backlash_Abou-Chadi_Janssen_Kollberg_Redeker.pdf**

Adler D. 2021. Inside operation warp speed: a new model for industrial policy. *Am. Aff.* 5(2):3–32

Adler E. 1987. *The Power of Ideology: The Quest for Technological Autonomy in Argentina and Brazil*. Berkeley, CA: Univ. Calif. Press

Aggarwal VK, Evenett SJ. 2014. Do WTO rules preclude industrial policy? Evidence from the global economic crisis. *Bus. Politics* 16(4):481–509

Aiginger K, Rodrik D. 2020. Rebirth of industrial policy and an agenda for the twenty-first century. *J. Ind. Compet. Trade* 20:189–207

Aklin M, Mildenberger M. 2020. Prisoners of the wrong dilemma: why distributive conflict, not collective action, characterizes the politics of climate change. *Glob. Environ. Politics* 20(4):4–27

Allan BB, Nahm J. 2025. Strategies of green industrial policy: how states position firms in global supply chains. *Am. Political Sci. Rev.* 119(1):420–34

Amsden AH. 1989. *Asia's Next Giant: South Korea and Late Industrialization*. New York: Oxford Univ. Press

Amsden AH. 2001. *The Rise of "The Rest": Challenges to the West from Late Industrializing Economies*. Oxford, UK: Oxford Univ. Press

Amsden AH, Chu W-W. 2003. *Beyond Late Development: Taiwan's Upgrading Policies*. Cambridge, MA: MIT Press

Ang YY. 2020. *China's Gilded Age: The Paradox of Economic Boom and Vast Corruption*. Cambridge, UK: Cambridge Univ. Press

Ang YY, Jia N, Yang B, Huang KG. 2024. China's low-productivity innovation drive: evidence from patents. *Comp. Political Stud.* 57(12):2011–45

Ansell C. 2000. The networked polity: regional development in Western Europe. *Governance* 13(2):279–91

Anzolin G, Benassi C. 2024. How do countries shift their export specialization? The role of technological capabilities and industrial policy in Ireland, Spain and Sweden (1995–2018). *Socio-Econ. Rev.* 22(4):1811–41

Appiah D, Abdulai A-G. 2017. *Competitive clientelism and the politics of core public sector reform in Ghana*. ESID Work. Pap. 82, Eff. States Incl. Dev. Res. Cent., Manchester, UK. **https://assets.publishing.service.gov.uk/media/590357b3ed915d06ac0002be/esid_wp_82_appiah_abdulai.pdf**

Arrow KJ. 1962. Economic welfare and the allocation of resources for invention. In *The Rate and Direction of Inventive Activity: Economic and Social Factors*, ed. RR Nelson, pp. 609–25. Princeton, NJ: Princeton Univ. Press

Baccaro L, Pontusson J. 2016. Rethinking comparative political economy: the growth model perspective. *Politics Soc.* 44(2):175–207

Ban C. 2013. Brazil's liberal neo-developmentalism: new paradigm or edited orthodoxy? *Rev. Int. Political Econ.* 20(2):298–331

Bartik TJ. 2020. Using place-based jobs policies to help distressed communities. *J. Econ. Perspect.* 34(3):99–127

Baum R. 1994. *Burying Mao: Chinese Politics in the Age of Deng Xiaoping*. Princeton, NJ: Princeton Univ. Press

Block F. 2008. Swimming against the current: the rise of a hidden developmental state in the United States. *Politics Soc.* 36(2):169–206

Block F, Keller MR. 2015. *State of Innovation: The U.S. Government's Role in Technology Development*. New York: Routledge

Bohle D, Regan A. 2021. The comparative political economy of growth models: explaining the continuity of FDI-led growth in Ireland and Hungary. *Politics Soc.* 49(1):75–106

Breznitz D. 2007. *Innovation and the State: Political Choice and Strategies for Growth in Israel, Taiwan, and Ireland*. New Haven, CT: Yale Univ. Press

Breznitz D. 2021. *Innovation in Real Places: Strategies for Prosperity in an Unforgiving World*. New York: Oxford Univ. Press

Breznitz D, Murphree M. 2011. *Run of the Red Queen: Government, Innovation, Globalization, and Economic Growth in China*. New Haven, CT: Yale Univ. Press

Breznitz D, Ornston D. 2013. The revolutionary power of peripheral agencies: explaining radical policy innovation in Finland and Israel. *Comp. Political Stud.* 46(10):1219–45

Breznitz D, Ornston D. 2018. The politics of partial success: fostering innovation in innovation policy in an era of heightened public scrutiny. *Socio-Econ. Rev.* 16(4):721–41

Breznitz D, Ornston D, Samford S. 2018. Mission critical: the ends, means, and design of innovation agencies. *Ind. Corp. Chang.* 27(5):883–96

Bruszt L, Karas D. 2020. Diverging developmental strategies beyond "lead sectors" in the EU's periphery: the politics of developmental alliances in the Hungarian and Polish dairy sectors. *Rev. Int. Political Econ.* 27(5):1020–40

Bulfone F. 2020. New forms of industrial policy in the age of regulation: a comparison of electricity and telecommunications in Italy and Spain. *Governance* 33(1):93–108

Bulfone F. 2023. Industrial policy and comparative political economy: a literature review and research agenda. *Compet. Chang.* 27(1):22–43

Bulfone F, Ergen T, Kalaitzake M. 2023. No strings attached: corporate welfare, state intervention, and the issue of conditionality. *Compet. Chang.* 27(2):253–76

Bulfone F, Ergen T, Maggor E. 2024. *The political economy of conditionality and the new industrial policy*. MPIfG Discuss. Pap. 24/6, Max Planck Inst. Study Soc., Cologne, Ger. **https://pure.mpg.de/rest/items/item_3612897_2/component/file_3612917/content**

Bush V. 1945. *Science, The Endless Frontier*. Washington, DC: U. S. Gov. Print. Off.

Calder KE. 1993. *Strategic Capitalism: Private Business and Public Purpose in Japanese Industrial Finance*. Princeton, NJ: Princeton Univ. Press

Chang H-J, Andreoni A. 2020. Industrial policy in the 21st century. *Dev. Chang.* 51(2):324–51

Cheng T-J. 1990. Political regimes and developmental strategies: South Korea and Taiwan. In *Manufacturing Miracles: Paths of Industrialization in Latin America and East Asia*, ed. G Gereffi, DL Wyman, pp. 139–78. Princeton, NJ: Princeton Univ. Press

Cherif R, Hasanov F. 2019. *The return of the policy that shall not be named: principles of industrial policy*. Work. Pap. 2019/074, Int. Monet. Fund, Washington, DC

Chibber V. 2003. *Locked in Place: State-Building and Late Industrialization in India*. Princeton, NJ: Princeton Univ. Press

Cohen SS, Zysman J. 1987. *Manufacturing Matters: The Myth of the Post-Industrial Economy*. New York: Basic Books

Colantone I, Stanig P. 2018. The trade origins of economic nationalism: import competition and voting behavior in Western Europe. *Am. J. Political Sci.* 62(4):936–53

Colgan JD, Green JF, Hale TN. 2021. Asset revaluation and the existential politics of climate change. *Int. Organ.* 75(2):586–610

Criscuolo C, Díaz L, Lalanne G, Guillouet L, van de Put CÉ, et al. 2023. *Quantifying industrial strategy across nine OECD countries*. OECD Sci. Technol. Ind. Policy Pap. 150, Organ. Econ. Coop. Dev., Paris. **https://www.oecd.org/en/publications/quantifying-industrial-strategies-across-nine-oecd-countries_5f2dcc8e-en.html**

de Gaspi RH, da Silva PP. 2024. The sectoral politics of industrial policy making in Brazil: a Polanyian interpretation. *Dev. Chang.* 55(3):398–428

Di Carlo D, Schmitz L. 2023. Europe first? The rise of EU industrial policy promoting and protecting the single market. *J. Eur. Public Policy* 30(10):2063–96

Doner RF, Ritchie BK, Slater D. 2005. Systemic vulnerability and the origins of developmental states: Northeast and Southeast Asia in comparative perspective. *Int. Organ.* 59(2):327–61

Donnelly S. 2024. Political party competition and varieties of US economic nationalism: trade wars, industrial policy and EU-US relations. *J. Eur. Public Policy* 31(1):79–103

Evans PB. 1995. *Embedded Autonomy: States and Industrial Transformation*. Princeton, NJ: Princeton Univ. Press

Evenett S, Jakubik A, Martín F, Ruta M. 2024. The return of industrial policy in data. *World Econ.* 47(7):2762–88

Farrell H, Newman AL. 2019. Weaponized interdependence: how global economic networks shape state coercion. *Int. Secur.* 44(1):42–79
Fields KJ. 1995. *Enterprise and the State in Korea and Taiwan*. Ithaca, NY: Cornell Univ. Press
Finnegan JJ. 2022. Institutions, climate change, and the foundations of long-term policymaking. *Comp. Political Stud.* 55(7):1198–235
Freeman C. 1987. *Technology Policy and Economic Performance: Lessons from Japan*. London: Pinter Publ.
Fuller DB. 2016. *Paper Tigers, Hidden Dragons: Firms and the Political Economy of China's Technological Development*. New York: Oxford Univ. Press
Gabor D. 2021. The Wall Street Consensus. *Dev. Chang.* 52(3):429–59
Gao B. 1997. *Economic Ideology and Japanese Industrial Policy: Developmentalism from 1931 to 1965*. New York: Cambridge Univ. Press
Gazmararian AF, Tingley D. 2023. *Uncertain Futures: How to Unlock the Climate Impasse*. New York: Cambridge Univ. Press
Gebreeyesus M. 2017. A natural experiment of industrial policy: floriculture and the metal and engineering industries in Ethiopia. In *The Practice of Industrial Policy: Government–Business Coordination in Africa and East Asia*, ed. J Page, F Tarp, pp. 191–210. Oxford, UK: Oxford Univ. Press
Geddes B. 1994. Challenging the conventional wisdom. *J. Democr.* 5(4):104–18
Gerschenkron A. 1962. *Economic Backwardness in Historical Perspective*. Cambridge, MA: Belknap Press
Guthrie D. 2002. *Dragon in a Three-Piece Suit: The Emergence of Capitalism in China*. Princeton, NJ: Princeton Univ. Press
Haggard S. 2018. *Developmental States*. Cambridge, UK: Cambridge Univ. Press
Hall PA. 1986. *Governing the Economy: The Politics of State Intervention in Britain and France*. New York: Oxford Univ. Press
Hall PA, Soskice D. 2001. An introduction to varieties of capitalism. In *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*, ed. PA Hall, D Soskice, pp. 1–70. Oxford, UK: Oxford Univ. Press
Hassel A, Palier B. 2021. *Growth and Welfare in Advanced Capitalist Economies: How Have Growth Regimes Evolved?* Oxford, UK: Oxford Univ. Press
Hathaway T. 2020. Neoliberalism as corporate power. *Compet. Chang.* 24(3–4):315–37
Hsueh R. 2022. *Micro-Institutional Foundations of Capitalism: Sectoral Pathways to Globalization in China, India, and Russia*. Cambridge, UK: Cambridge Univ. Press
Huang Y. 2008. *Capitalism with Chinese Characteristics: Entrepreneurship and the State*. Cambridge, UK: Cambridge Univ. Press
Jacobs AM. 2011. *Governing for the Long Term: Democracy and the Politics of Investment*. Cambridge, UK: Cambridge Univ. Press
Jensen NM, Malesky EJ. 2018. *Incentives to Pander: How Politicians Use Corporate Welfare for Political Gain*. Cambridge, UK: Cambridge Univ. Press
Johnson C. 1982. *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925–1975*. Stanford, CA: Stanford Univ. Press
Juhász R, Lane N, Oehlsen E, Pérez VC. 2023. *The who, what, when, and how of industrial policy: a text-based approach*. STEG Work. Pap. 050, Struct. Transform. Econ. Growth, London. **https://steg.cepr.org/sites/default/files/2023-01/WP050%20JuhászLaneOehlsenPérez%20TheWhoWhatWhenAndHowOfIndustrialPolicy.pdf**
Juhász R, Lane N, Rodrik D. 2024. The new economics of industrial policy. *Annu. Rev. Econ.* 16:213–42
Katitas A, Pandya S. 2024. Investment incentives attract foreign direct investment: evidence from the great recession. *Public Choice* 200:323–45
Katzenstein PJ. 1985. *Small States in World Markets: Industrial Policy in Europe*. Ithaca, NY: Cornell Univ. Press
Kennedy S. 2005. *The Business of Lobbying in China*. Cambridge, MA: Harvard Univ. Press
Kohli A. 2004. *State-Directed Development: Political Power and Industrialization in the Global Periphery*. Cambridge, UK: Cambridge Univ. Press
Lampton D, Ho S, Kuik C-C. 2020. *Rivers of Iron Railroads and Chinese Power in Southeast Asia*. Oakland, CA: Univ. Calif. Press
Lazonick W. 2009. *Sustainable Prosperity in the New Economy: Business Organization and High-Tech Employment in the United State*. Kalamazoo, MI: W. E. Upjohn Inst. Employ. Res.

Levi-Faur D. 1998. The competition state as a neomercantilist state: understanding the restructuring of national and global telecommunications. *J. Socio-Econ.* 27(6):665–86
Levi-Faur D. 2001. *The Visible Hand: State Directed Industrialization in Israel*. Jerusalem: Yad Ben-Zvi Press
Lieberthal K. 2004. *Governing China: From Revolution Through Reforms*. New York: W. W. Norton & Co. 2nd ed.
Lieberthal K, Oksenberg M. 1988. *Policy Making in China: Leaders, Structures, and Processes*. Princeton, NJ: Princeton Univ. Press
List F. 1909 (1841). *The National System of Political Economy*. London: Longmans, Green and Co.
Madariaga A. 2017. Mechanisms of neoliberal resilience: comparing exchange rates and industrial policy in Chile and Estonia. *Socio-Econ. Rev.* 15(3):637–60
Maggor E. 2021a. The politics of innovation policy: building Israel's "neo-developmental" state. *Politics Soc.* 49(4):451–87
Maggor E. 2021b. Sources of state discipline: lessons from Israel's developmental state, 1948–1973. *Socio-Econ. Rev.* 19(2):553–81
Mahoney J. 2010. *Colonialism and Postcolonial Development: Spanish America in Comparative Perspective*. Cambridge, UK: Cambridge Univ. Press
Majone G. 1999. The regulatory state and its legitimacy problems. *West Eur. Politics* 22(1):1–24
Massoc EC. 2022. Banks' structural power and states' choices on what structurally matters: the geo-economic foundations of state priority toward banking in France, Germany, and Spain. *Politics Soc.* 50(4):599–629
May C, Schedelik M. 2021. Comparative capitalism and innovation policy: complementarities and comparative institutional advantage. *J. Econ. Policy Reform* 24(4):456–71
Mazzucato M. 2015. *The Entrepreneurial State: Debunking Public Versus Private Sector Myths*. London: Anthem Press
McDonnell EM. 2020. *Patchwork Leviathan: Pockets of Bureaucratic Effectiveness in Developing States*. Princeton, NJ: Princeton Univ. Press
McGillivray F. 2004. *Privileging Industry: The Comparative Politics of Trade and Industrial Policy*. Princeton, NJ: Princeton Univ. Press
McNamara KR. 2023. Transforming Europe? The EU's industrial policy and geopolitical turn. *J. Eur. Public Policy* 31(9):2371–96
Meckling J, Kelsey N, Biber E, Zysman J. 2015. Winning coalitions for climate policy. *Science* 349(6253):1170–71
Meckling J, Nahm J. 2019. The politics of technology bans: industrial policy competition and green goals for the auto industry. *Energy Policy* 126:470–79
Mertens D, Thiemann M. 2019. Building a hidden investment state? The European Investment Bank, national development banks and European economic governance. *J. Eur. Public Policy* 26(1):23–43
Miller C. 2023. *Chip War: The Fight for the World's Most Critical Technology*. New York: Scribner
Naczyk M. 2022. Taking back control: comprador bankers and managerial developmentalism in Poland. *Rev. Int. Political Econ.* 29(5):1650–74
Nahm J. 2021. *Collaborative Advantage: Forging Green Industries in the New Global Economy*. New York: Oxford Univ. Press
Naqvi N. 2019. Renationalizing finance for development: policy space and public economic control in Bolivia. *Rev. Int. Political Econ.* 28(3):447–78
Naseemullah A. 2023. The political economy of national development: a research agenda after neoliberal reform? *World Dev.* 168:106269
Naughton B. 1995. *Growing out of the Plan: Chinese Economic Reform, 1978–1993*. Cambridge, UK: Cambridge Univ. Press
Noble GW. 1998. *Collective Action in East Asia: How Ruling Parties Shape Industrial Policy*. Ithaca, NY: Cornell Univ. Press
Ó Riain S. 2004. *The Politics of High-Tech Growth: Developmental Network States in the Global Economy*. New York: Cambridge Univ. Press
Odijie ME, Onofua AO. 2020. Political origin and persistence of industrial policy in Africa. *Globalizations* 17(6):974–89

Oi JC. 1992. Fiscal reform and the economic foundation of local state corporatism in China. *World Politics* 45(1):99–126
Okimoto DI. 1989. *Between MITI and the Market: Japanese Industrial Policy for High Technology*. Stanford, CA: Stanford Univ. Press
Oqubay AO. 2015. *Made in Africa: Industrial Policy in Ethiopia*. Oxford, UK: Oxford Univ. Press
Oqubay AO, Cramer C, Chang H-J, Kozul-Wright R, eds. 2020. *The Oxford Handbook of Industrial Policy*. Oxford, UK: Oxford Univ. Press
Ornston D. 2012. *When Small States Make Big Leaps: Institutional Innovation and High-Tech Competition in Western Europe*. Ithaca, NY: Cornell Univ. Press
Ornston D. 2018. *Good Governance Gone Bad: How Nordic Adaptability Leads to Excess*. Ithaca, NY: Cornell Univ. Press
Pahle M, Burtraw D, Flachsland C, Kelsey N, Biber E, et al. 2018. Sequencing to ratchet up climate policy stringency. *Nat. Clim. Chang.* 8(10):861–67
Park PH. 2000. A reflection on the East Asian developmental model: comparison of the South Korean and Taiwanese experiences. In *The East Asian Development Model: Economic Growth, Institutional Failure and the Aftermath of the Crisis*, ed. F-J Richter, pp. 141–68. London: Macmillan Press
Prebisch R. 1950. *The economic development of Latin America and its principal problems*. Rep., U. N. Dept. Econ. Aff., Lake Success, NY
Rickard SJ. 2018. *Spending to Win: Political Institutions, Economic Geography, and Government Subsidies*. New York: Cambridge Univ. Press
Rickard SJ. 2022. Interests, institutions, and the environment: an examination of fisheries subsidies. *Int. Stud. Q.* 66(2):sqac003
Robinson JA. 2009. Industrial policy and development: a political economy perspective. In *Annual World Bank Conference on Development Economics 2010, Global: Lessons from East Asia and the Global Financial Crisis*, ed. J Yifu Lin, B Pleskovic, pp. 61–79. Washington, DC: World Bank
Rodrik D. 2014. Green industrial policy. *Oxford Rev. Econ. Policy* 30(3):469–91
Samuels RJ. 1988. *The Business of the Japanese State: Energy Markets in Comparative and Historical Perspective*. Ithaca, NY: Cornell Univ. Press
Samuels RJ. 1994. *"Rich Nation Strong Army": National Security and the Technological Transformation of Japan*. Ithaca, NY: Cornell Univ. Press
Schattschneider EE. 1935. *Politics, Pressures and the Tariff: A Study of Free Private Enterprise in Pressure Politics, as Shown in the 1929–1930 Revision of the Tariff*. New York: Prentice-Hall
Schneider BR. 2013. *Hierarchical Capitalism in Latin America: Business, Labor, and the Challenges of Equitable Development*. Cambridge, UK: Cambridge Univ. Press
Schneider BR. 2015. *Designing Industrial Policy in Latin America: Business-State Relations and the New Developmentalism*. New York: Springer
Schrank A. 2017. The political economy of performance standards: automotive industrial policy in comparative historical perspective. *J. Dev. Stud.* 53(12):2029–49
Schrank A. 2021. Design principles for US industrial policy. *Issues Sci. Technol.* 38(4):79–85
Schrank A, Kurtz M. 2005. Credit where credit is due: open economy industrial policy and export diversification in Latin America and the Caribbean. *Policy Soc.* 33(1):671–702
Schrank A, Whitford J. 2011. The anatomy of network failure. *Sociol. Theory* 29(3):151–77
Scott JC. 1998. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven, CT: Yale Univ. Press
Segal A. 2003. *Digital Dragon: High-Technology Enterprises in China*. Ithaca, NY: Cornell Univ. Press
Shih VC. 2022. *Coalitions of the Weak: Elite Politics in China from Mao's Stratagem to the Rise of Xi*. Cambridge, UK: Cambridge Univ. Press
Shirk SL. 1993. *The Political Logic of Economic Reform in China*. Berkeley, CA: Univ. Calif. Press
Shirk SL. 2022. *Overreach: How China Derailed Its Peaceful Rise*. New York: Oxford Univ. Press
Sobel RS, Wagner GA, Calcagno PT. 2024. The political economy of state economic development incentives: a case of rent extraction. *Econ. Politics* 36(1):104–51
Stokes LC. 2020. *Short Circuiting Policy: Interest Groups and the Battle over Clean Energy and Climate Policy in the American States*. New York: Oxford Univ. Press

Taylor MZ. 2016. *The Politics of Innovation: Why Some Countries Are Better Than Others at Science and Technology*. New York: Oxford Univ. Press
Thatcher M. 2014. From old to new industrial policy via economic regulation. *Riv. Regol. Mercat*. 2:6–22
Thatcher M, Vlandas T. 2022. *Foreign States in Domestic Markets: Sovereign Wealth Funds and the West*. Oxford, UK: Oxford Univ. Press
Thelen K. 2019. Transitions to the knowledge economy in Germany, Sweden, and the Netherlands. *Comp. Politics* 51(2):295–315
Thun E. 2006. *Changing Lanes in China: Foreign Direct Investment, Local Governments, and Auto Sector Development*. Cambridge, UK: Cambridge Univ. Press
Tyson L, Zysman J. 1983. American industry in international competition. In *American Industry in International Competition: Government Policies and Corporate Strategies*, ed. J Zysman, L Tyson, pp. 15–59. Ithaca, NY: Cornell Univ. Press
Voeten E. 2025. The energy transition and support for the radical right: evidence from the Netherlands. *Comp. Political Stud*. 58(2):394–428
Wade R. 1990. Industrial policy in East Asia: Does it lead or follow the market? In *Manufacturing Miracles: Paths of Industrialization in Latin America and East Asia*, ed. G Gereffi, DL Wyman, pp. 231–66. Princeton, NJ: Princeton Univ. Press
Warwick K. 2013. *Beyond industrial policy: emerging issues and new trends*. OECD Sci. Technol. Ind. Policy Pap. 2, OECD, Paris. **https://www.oecd.org/en/publications/beyond-industrial-policy_5k4869clw0xp-en.html**
Weiss L. 2014. *America Inc.? Innovation and Enterprise in the National Security State*. Ithaca, NY: Cornell Univ. Press
Whitfield L, Therkildsen O, Buur L, Kjær AM. 2015. *The Politics of African Industrial Policy: A Comparative Perspective*. New York: Cambridge Univ. Press
Wong J. 2011. *Betting on Biotech: Innovation and the Limits of Asia's Developmental State*. Ithaca, NY: Cornell Univ. Press
Woo-Cumings M. 1999. *The Developmental State*. Ithaca, NY: Cornell Univ. Press
World Bank. 1993. *The East Asian Miracle: Economic Growth and Public Policy*. New York: Oxford Univ. Press
Wraight T. 2024. Rethinking the American industrial policy debate: the political significance of a losing idea. *J. Policy Hist.* 36(2):191–214
Ye M. 2020. *The Belt Road and Beyond State-Mobilized Globalization in China: 1998–2018*. Cambridge, UK: Cambridge Univ. Press
Zysman J. 1983. *Governments, Markets, and Growth: Financial Systems and the Politics of Industrial Change*. Ithaca, NY: Cornell Univ. Press
Zysman J, Huberty M. 2013. *Can Green Sustain Growth? From the Religion to the Reality of Sustainable Prosperity*. Stanford, CA: Stanford Univ. Press