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THE REVIVAL OF INDUSTRIAL POLICY:
Insights from the United States Experience

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INTRODUCTION

Despite previous predictions of its demise, industrial policy has made a global comeback. There is growing skepticism regarding the effectiveness of free markets alone in addressing economic challenges, and, in the face of numerous shocks, the role of government support for firms and strategic industries is being reevaluated. Karl Aiginger and Dani Rodrik argue that, in developing economies, this revival is attributable to a pushback against market fundamentalism, prompted by the harsh economic and human consequences of neoliberal policies[1]. But the current resurgence of industrial policy is not limited to the developing world. Indeed, advanced economies face similar circumstances, exacerbated by the insurgence of a new form of power competition primarily centered around economic security.

This is a compelling new trend to investigate, especially given that in most of the economies involved, the concept of industrial policy has historically been tainted with a bad reputation among policymakers and academics alike. Neoliberal sentiment is particularly pronounced in the United States, widely regarded as a leading advocate against all forms of excessive government intervention in the economy. Indeed, American public rhetoric has consistently downplayed or even outright rejected the idea of resorting to industrial policy measures. Due to the nation's strong preference for free markets – at least on paper – government involvement in production dynamics has been labelled as nothing more than an unwelcome intrusion. Nonetheless, recent legislative endeavors

[1] Karl Aiginger and Dani Rodrik, "Rebirth of Industrial Policy and an Agenda for the Twenty-First Century," *Journal of Industry, Competition and Trade*, Vol. 20, Issue 2, no 1 (January 2020): 189–207, https://doi.org/10.1007/s10842-019-00322-3.

suggest a potential shift in American policymaking. Industrial policy is no longer taboo in the United States; rather, it has become a central feature of the so-called "Bideneconomics."[2] Contrary to neoliberal economic wisdom, the country is increasingly accepting the role and perhaps even the necessity of industrial policy.

Thus, this thesis seeks to answer the broad research question: "*How can the resurgence of industrial policy, particularly in the American context, be understood and evaluated in the context of evolving international economic dynamics and shifting geopolitical landscapes*?"

The thesis is organized into three chapters to comprehensively address the subject matter.

The first chapter addresses crucial theoretical aspects, beginning with an overview of the ongoing definitional debate over the term "industrial policy" in Section 1.1. It highlights how the complexities of the topic start precisely from the absence of a formal and unified theoretical corpus to guide the analysis. Section 1.2 explores the evolution and debates surrounding industrial policy from a historical point of view. Regional experiences are analyzed to underscore the ongoing discussion over the efficacy of interventionist measures and the necessity for nuanced policy approaches informed by historical context and empirical evidence. Section 1.3 explores the resurgence of industrial policy through available data. The findings show that new industrial policy activism is substantial and rising. Contrary to the perceived wisdom, data confirms that the major actors involved

[2] Ruchir Agarwal, "INDUSTRIAL POLICY AND THE GROWTH STRATEGY TRILEMMA," *International Monetary Fund Finance & Development*, March 21, 2023, https://www.imf.org/en/Publications/fandd/issues/Series/Analytical-Series/industrial-policy-and-the-growth-strategy-trilemma-ruchir-agarwal.

are advanced economies. Here, traditional industrial policy measures are rethought alongside newer strategies that focus on knowledge generation and innovation.

Chapter two investigates the structural shifts that have shaped the international economy, contextualizing the resurgence of industrial policy amidst a backdrop of crises and transformations. Beginning with Baldwin's concept of the "Great Convergence," Section 2.1 identifies a deep underlying cause for the recent reevaluation of industrial policy measures in the declining economic dominance of industrialized nations. Section 2.2 focuses more specifically on the role of the Global Financial Crisis and the COVID-19 pandemic in accelerating a reconsideration of core economic principles. Contrasting responses to these shocks highlight the role of industrial policy expertise in crisis management and the growing importance of strategic interventions in ensuring economic resilience. Then, Section 2.3 investigates escalating geopolitical and geoeconomic tensions, focusing on China's political and economic rise. China's own economic model and robust industrial policy measures are examined, alongside the response of the United States to the shifting balance of power.

The final chapter explores the complex dynamics of industrial policy implementation in the United States. Section 3.1 recounts the ongoing ideological, political, and theoretical debate over the effectiveness of these policies in a resilient neoliberal environment. It also analyzes recent claims regarding the true nature of state intervention in America. Section 3.2 provides a historical analysis of the evolution of American industrial policy until World War II, with a specific focus on key moments that have influenced its trajectory in subsequent decades. Analyzing industrial policy efforts during the Cold War era and beyond, Section 3.3 examines the connection between the US innovation strategy,

industrial policy and national defense. The establishment of key institutions and agencies of the defense innovation systems is also reviewed. Ultimately, the chapter discusses efforts to reorient this unique industrial policy system toward the goal of national competitiveness, providing both successful and unsuccessful case studies to enrich the analysis.

Finally, in the concluding section, some of the latest policy actions undertaken by the Trump and Biden administrations will be discussed, drawing conclusions on whether they might reflect a shift towards a more interventionist approach to economic policymaking in the United States.

CHAPTER ONE: HISTORICAL DEBATE & CONTEMPORARY REVIVAL OF INDUSTRIAL POLICY

1.1 THE CONTEMPORARY DEBATE

1.1.1 Defining Industrial Policy

Despite its wide applications – in developing, emerging and developed economies alike – industrial policy remains a "fuzzy"[3] and "elusive"[4] term associated with various empirical manifestations, forms of policy intervention and conceptual underpinnings. While there is no specific theoretical corpus from which to draw an agreed definition[5], industrial policy generally refers to a deliberate and more or less consistent set of government policies designed to steer the industrial structure of an economy. As Ha-Joon Chang concisely put it: "industrial policy should mean policy that affects industry, in the same way in which agricultural policy means policy that affects agriculture and monetary policy means policy that affects monetary variables."[6] Thus, in a precise sense, industrial

[3] Phil Johnstone, Karoline S. Rogge, Paula Kivimaa, et al., "Exploring the Re-Emergence of Industrial Policy: Perceptions Regarding Low-Carbon Energy Transitions in Germany, the United Kingdom and Denmark", *Energy Research & Social Science* 74 (April 2021): 1–15, https://doi.org/10.1016/j.erss.2020.101889, 2.

[4] Xavier Vanden Bosch, "Industrial policy in the EU: A guide to an elusive concept", *Egmont Paper* no. 69 (September 2014), 7.

[5] Elie Cohen (2006)Theoretical foundations of industrial policy, EIB Papers, ISSN 0257-7755, European Investment Bank (EIB), Vol.11, Iss.1 (Luxembourg, 2006): 84–106, 85.

[6] Ha-Joon Chang, "Industrial Policy: Can We Go Beyond an Unproductive Confrontation?," *Discussion Paper* no. 2010/1, Turkish Economic Association (Ankara, January 2010), 84.

policy remains a *sectoral* matter, revolving around the promotion of specific industries or sectors (traditionally manufacturing). Thomas McCraw informs us that the phrase dates back to at least 1876, with the publication of James Swank's book, *The Industrial Policies of Great Britain and the United States,*[7] which, according to McCraw, "anticipated with uncanny accuracy the terms of today's debate: promotion of selected domestic industries, subsidies to exports, discouragement of imports …".[8]

The 2009 United Nations Conference on Trade and Development (UNCTAD) defines industrial policy as a "concerted, focused, conscious effort on the part of government to encourage and promote a specific industry or sector with an array of policy tools."[9] More recently, the International Monetary Fund (IMF) identified industrial policy as "any targeted government intervention aimed at developing or supporting specific domestic firms, industries, or economic activities to achieve national economic or noneconomic (e.g., security, social, or environmental) objectives."[10]

Leveraging on the widely agreed idea that industrialization is central to structural change and economic development, scholars have come to stretch the definition of industrial policy with a specific focus on its more significant aims. At its broadest, industrial policy

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[7] James Moore Swank, *The Industrial Policies of Great Britain and the United States: Part of the Annual Report of the Secretary of the American Iron and Steel Association for the Year 1876*, 1876.

[8] Thomas McCraw, "Mercantilism and the Market: Antecedents of American Industrial Policy," in *The Politics of Industrial Policy*, ed. Claude Barfield and William Schambra (American Enterprise Institute, 1986), 33.

[9] UNCTAD, *The relationship between competition and industrial policies in promoting economic development* (Geneva, 2009), https://unctad.org/system/files/official-document/ciclpd3_en.pdf.

[10] Simon Evenett, Adam Jakubik, Fernando Martín et al., "The Return of Industrial Policy in Data," *IMF Working Paper*, no. 2024/001 (January 4, 2024), 6.

has thus been defined as "a variety of public actions aimed at guiding and controlling the structural transformation process of an economy." [11] For Réka Juhász et al. it is "those government policies that explicitly target the transformation of the structure of economic activity in pursuit of some public goal."[12] Phil Johnstone et al. go as far as to argue that to determine whether policies constitute industrial policy, one must assess their alignment with the overarching objectives attributed to the policy itself by those implementing them (here, industrial policy and industrial strategy are used interchangeably)[13].

This may be particularly true now, as industrial policy is increasingly becoming conscious and contingent on goals delineated beforehand. For instance, aims are vital in what Mariana Mazzucato identifies as "mission-oriented" industrial policy, an activity that implies a substantial degree of "directionality" in determining the path of the change that government seeks to achieve[14]. However, such a delineated focus on the aims has not always been the case, and history is full of examples of successful industrial policy implemented somewhat inadvertently. Understandably, one should not dismiss the study of these past historical examples nor claim to learn less from them solely because, at the time, a specific goal aligned with our current definition of industrial policy was absent.

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[11] Patrizio Bianchi and Sandrine Labory, "From 'Old' Industrial Policy to 'New' Industrial Development Policies," in *International Handbook on Industrial Policy*, ed. Patrizio Bianchi and Sandrine Labory (Edward Elgar Publishing, August 2006): chapter 1, https://doi.org/10.4337/9781847201546.00008, 3

[12] Réka Juhász, Nathaniel Lane and Dani Rodrik, "The New Economics of Industrial Policy," *SocArXiv* (November 2022), https://doi.org/10.31235/osf.io/gsyq4, 4.

[13] Johnstone et al., "Exploring the Re-Emergence of Industrial Policy," 2.

[14] Mariana Mazzucato, "From Market Fixing to Market-Creating: A New Framework for Innovation Policy" *SWPS 2015-25* (August 2015): 140–156, http://dx.doi.org/10.2139/ssrn.2744593.

At the same time, while economists often draw a sharp distinction between macroeconomic policies – which benefit the entire nation – and microeconomic ones – which focus on specific industries, technologies, regions, or firms – the impact of these types of policies is so interconnected that it is challenging to delineate solid boundaries. In an attempt to equally consider both the micro level, the focus on industries and the industrial sector, and the macro level of analysis, in terms of the varied set of goals achievable through this type of intervention, Warwick defines industrial policy as:

> "[…] any type of intervention or government policy that attempts to improve the business environment or to alter the structure of economic activity toward sectors, technologies, or tasks that are expected to offer better prospects for economic growth or societal welfare than would occur in the absence of such intervention."[15]

Warwick's definition[16] of industrial policy is particularly convenient for its inclusiveness and flexibility. Unlike more restrictive definitions, it acknowledges various types of interventions, ranging from selective to functional (general) policies – a distinction discussed in more detail below. It also leaves space to analyze different degrees of formality of industrial policy. This is fundamental when dealing with countries where a strong free market posture often discourages an explicit strategy, like precisely in the United States. Moreover, it recognizes the importance of directing resources not only toward specific sectors but also toward technologies or tasks, a concept particularly

[15] Warwick, K. (2013-04-05), "Beyond Industrial Policy: Emerging Issues and New Trends", OECD Science, Technology and Industry Policy Papers, No. 2, OECD Publishing, Paris. http://dx.doi.org/10.1787/5k4869clw0xp-en, 16.

[16] The author here revises the Pack and Saggi definition found in Howard Pack and Kamal Saggi, "Is There a Case for Industrial Policy? A Critical Survey," *The World Bank Research Observer*, Vol. 21, Issue 2, Fall 2006 (July 2006): 267–297, https://doi.org/10.1093/wbro/lkl001.

crucial in our current era dominated by pervasive technologies with increasing strategic importance (such as dual-use technology).

Undeniably, industrial policy has a long tradition of intended specific economic goals, such as reducing unemployment, productivity growth and job creation. However, acknowledging that it may serve broader goals beyond mere productivity or growth objectives allows us to fit a broader set of measures with more nuanced aims under the industrial policy umbrella. Let us consider the importance currently attributed to energy and climate change policies, health policies, and defense and security policies[17]. Although contentious, the contemporary endeavors of states to tackle urgent global issue – such as security, social welfare, and environmental sustainability through industrial policy – represent a new reality that begs for a reevaluation of industrial policy beyond traditional economic considerations[18].

Overall, authors are extensively engaging with the issue at hand. However, while this renewed interest has led to numerous definitions and contextual analyses, the topic remains particularly divisive. This is largely because many issues surrounding industrial policy application are rooted in the broader discourse on the role of state intervention in the economy. Irrespective of how industrial policy is defined, an even more contentious debate revolves around whether governments should actively pursue one.

[17] Warwick, "Beyond Industrial Policy," p. 16

[18] Michael Spence, "In Defense of Industrial Policy," *Project Syndicate*, May 5, 2023, https://www.project-syndicate.org/commentary/industrial-policy-us-chips-and-science-act-debate-by-michael-spence-2023-05?barrier=accesspaylog.

1.1.2 The Neoliberal Paradox

At the heart of the ongoing debates over the nature of industrial policy lies the willingness to challenge the long-standing consensus on minimal government intervention. Widely referred to as the "neoliberal paradigm," this consensus refers to a set of economic and political beliefs and policies that gained prominence in the late 20th century, particularly during the 1980s and 1990s. Broadly, it entails "a programme of resolving problems of, and developing, human society by means of competitive markets."[19] The evolution of this paradigm has transformed it into more than just mainstream economic practice. According to Wade, economic neoliberalism, as a variant of neoclassical economics, has evolved into a "near-messianic faith in a natural, spontaneous, self-organizing order in market economies."[20] Alongside economic mantras such as privatization, stabilization and liberalization is the idea that governments should primarily focus on safeguarding individual and property rights, enforcing voluntarily made contracts, and ensuring fair competition among economic players[21].

The argument suggests that public intervention is justified only when markets fail to achieve social optima and when state intervention has the potential to bring about an

[19] Heikki Patomäki, "Neoliberalism and the Global Financial Crisis," *New Political Science* 31, no. 4 (December 1, 2009): 431–42, https://doi.org/10.1080/07393140903322497, 433

[20] Robert Wade, "Return of Industrial Policy?," *International Review of Applied Economics* 26, no. 2 (March 1, 2012): 223–39, https://doi.org/10.1080/02692171.2011.640312, 224.

[21] Meles Zenawi, "States and Markets: Neoliberal Limitations and the Case for a Developmental State," in *Good Growth and Governance in Africa: Rethinking Development Strategies*, ed. Akbar Noman et al., 2011, 140–74, https://doi.org/10.1093/acprof:oso/9780199698561.003.0005, 140

outcome which is substantially closer to the social optimum. It then contends that, in reality, both conditions are seldom met[22].

By and large, the widespread acceptance of arguments concerning the ineffectiveness of state intervention has prompted policymakers and scholars to gradually redirect their focus away from industrial policy.

Fabio Bulfone points out how this shift in attitude is exemplified within the Comparative Political Economy (CPE) field by the influential Varieties of Capitalism (VoC) framework developed in 2001[23]. Undeniably, in their seminal work, Peter Hall and David Soskice criticize the state-centric literature of the 1970s and 1980s for exaggerating the ability of state actors to shape economic outcomes, especially in the context of economic globalization, advocating instead for a perspective centered on firms[24]. According to this perspective, markets are institutions that support arm's-length relations whereby agents involved have no relationship or contact with one another aside from the transaction at hand. These relationships are then upheld by legal systems that simply enable and enforce contracts[25].

Evident in this analysis is the curtailing of the state's economic role, which becomes a simple "regulator" entrusted with the limited function of "setting the rules of the

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[22] Wade, "Return of Industrial Policy?," 225.

[23] Fabio Bulfone, "Industrial Policy and Comparative Political Economy: A Literature Review and Research Agenda," *Competition & Change* 27, no. 1 (March 25, 2022): 22–43, https://doi.org/10.1177/10245294221076225, 24.

[24] Peter A. Hall and David Soskice, *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage* (New York: Oxford University Press, 2001), 4.

[25] *Ibid.*

economic game and promoting the expansion of competition[26]". More generally, neoliberal assumptions about the best economic course – concerning the advantages of unrestricted markets, the risks associated with interventionist governments (government failures), and the necessity of liberalizing measures such as deregulation and privatization – became core principles to be followed in modern capitalist democracies.

Due to the spread of these predicaments, the term industrial policy became almost taboo in advanced economies. Its study was confined to the sub-discipline of development economics in rising economies such as Korea, India, Brazil and China. However, this refocus came at the cost of overlooking industrial policy efforts made in advanced economies, which have been undergoing a process of engineering new industrial policy forms to overcome new challenges[27].

This omission can be seen as part of the broadest paradox of the minimal state prescribed by neoliberal core principles. Spending patterns have largely contradicted the idea of the rolling back of the state. As a percentage of GDP, social expenditure in OECD countries rose from 14.4 percent in 1980 to 18.1 percent in 2005[28]. And so did regulatory trends. As noted by David Levi-Faur, "the institutional advance of regulation in the context of

[26] Linda Weiss, "The Myth of the Neoliberal State," in *Developmental Politics in Transition*, ed. C. Kyung-Sup, B. Fine and L. Weiss (International Political Economy Series, Palgrave Macmillan: London, 2012): 27–42, https://doi.org/10.1057/9781137028303_2, 28.

[27] Bulfone, "Industrial Policy and Comparative Political Economy," 25.

[28] https://stats.oecd.org/Index.aspx?DataSetCode=SOCX_AGG.

privatization and the neo-liberal hegemony presents a paradox."[29] This contradiction had been further articulated by Vivien Schmidt:

> "[…] while neo-liberal principles demand a highly limited state, neo-liberal practice requires a strong state able to impose neo-liberal reform. In consequence, instead of generating a truly neo-liberal state, neo-liberalism has actually produced 'liberal neo-statism', in which a much more interventionist state than compatible with core neo-liberal principles has emerged to implement the neo-liberal policies and programs called for by those principles."[30]

Thus, the state has never really been "out of business"[31], not even in developed countries. However, the wave of liberalization, market integration, and privatizations during the 1980s and 1990s gradually prompted a reorientation of state intervention, marked by the emergence of new actors and the adoption of new or revisited policy tools[32]. Especially in industrialized economies, governments are relying upon industrial policy measures in response to the dramatic transformations of the global manufacturing landscape, further aggravated by the effects of the global financial crisis[33].

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[29] Jacint Jordana and David Levi-Faur, "The politics of regulation in the age of governance," in *The Politics of Regulation : Institutions and Regulatory Reforms for the Age of Governance*, 2012, http://ci.nii.ac.jp/ncid/BA68013449, 1.

[30] Vivien A. Schmidt, "The Roots of Neo-Liberal Resilience: Explaining Continuity and Change in Background Ideas in Europe's Political Economy," *The British Journal of Politics and International Relations*, Vol. 18, Issue 2 (May 2016): 318-334, https://doi.org/10.1177/1369148115612792, 321.

[31] Weiss, "The Myth of the Neoliberal State," 27.

[32] Bulfone, "Industrial Policy and Comparative Political Economy," 27-28.

[33] Antonio Andreoni, "Varieties of Industrial Policy: Models, Packages, and Transformation Cycles," in *Efficiency, Finance, and Varieties of Industrial Policy: Guiding Resources, Learning, and Technology*

It is worth stressing that different states employ industrial policy in different ways. The economic histories of countries demonstrate that national approaches toward industrial policy vary greatly. There is not, and there might never be, a "one size fits all" approach to industrial policy. Antonio Andreoni suggests that the observed diversity in industrial policy stems from the dynamic interplay between a country's historical context (its current structure and institutional framework) and its envisioned future (its industrial vision)[34]. At any given moment, a country's industrial policy, including its targets, instruments, and measures, reflects this tension.

Nonetheless, irrespective of orientation, the practice of industrial policy is and always has been premised on some core ideas. First and foremost, practitioners of industrial policy, whether explicitly or implicitly, believe that the economic and noneconomic goals mentioned above can be effectively *fast-tracked* by government intervention. Thus, they accepted the benefits of the state's intervention in the economy. The second formal element of industrial policy is its territorial link, with state actors engaging in interventions "in favor of particular social groups, firms or sectors understood by the decision-makers as insiders because of their territorial status."[35]

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for Sustained Growth, ed. Akbar Noman and Joseph E. Stiglitz, Chapter 9 (New York Chichester, West Sussex: Columbia University Press, 2016): 245–305, https://doi.org/10.7312/noma18050-009, 249.

[34] *Ibid*, 248.

[35] Ben Clift and Cornelia Woll, "Economic Patriotism: Reinventing Control Over Open Markets," *Journal of European Public Policy*, Vol. 19, Issue 3 (February 2012): 307-323. 10.1080/13501763.2011.638117, 308.

1.1.3 A Difficult Characterization

Industrial policy can be conducted using a variety of instruments including, but not limited to, grants, subsidies, tariffs and other trade restrictions, tax incentives, public procurement and preferential access to credit in the form of low-interest loans, guarantees, and equity investments. Public-private collaboration, such as deliberation councils or business-government roundtables, can also be considered a form of industrial policy, as they aim to alleviate constraints faced by specific sectors or groups of firms[36]. Moreover, although expressions such as "the state" or "the government" are used to refer to the public dimension, it is worth stressing that many different state actors are involved in industrial policy interventions, "from the central government, to regional or municipal authorities, from state-owned development banks, to sovereign wealth funds and unelected specialized investment or developmental agencies."[37]

Given this multitude of instruments, numerous agents involved and broad application areas, industrial policy generally resists a strict categorization, often sparking debate among scholars and policymakers alike. Amidst the predominance of the neoliberal paradigm, since the 1980s, the division between horizontal and vertical instruments has become particularly contentious and ideologically charged. This distinction hints at the degree of selectivity of measures in terms of the government choosing to support particular sectors or companies over others.

[36] Juhász et al., "The New Economics of Industrial Policy," 4.

[37] Bulfone, "Industrial Policy and Comparative Political Economy," 23.

Horizontal policies are intended as generalized, cross-industry policies in the sense that they apply to all firms irrespective of their activities or location. Horizontal instruments are generally preferred because they have no distorting effect on resource allocation resulting from the price system[38]. Instead, these are policies conceived as enriching the business environment. Such categorized measures include corporate taxation reduction, strengthening the education and vocational training system, improving the infrastructural network, and loosening labor market regulations[39].

Vertical measures, on the other hand, are sectoral policies which target a specific sector or firm generally associated with the malignant government practice of "picking winners". However, those supporting selective policies tend to stress the *inherent* element of selectivity or industrial policy, which automatically translates into unintended vertical effects of most horizontal measures[40]. In this sense, the demarcation line between the two approaches becomes blurry at best. Michael Landesmann expresses this point when he states:

> *"*[…] industrial policies are designed to be specific, i.e. directed towards particular industries, firms, regions, groups in the labor market, etc., rather than general. Even in those cases in which they are general (such as general tax allowances), they have a differential impact upon different parts of, and actors in,

[38] Antonio Andreoni, "The Political Economy of Industrial Policy: After the Crisis, Back on the Agenda," in *Research Handbook on Political Economy and Law*, ed. Ugo Mattei and John D. Haskell (Edward Elgar Publishing, November 2015): 342–68, https://doi.org/10.4337/9781781005354.00031, 355-357.

[39] See Aiginger and Rodrik, "Rebirth of Industrial Policy and an Agenda for the Twenty-First Century," 195; and Robert H. Wade, "Return of industrial policy?," *International Review of Applied Economics*, Vol. 26, Issue 2, (March 2012): 223–239, 10.1080/02692171.2011.640312, 226.

[40] Andreoni, "Varieties of Industrial Policy," 260.

an economy. Implicit in industrial policy formulation and execution are ... trade-offs between different groups, regions, industries, etc."[41]

Policies that tackle infrastructures are a further example. Government spending on infrastructure in a given state at a given time cannot possibly be conceived as ubiquitous. A state will have the possibility to invest in several different projects, but not possibly in all of them. Depending on the choice made – to build a port or expand railroads – different producers shall reap the benefits of such investment. Moreover, the chosen location of the new port and the area covered by new railroad tracks will influence adjacent communities differently. Similarly, a decision to support a specialized professional training program will be made 'at the expense' of education of other highly specialized workers[42].

In a way governments are "doomed to choose"[43], and decisions are doomed to provoke some directional effects. As argued by Hausmann and Rodrik, "[t]he idea that the government can disengage from specific policies and just focus on providing broad-based support to all activities in a sector neutral way is an illusion."[44] As further pointed out by Chang, "[t]he only policies that may be called truly 'general' are policies regarding basic

[41] Michael Landesmann, "Industrial Policies and Social Corporatism," in *Social Corporatism: A Superior Economic System?*, ed. Jukka Pekkarinen, Matti Pohjola and Bob Rowthorn, Content 8 (Oxford University Press, 1992): 242–279, 245.

[42] Juhász et. al., "The New Economics of Industrial Policy," 5.

[43] Ricardo Hausmann and Dani Rodrik, "Doomed to Choose: Industrial Policy as Predicament," *Harvard University Press*, 2006, https://drodrik.scholar.harvard.edu/files/dani-rodrik/files/doomed-to-choose.pdf.

[44] Ricardo Hausmann and Dani Rodrik, "Doomed to Choose: Industrial Policy as Predicament," Harvard University, September 2006, http://tinyurl.com/y49lzv4a, 24.

education and health; calling them industrial policies stretches the concept beyond reason."[45]

Generally, most theorists of the revival of industrial policy agree that, whether horizontal policies have unintended vertical effects or not, the distinction remains altogether superfluous as industrial policy (in the broader sense of industrial strategy) is increasingly being implemented through policy mixes with instruments comprising both vertical sectoral interventions and horizontal ones overlapping one another, different policy domains and a broad range of actors[46]. Indicatively, in his taxonomy of "Varieties of Industrial Policy," Andreoni avoids analyzing individual policies but links them as part of an "industrial policy package"[47], where the overall effectiveness of the bundle increases by introducing or refocusing other complementary policies.

[45] Chang, "Can We Go Beyond an Unproductive Confrontation?," 287.

[46] Johnstone et al., "Exploring the Re-Emergence of Industrial Policy," 2.

[47] Andreoni, "Varieties of Industrial Policy," 260.

1.2 A BRIEF HISTORY OF AN IDEA

1.2.1 Trade Protectionism and the Infant Industry Argument

Manifestations of deliberate government promotion of specific sectors and industries date as far back as Medieval Europe and can be appreciated in Italian city-states, like Venice and medieval England (although with varying degrees of deliberate planning and monitoring) [48].

Erik Reinert traces them back to late 15th century England when Henry VII, the first Tudor King, started subsidizing the local production of woolen cloth while at the same time increasing the import duties for textiles and taxing the export of raw wool[49]. While probably not fully aware of the factors involved, this tactic was based on a relatively simple logic, which Reinert defines as pre-Ricardian - that if manufacturers of woolen were rich while producers of raw wool were poor, then the promotion of this particular manufacturing sector through direct and indirect economic policies would have had a positive effect on the sector and maybe on the overall home economy. And so it did. Proactive measures aimed at stimulating domestic production while discouraging reliance on imported goods ultimately nurtured a thriving manufacturing sector. Clearly, this is not all there was to the story; the country also employed several complementary,

[48] Patrizio Bianchi and Sandrine Labory, "European Industrial Policy: A Comparative Perspective," in *The Oxford Handbook of Industrial Policy*, ed. Arkebe Oqubay, Christopher Cramer, Ha-Joon Chang, and Richard Kozul-Wright, Chapter 21 (Oxford Handbooks, November 2020): 594–620, https://doi.org/10.1093/oxfordhb/9780198862420.013.22, 598 (5).

[49] Erik S. Reinert, "Competitiveness and its Predecessors—A 500-year Cross-National Perspective," *Structural Change and Economic Dynamics*, Vol. 6, Issue 1 (Elsevier, March 1995): 23–42, https://doi.org/10.1016/0954-349X(94)00002-Q, 32.

sometimes dramatic, protectionist measures. She discouraged imitation by prohibiting the emigration of skilled workers and the export of machinery. She also actively prevented the establishment of manufacturing industries in the colonies and even forcefully dismantled foreign manufacturing capabilities[50].

Nonetheless, the overall effect did not change. As state support was extended to other industrial sectors, accompanied by the process mechanization, the model slowly became the logic of all European countries that have succeeded in upgrading their industrial sector[51]. By positioning itself as the primary center for manufacturing, importing raw materials and exporting finished goods, England witnessed "the most dramatic increase in wealth the world had yet seen."[52]

Over a century later, Alexander Hamilton, the first ever Treasury Secretary of the United States, developed the infant industry argument, the oldest and longest-lived specific argument for industrial policy[53]. In his 1791 *Report on the Subject of Manufactures* – praised by Schumpeter more than a hundred years later as "applied economics at its best"[54] – Hamilton argued that a catch-up country (just like America was at the time)

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[50] Reinert, "Competitiveness and its Predecessors," 32.

[51] Erik S. Reinert, "Industrial Policy: A long-term Perspective and Overview of Theoretical Arguments," UCL Institute for Innovation and Public Purpose, *Working Paper Series* (IIPP WP, April 2020), https://www.ucl.ac.uk/bartlett/public-purpose/wp2020-04, 5.

[52] Erik S. Reinert, "How rich nations got rich. Essays in the history of economic policy," *Centre for Development and the Environment*, Working Paper nr. 2004/01 (University of Oslo, 2004), p.9.

[53] Douglas A. Irwin, "Mill and the Infant Industry Argument," in *Against the Tide: An Intellectual History of Free Trade*, Princeton (Princeton University Press, 1996): 116–137, https://doi.org/10.1515/9780691213019-011.

[54] Joseph A. Schumpeter, *History of Economic Analysis*, edited from manuscript by Elizabeth Boody Schumpeter (Oxford University Press, 1954), 193.

needs to protect its young industries against the competition from superior foreign producers through "incitement and patronage of government."[55] Hamilton was quite obviously following England's strategy. By 1820, the average rate of tariffs on imports of manufactured goods was between 35 and 45 percent in the United States and between 45 and 55 percent in Great Britain[56].

To some extent, Hamilton used this theory to justify tariff protection. However, he did so in a way that departed from the classical mercantilist fashion typical of the time, according to which, as Heckscher points out, "selling (exports) was an end in itself."[57] Tariffs were not an incidental temporary aid to infant industry as well[58]. Instead, support for infant industries was part of a broader strategy of structural economic transformation aimed at promoting the American industry. High tariffs on manufactured imports, particularly those from Britain, served multiple purposes. They not only provided incentives for investing in the development and subsequent expansion of manufacturing technologies but also served to subsidize nascent manufacturing firms that would undertake these investments[59]. Simultaneously, they constituted a significant source of

[55] Alexander Hamilton, "Alexander Hamilton's Final Version of the Report on the Subject of Manufactures, [5 December 1791]," *Founders Online*, National Archives, https://founders.archives.gov/documents/Hamilton/01-10-02-0001-0007. Original source: *The Papers of Alexander Hamilton*, Vol. 10, December 1791–January 1792, ed. Harold C. Syrett. (New York: Columbia University Press, 1966), 230–340.

[56] Paul Bairoch, *Economics and World History: Myths and Paradoxes* (Chicago: University of Chicago Press, 1993), 40.

[57] Eli F. Heekscher, *Mercantilism*, Vol. 1 (London: Routledge, September 1994), https://doi.org/10.4324/9781315003993, 43.

[58] Reinert, "Competitiveness and its predecessors," 33.

[59] Stephen S. Cohen and Bradford J. DeLong, *Concrete Economics: The Hamilton Approach to Economic Growth and Policy*, Harvard Business Review Press, 2016, chap. 1. Perlego https://doi.org/10.5860/choice.197293.

government revenues sustaining the extensive infrastructure development program that Hamilton envisaged[60]. Gradually, the Hamiltonian system flourished into the American system of manufacturing, leading the nation to economic independence[61].

The story of England in the 18th century and America in the 19th is the story of industrialization, and what comes out of it is that industrialization requires a shift in organizational structures and transformation of the productive base of the economy, particularly observable at the time in the shift of economic activities from low to high value-added activities (manufacturing).

Interestingly, these forms of trade and industrial policy (in all effects two faces of the same coin) defied the current predominant economic theory developed by Adam Smith in his *Wealth of Nations*, according to which free competition, released from protective and restrictive policies, could alone secure the full benefits of labor and capital[62]. As argued by Daniel Raymond, an American pioneer political economist, "It might answer a very good purpose for them [the English], to cry up his system, that other nations might be gulled by it, but they did not choose to be gulled by it themselves[63]. This idea was then

[60] *Ibid.*

[61] David Bailey, Amy Glasmeier, Philip R. Tomlinson, Peter Tyler, "Industrial policy: new technologies and transformative innovation policies?," *Cambridge Journal of Regions, Economy and Society*, Vol. 12, Issue 2 (July 2019): 169–177, https://doi.org/10.1093/cjres/rsz006, 169.

[62] R. Koebner, "Adam Smith and the Industrial Revolution," *The Economic History Review*, Vol. 11, no. 3 (1959): 381–91, https://doi.org/10.2307/2591461, 382.

[63] D. Raymond, *Thoughts on political economy. In two parts* (Baltimore: Fielding Lucas Jun'r, 1820), 134.

confirmed by German theorist Friedrich List[64] when he pointed out that "[t]heorists have since [early 1700] pretended that England has become rich and powerful, not on account, but in spite of, her commercial [protective] policy[65]".

It is clear how, already at that time a strong divide was emerging between two distinct views, one prescribing on normative grounds both the unfettered benefits of free trade and the acquiescence in the "revealed comparative advantages" a country inherits from its past and an alternative view, arguing that the productive forces of a nation can and must be purposefully constructed and that specific trade barriers can be beneficial for economic prosperity[66].

1.2.2 The Rise and Demise of Postwar Interventionism

Fast forward to the immediate post-war period, state interventionism played a fundamental role in the reconstruction of the European economy. These were the days of the Keynesian compromise, characterized by a more active role of the state to address market inefficiencies. Keynes argued that classical economists erroneously assumed that supply and demand would naturally reach equilibrium, ensuring full employment. He

[64] Lists also draw extensively from the American experience, where he lived for more than 10 years in the early 19th century. There, List witness the gradual development and industrialization of the country through regulation of foreign trade and government intervention in the economy.

[65] Friedrich List, *National System of Political Economy* (Philadelphia: JB Lippincott and Co., 1856), p. 114.

[66] Mario Cimoli, Giovanni Dosi, and Joseph E. Stiglitz, "The Political Economy of Capabilities Accumulation: The Past and Future of Policies for Industrial Development," in *Industrial Policy and Development: The Political Economy of Capabilities Accumulation*, 2009, 1–16, https://doi.org/10.1093/acprof:oso/9780199235261.003.0001.

believed that the economy is inherently unstable and prone to fluctuations. Even when supply and demand balance out, full employment is not guaranteed due to the failure of aggregate demand in capitalist economies. Changes in the economy could thus result in structural unemployment, which could only be addressed in the short term through government intervention.

Overall, the Keynesian compromise involved an active management of demand by the state and the promotion of domestic firms over foreign firms. As a result, throughout the mid-1970s, the political legitimacy of nation-states became virtually uncontested[67], and industrial policy measures were considered "standard fares"[68]. Domestic, nationally owned firms and industries (so-called "national champions") were considered the main engines of national economic growth[69], and intervention mainly focused on developing a solid manufacturing base in sectors like steel, car-making and chemicals. Moreover, while the expansion of domestic firms abroad was looked upon favorably, inflows of foreign companies into the domestic economy were met with skepticism and distrust[70]. For instance, the use of selective industrial policy in France in the 1960s was seen as part of the broader exercise of "indicative planning."[71] For these reasons, Fritz Scharpf defines

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[67] Lukas Linsi, "The Discourse of Competitiveness and the Dis-embedding of the National Economy", *Review of International Political Economy*, Vol. 27, Issue 4 (August 2020), https://doi.org/10.1080/09692290.2019.1687557, 866-868.

[68] Ha-Joon Chang and Antonio Andreoni, "Industrial Policy in the 21st Century," *Development and Change* 51, no. 2 (January 2020): 324–51, https://doi.org/10.1111/dech.12570, 343-344.

[69] Jack Hayward, "Industrial Enterprise and European Integration: From National to International Champions in Western Europe," *OUP Catalogue* (Oxford University Press, 1995).

[70] Linsi, "The Discourse of Competitiveness and the Dis-embedding of the National Economy," 866-868.

[71] Stephen S. Cohen, *Modern Capitalist Planning: The French Model*, University of California Press, 1977.

this phase as *inward-looking* since the ultimate goal of state intervention was to protect the domestic economy from foreign interference[72].

This period coincided with the origin of early development economics, which prescribed interventionist government policies to promote economic nationalism and development in developing countries. Andreoni and Chang identified this as the second phase of the industrial policy debate, which revolved around Soviet industrialization and development issues in the post-colonial economies of Latin America, Asia, Africa and Eastern Europe[73]. Key theorists involved were, among others, Arthur Lewis, Raul Prebisch, Hans Wolfgang Singer, Paul Rosentein-Rodan, Ragnar Nurske, Tibor Scitovsky, Albert Hirschman and Simon Kuznets. These early development theorists interpreted industrial policy in a "systematic" and "structural" way, focusing on its capacity to generate and transfer surplus from the agrarian sector to the industrial sector[74]. In particular, much like Hamilton and List, they recognized the inherent importance of the manufacturing sector, seen as critical for the transition of economies from low-income to higher-income status due to its higher productivity and technological dynamism[75].

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[72] Fritz W. Scharpf, *Governing in Europe: Effective and Democratic?*, 1999, chap. 2 https://doi.org/10.1093/acprof:oso/9780198295457.001.0001.

[73] Antonio Andreoni and Ha-Joon Chang, "The Political Economy of Industrial Policy: Structural Interdependencies, Policy Alignment and Conflict Management," *Structural Change and Economic Dynamics*, Vol. 48 (March 2019): 136-150, https://doi.org/10.1016/j.strueco.2018.10.007, 137.

[74] *Ibid.*

[75] John Weiss, "Lewis on Industrialisation and Industrial Policy," *Journal of International Development*, John Wiley & Sons, Ltd., Vol. 30, Issue1 (December 2017): 61–79, https://doi.org/10.1002/jid.3338.

Thus, although no defined theory for industrial policy can be attributed to all authors, they all substantially agreed on the idea that development is closely associated with industrialization. However, due to various types of market failures, industrialization is hindered in poor countries[76]. Here, they acknowledge an essential role for policymakers to accelerate industrialization through an industrial policy aimed at reducing dependence on the export of primary products (primarily via import substitution[77]), thus shifting labor from low-productivity agricultural activities to more productive industrial sectors[78].

Overall, interventionist policies were widely used in the first three quarters of the 20th century, both in advanced and less-developed economies.

However, the dominance of a market liberalization paradigm in the 1980s and 1990s drastically changed the global approach to government intervention. Early theorists of development economics were accused of being naïve about the consequences of government failures, particularly in terms of rent-seeking activities and inefficient government practices of "picking winners." Indeed, while market fundamentalists acknowledge the occurrence of market failure and the potential for corrective measures in theory, they tend to argue that government failure is more prevalent and dangerous,

[76] James A. Robinson, "Industrial Policy and Development: A Political Economy Perspective," *Revue d'économie du développement*, Vol. 18, no. 4 (January 2010): 21– 45, 24.

[77] The replacement of foreign imports with domestic production based on the premise that a country should attempt to reduce its foreign dependency through the local production of industrialized products.

[78] See Wilson Peres and Annalisa Primi, *Theory and Practice of Industrial Policy: Evidence From the Latin American Experience*, Santiago de Chile: Naciones Unidas, CEPAL, 2009, p. 10; Andreoni and Chang, "Structural Interdependencies, Policy Alignment and Conflict Management," 138.

thus militating against corrective actions[79]. Moreover, selective industrial policies were feared for distorting the market and causing dramatic inefficiencies in resource allocation[80].

Eventually, the belief in rational actors functioning within unrestricted markets emerged as the prevailing intellectual doctrine; industrial policy had to take the backseat to Washington Consensus principles[81]. Particularly, development strategies were seized by neoliberal conception when, after the Third World Debt Crisis of 1982, the IMF and the World Bank (upheld and informed by the US Treasury Department) rolled out across the developing world policy advice of fiscal austerity, trade liberalization, deregulation and privatization[82].

1.2.3 Challenging the Orthodoxy

In the aftermath of several crises, the outcomes of neoliberal policies versus interventionist strategies sparked a colorful debate. Proponents of neoliberalism initially touted its benefits, arguing that market-oriented reforms would spur economic growth and development. However, critics contend that the policies implemented have often

[79] Andrew Schrank and Josh Whitford, "Industrial Policy in the United States: A Neo-Polanyian Interpretation," *Politics & Society* 37, no. 4 (November 10, 2009): 521–53, https://doi.org/10.1177/0032329209351926, 523.

[80] Andreoni, "After the Crisis, Back on the Agenda," 342.

[81] Johnstone et al., "Exploring the Re-Emergence of Industrial Policy," 3.

[82] Bustanul Arifin, "The Failure of the Washington Consensus, the Need for a New Reform and the Rise of the Beijing Consensus," *Journal of International Relations* 1 (January 12, 2018), 120.

exacerbated inequalities, weakened social safety nets, and failed to deliver sustainable growth, particularly in developing countries. Academic scrutiny has led to a reevaluation of the effectiveness of market-friendly approaches in developing countries, particularly during the 1980s and early 1990s. Additionally, proponents of neoliberalism have been confronted with unexpected success stories of growth in East Asia.

1.2.3.1 The Latin America Experience

The Latin America case is particularly indicative – although similar conclusions have been drawn for Sub-Saharan Africa and Eastern Europe – in light of its long history of government intervention. The general practice during much of the 1950–1980 period was in line with the then mainstream thinking in development economics: *inward-looking* industrial policy and import substitution industrialization (ISI)[83]. The period witnessed important advances in industrialization, institutional modernization and economic growth, although not enough in terms of catching-up in a generally expansive world economy[84]. Then, the emergence of a profound external debt crisis, which coincided with the rise of neoliberal policy advocacy in Washington, successfully undermined the legitimacy of the state-led industrialization model of development[85]. The crisis was seen as a result of interventionist policies, especially import substitution, which was blamed

[83] Robert Devlin and Graciela Moguillansky, "What's New in the New Industrial Policy in Latin America?," *Policy Research Working Papers* (September 2012): https://doi.org/10.1596/1813-9450-6191, 8.

[84] *Ibid*

[85] Robert Devlin, *Debt and Crisis in Latin America: The Supply Side of the Story*, Princeton (Princeton University Press), 1989.

for the accumulation of foreign debt (typically acquired from international commercial banks, especially the World Bank), and the pendulum shifted towards the policy mix prescribed by Washington.

Nonetheless, the dominance of the market paradigm had even less success. The 1990s as a whole saw less growth in Latin America (in per capita GDP) than in the failed decades from the 1950s till the 1980s[86], marked by import substitution policies[87]. Further financial crises – Mexico in 1994, Brazil in 1999, and Argentina in 2001 – plagued the region, and social indicators worsened considerably[88]. Surely, there were issues with the import substitution strategy (specifically, it needed to be complemented by a strategy focused more on exports). Nonetheless, as contended by Joseph Stiglitz, it was the debt crisis, rather than the inadequacies of the development strategy, that halted the period of high growth. Rodrik even highlighted that "contrary to received wisdom ISI growth did not produce tremendous inefficiencies on an economic wide scale. In fact, the productivity performance of many Latin American and Middle Eastern countries was, in comparative perspective, exemplary."[89]

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[86] Dani Rodrik, "Goodbye Washington Consensus, Hello Washington Confusion? A Review of the World Bank's Economic Growth in the 1990s: Learning from a Decade of Reform," *Journal of Economic Literature*, Vol. 44, no. 4 (December 2006): 973–987, 975.

[87] Joseph E. Stiglitz, "Is there a Post-Washington Consensus Consensus?," in *The Washington Consensus Reconsidered: Towards a New Global Governance, Initiative for Policy Dialogue*, ed. Narcís Serra and Joseph E. Stiglitz, Oxford (April 2008): https://doi.org/10.1093/acprof:oso/9780199534081.003.0004, 4.

[88] Alcino F. Câmara Neto and Matias Vernengo, "Globalization, a Dangerous Obsession: Latin America in the Post-Washington Consensus Era," *International Journal of Political Economy*, Vol. 32, no. 4 (Winter, 2002/2003): 4–21, 5.

[89] Dani Rodrik, "The New Global Economy and Developing Countries: Making Openness Work," *Washington, DC: Overseas Development Council*, Policy Essay no. 24 (1999): https://doi.org/10.1002/1099-1328(200007)12:5<765::AID-JID670>3.0.CO;2-L, 71.

A similar situation unfolded in Sub-Saharan Africa, where success story of the market-oriented reforms of the 1990s were scarce and ultimately proved inadequate in addressing the escalating public health crisis that engulfed the continent[90].

These policies constrained the use of many successful industrial policy measures that were the standard fares between the mid-1940s and the mid-1970s[91]. As maintained by Reinert, "[t]he Bretton Woods institutions [the World Bank and the IMF] now defend the mercantilist institution that helps rich countries (i.e. patents), but seek to eliminate its twin institution that could help the poor (i.e. protection)."[92]

Eventually, underwhelming performances in these regions have prompted a reassessment, with even ardent neoliberal supporters conceding that growth has often fallen short of expectations.

1.2.3.2 The Parallel Asian Miracles

If there was wide controversy on the cases of presumptive failure of Washington Consensus policies in Latin America, Africa and Eastern Europe, the debate over the success of industrial policy in certain East Asian economies was at first kicked aside, treated mainly like a statistical error.

[90] Dani Rodrik, "Goodbye Washington Consensus, Hello Washington Confusion?," 974.

[91] Chang and Andreoni, "Industrial Policy in the 21st Century," 343-44.

[92] Reinert, "How Rich nations got Rich," 9.

From 1970 until 2014, Hong Kong, Korea, Singapore and Taiwan were the only four economies that reached high-income status – without other conditions playing a substantial part – like proximity with Europe or thee discovering of natural resources[93]. From 1960 to 1988, per capita income in Korea grew at 6.2 percent per year, a rate consistent with the doubling of living standards every 11 years[94]. According to Robert Lucas, such unprecedented and concentrated growth constitutes a true economic "miracle"[95]. This was not, however, the common thiking. Strikingly, during the early debate on the matter, many denied the presence of industrial policy within the policy mix that led to unfathomable economic growth in these East Asian countries. For instance, as late as 1988, free-market economist Bela Balassa argued that the role of the state in Korea "apart from the promotion of shipbuilding and steel […] has been to create a modern infrastructure, to provide a stable incentive system and to ensure that government bureaucracy will help rather than hinder exports."[96] Most likely, this was an effect of the heavy ideological nature of economic thinking at the time, which led many participants to attribute this *exception* only to a particular mix of the standard growth policy recipe – the same advocated, for instance, in Latin America – which comprised financial deepening, trade openness, good infrastructures and education and general macro-

[93] Reda Cherif and Fuad Hasanov, "The Return of the Policy That Shall Not Be Named: Principles of Industrial Policy," *IMF Working Paper*, Vol. 2019, Issue 074 (March 1, 2019): https://doi.org/10.5089/9781498305402.001, 12.

[94] Robert E. Lucas, "Making a Miracle," *Econometrica*, Vol. 61, no. 2 (March 1993): 251–272. https://doi.org/10.2307/2951551, 252.

[95] *Ibid.*

[96] Bela Balassa, "The Lessons of East Asian Development: An Overview," in "Front Matter," *Economic Development and Cultural Change*, Vol. 36, no. 3 (The University of Chicago Press, April1988): http://www.jstor.org/stable/1566534, 286.

stability[97]. Although, as pointed out by Andreoni and Chang, "a quick reading of the financial press or a brief conversation with a foreign businessman with experience in Korea or Taiwan would have revealed the prevalence and the strength of industrial policy in those countries."[98]

After it became increasingly difficult to deny the presence of industrial policy in these countries, the attention shifted to the actual impact of measures in delivering prosperity. Most argued that the mere coexistence of apparently successful industrial policy with development and economic growth did not prove that any causal connection effectively existed between the two. Pack and Saggi, for instance, argued that the absence of 'relevant counterfactuals' indicates that industrial policy may have been a second or even third-best option, "merely doing something well does not imply one cannot be better at something else[99]". Understandably, this is not a very strong argument if we have already accepted that industrial policy indeed played a preeminent role in the development of the East Asian region. As pointed out by Chang, although logically very possible, such a reality would imply that there existed several incredibly powerful "countervailing forces" able to annul on one side the market-distorting effect of selective industrial measures but on the other still able to generate the higher rates of growth in human history[100]. Intuitively, if one plans on learning something from history, one ought to look at what happened and not at what could have happened under a number of unspecified and purely theoretical

[97] Cherif and Hasanov, "The Return of the Policy That Shall Not Be Named," 5.

[98] Andreoni and Chang, "Structural Interdependencies, Policy Alignment and Conflict Management," 138.

[99] Pack and Saggi, "Is There a Case for Industrial Policy? A Critical Survey," 12.

[100] Chang, "Can We Go Beyond an Unproductive Confrontation?," 86.

conditions. To paraphrase the Italian historian Cutolo, with "ifs," history is never made, and no one can say with seriousness what would have happened if history had not unfolded as it actually did.

A fascinating perspective on the importance of *learning from miracles*, even more so given that it is contained in an IMF working paper, has been offered by Cheriff and Hasanov in 2019. The authors argue that policy prescriptions based on the standard growth model – where regression is possible, and the average provides the bulk of the information – are unsuitable to achieve long-term growth[101]. They base this understanding on the fact that long-term growth seems to follow a different distribution – a power law or Pareto distribution – with completely different characteristics. In such distributions, because the law of large numbers works much slower, the mean (the average of observations) loses most of its meaning and linear regression cannot be used. Moreover, such distribution is fat-tailed, suggesting that extreme events are more likely to happen (although still rare) than in normal distributions, where the bulk of observations is registered around the mean. Normal distributions treat exceptions as outliers, which are often removed altogether to improve the model's fitness. This is because their absence does not invalidate aggregate statistics, while their presence might. Instead, in power law distribution, rare events, which lie in the tail, are important precisely because they carry more information than probability calculations would. These outliers can reveal important insights about the underlying processes or mechanisms driving the distribution. Removing them can lead to a misrepresentation of the overall underlying pattern.

[101] Cherif and Hasanov, "The Return of the Policy That Shall Not Be Named," 5-7.

According to American theoretical physicist and Nobel laureate Philip Anderson, "[m]uch of our world is controlled as much by the tails of the distributions […] by the exceptional not the common place; by the catastrophe, not the steady drip […] we need to free ourselves from 'average' thinking[102]". Sticking to this "average thinking" – which in this case is exemplified by the need to find in all historical examples of growth a mix of policies which is convenient with the standard growth model – would be like "focusing on the grass and missing out on the (gigantic) trees[103]". In this sense, the development path of the Asian Miracles, alongside those other examples of countries that truly succeeded (such as England, the US, Germany and Japan), carries more valuable information than those that have failed[104].

Many tend to agree that one valuable takeaway of the Asian Miracles has been their willingness to push into technologically sophisticated sectors, which were, at the time, well beyond their revealed comparative advantage[105]. For instance, throughout the 1950s and 1960s, South Korea primarily exported fish, basic textiles, wigs, and shoes. Only in the early 1970s, with the impetus of the new comprehensive Heavy and Chemical Industry (HCI) Program, the country shifted its bulk of exports toward shipbuilding, steel, and automobiles. These industries were essential for its economic development, but the

[102] Cited in Cherif and Hasanov, "The Return of the Policy That Shall Not Be Named," 6.

[103] Nassim Nicholas Taleb, *The Black Swan: The Impact of the Highly Improbable*, Random House, 2007, 236.

[104] Cherif and Hasanov, "The Return of the Policy That Shall Not Be Named."

[105] See Justin Yifu Lin and Ha-Joon Chang, "Should Industrial Policy in Developing Countries Conform to Comparative Advantage or Defy It? A Debate Between Justin Lin and Ha-Joon Chang," Development Policy Review 27, no. 5 (August 6, 2009): 483–502, https://doi.org/10.1111/j.1467-7679.2009.00456.x and Reinert, "Competitiveness and its Predecessor".

country would never have pursued them if it had followed its comparative advantage[106]. This story resonates deeply with other success stories in which industrial policy was employed as a conscious decision to (try to) succeed in sectors with higher payoffs. It is also a similar path to the one embraced by England and the US in their "catch-up moment". Reinert has argued that the same conscious decision was taken twice by Japan, first in the context of the Meijin restoration in 1868 and then in the period of post-World War II restoration when the famous Ministry of International Trade and Industry (MITI) steered the Japanese economy towards high technology industries[107].

On the other hand, deep faithfulness in neoclassical economics principles is part of the reason why Australia has been unable to move beyond its assumed competitive strengths, mostly focused on the extraction and export of raw resources[108]. Like many others, the country is now experiencing a structural deterioration in productivity performance, which the government is unprepared to resolve, at least until core perceptions change. As lamented by Mark Dean et al., "the government, by focusing on primary-linked sectors and refusing to broaden its traditional toolkit (consisting mostly of deregulation, trade liberalization and tax preferences), is not considering the kind of ambitious and strategic interventions that would be required to truly address and reverse the recent trajectory of resource-dependence and deindustrialization[109]".

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[106] Chang, "Can We Go Beyond an Unproductive Confrontation?,"100.

[107] Reinert, "Competitiveness and its Predecessors," 37.

[108] Mark Dean, Al Rainnie, Jim Stanford and Dan Nahum, "Industrial policy-making after COVID-19: Manufacturing, innovation and sustainability," *The Economic and Labour Relations Review*, Vol. 32, Issue 2 (May 2021): 283–303, https://doi.org/10.1177/10353046211014755, 288.

[109] *Ibid.*

1.3 THE RETURN OF INDUSTRIAL POLICY IN DATA

1.3.1 Overview of Recent Trends

Recent studies reveal remarkable data about the revival of industrial policy. As per the United Nations Conference on Trade and Development, over the period 2013-2018, no fewer than 84 countries – both developed and developing nations, collectively representing 90 percent of the world's GDP – have implemented formal industrial policies[110]. An OECD comparative project for the period 2019-2021 quantifies industrial policies in nine countries (Canada, Denmark, France, Ireland, Israel, Italy, the Netherlands, Sweden and the United Kingdom) focusing on government expenditures allocated specifically for industrial policy objectives. The study found that countries allocate approximately 3.2 percent of their GDP towards industrial policies, mainly through grants and tax expenditures (1.4 percent) and loans, loan guarantees, equity investments and export finance schemes (1.8 percent)[111]. Juhász et al., employing a text-based approach (thus, considering if policy descriptions convey industrial policy goals), find that in the 2009-2020 period, industrial policy has not only been largely present but on the rise[112]. According to the authors, one quarter of all commercial policy – extracted

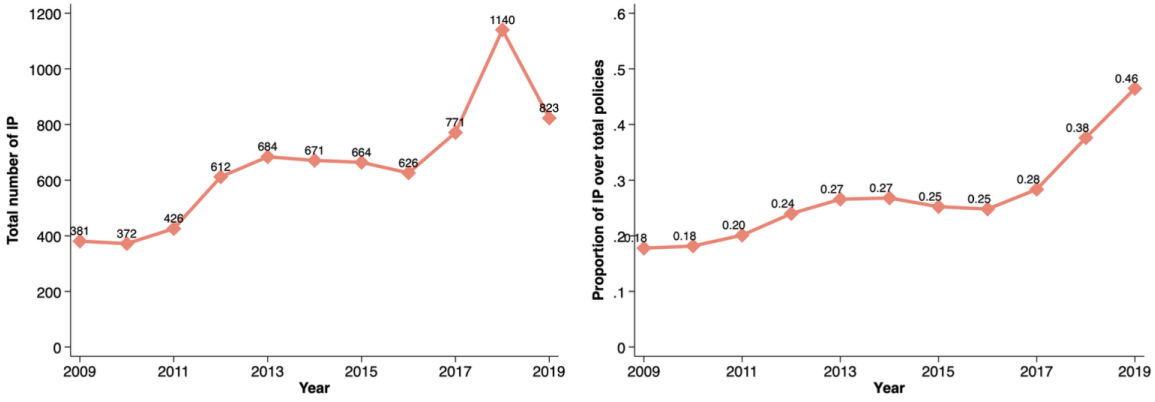
[110] UNCTAD *World investment report 2018: Investment and new industrial policies*. Investment and Enterprise Division, (Geneva, 2018) https://unctad.org/system/files/official-document/wir2018_en.pdf

[111] Chiara Criscuolo, Luis Díaz, Louise Guillouet et al, "Quantifying Industrial Strategies Across Nine OECD Countries," *OECD Science, Technology and Industry Policy Papers*, June 19, 2023, https://doi.org/10.1787/5f2dcc8e-en, 6.

[112] Réka Juhász, Nathaniel Lane, Emily Oehlsen and Verónica C. Pérez, "The Who, What, When, and How of Industrial Policy: A Text-Based Approach," (December 2023): http://dx.doi.org/10.2139/ssrn.4198209.

from the Global Trade Alert (GTA) database of commercial policy interventions – are classifiable as industrial policy and, even more indicative, employment of these measures is on the rise, with an increase of 30 percent since the early 2010s.

Figure 1: The Time Trend of Industrial Policy



(a) Total industrial policies (b) Share of industrial policies

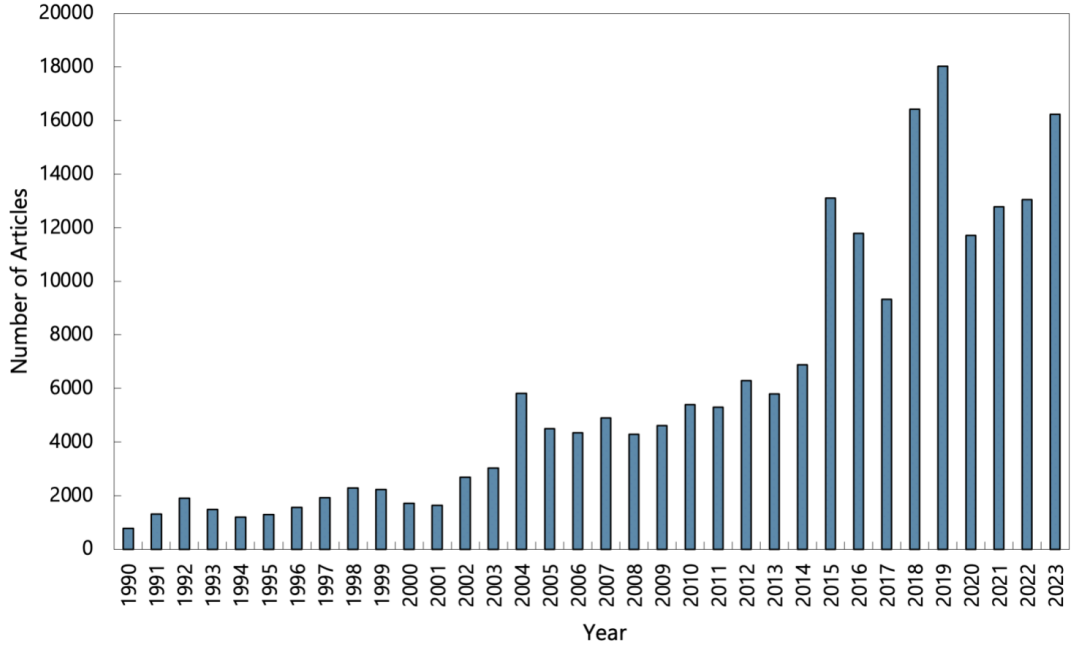
Source: Table adapted from Juhász et al. (2022, 21).

These trends are compounded by a more recent IMF research which covers exclusively the year 2023, suggesting that industrial policy has experienced a general upward trend since 2009, with an even stronger presence observed last year[113]. It also reveals that prevalence and employment in practice predate the recent surge in usage and prominence in public discourse. Trends indicating this increase in public debate are here reflected in terms of mentions of the expression "industrial policy" in the major business papers[114].

[113] Evenett et. al., "The Return of Industrial Policy in Data."

[114] Evenett et. al., "The Return of Industrial Policy in Data," 5.

Figure 2: Mentions of Industrial Policy in the Major Business Press



Source: Table adapted from Evenett et al. (2024, 5).

A shift in the perception of industrial policy has been a recurring feature of political discourse in Britain since the aftermath of the Global Financial Crisis. Prime Minister David Cameron pledged to implement a comprehensive industrial strategy aimed at business support and knowledge and job creation to sustain the challenges of the future[115]. Then in 2017, the government of Theresa May published a policy document calling for the "development of a modern Industrial Strategy that would help businesses to create high quality, well-paid jobs right across the country."[116] The 2017 Industrial Strategy was

[115] UK Government, "Government and industry unite behind industrial strategy to help British businesses grow", Department for Business, Innovation & Skills (September 2013): https://www.gov.uk/government/news/government-and-industry-unite-behind-industrial-strategy-to-help-british-businesses-grow.

[116] HM Government, "Industrial Strategy, Building a Britain fit for the future", presented to Parliament by the Secretary of State for Business, Energy and Industrial Strategy Cm 9528 (November 2017):

then replaced by the new *Plan for Growth* by the government of Boris Johnson, which was structured around three growth pillars: infrastructure, skills, and innovation[117]. In 2023, Chancellor Jeremy Hunt delineated the growth and prosperity strategies of the current government. Hunt unveiled a number of growth packages, including a life sciences growth package of $650 million, named *Life Sci for Growth*, an Advanced Manufacturing Plan totaling $4.5 billion focused on the automotive industry, aerospace, zero-emission vehicles, life sciences, and green industries and an additional $500 million allocation to support research and development in artificial intelligence[118].

In Germany, historically reluctant to actively pursue industrial policy in the name of its allegedly ordoliberal tradition, calls for a more activist role of the government have been growing from both the left and the conservative political spectrum[119]. As early as 2016, the then German Vice Chancellor Sigmar Gabriel, upon his return from a meeting with Chinese Premier Li Keqiang during the 16th Western China International Fair, warned that Germany was sacrificing "its companies on the altar of free markets" and called for more investment and acceptance of government industrial projects[120]. In 2019, former Federal Minister for Economic Affairs and Climate Action (BMWK) Peter Altmaier – a

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/730043/industrial-strategy-white-paper-print-ready-a4-version.pdf, 4.

[117] Diane Coyle and Adam Muhtar, "UK's Industrial Policy: Learning from the Past?," *Productivity Insights Paper*, no. 002 (The Productivity Institute: October 2021), 8.

[118] https://www.uktaxpolicymap.com/fiscal-re-balance/government-s-growth-plan.aspx

[119] Aiginger and Rodrik, "Rebirth of Industrial Policy and an Agenda for the Twenty-First Century," 190.

[120] Janosch Delcker, "Germany's Chinese investment problem," *Politico*, November 25, 2016, https://www.politico.eu/article/germanys-chinese-investment-problem-sigmar-gabriel-eu/.

member of the CDU since 1976 – introduced the National Industrial Strategy 2030[121]. This envisaged a plan aimed to promote specific transformative technologies, foster the growth of major companies on both the national and European levels to enhance their global competitiveness, preserve and strengthen industrial and technological sovereignty by reshoring global value chains, and prevent foreign acquisitions of crucial technology companies through stricter scrutiny of foreign investments (FDI-screening) [122]. A further example is the Act on Tax Benefits for Research and Development, which entered into force in January 2020. This act entitles companies and entrepreneurs to apply for subsidies of up to 25 percent of their eligible R&D activities[123], reflecting the government's interest in enhancing the country's attractiveness as a hub for research and innovation.

[121] This strategy the precursor of the current German industrial policy, "Industrial policy in changed times" presented in October 2023 by Vice-Chancellor and Federal Minister for Economic Affairs and Climate Action, Robert Habeck.

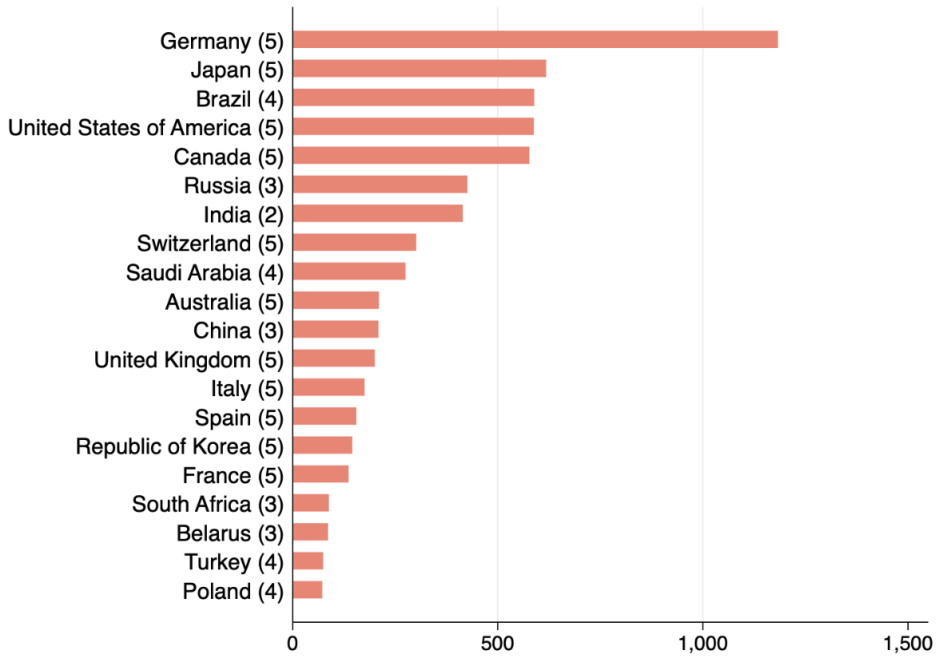
[122] Etienne Schneider, "Germany's Industrial strategy 2030, EU competition policy and the Crisis of New Constitutionalism. (Geo-)political economy of a contested paradigm shift," *New Political Economy*, Vol. 28, Issue 2 (June 2022): 241–258, https://doi.org/10.1080/13563467.2022.2091535, 242.

[123] German Act on Tax Incentives for R&D (FZulG): An opportunity for Germany as innovation hub, Warth & Klein Grant Thornton, https://www.grantthornton.de/globalassets/1.-member-firms/de-germany/pdf-download/fzulg_warth_klein_grant_thornton.pdf

1.3.2 Reassessing Traditional Actors and Instruments

Both previously mentioned studies confirm another striking pattern: despite the intense emphasis historically given to industrial policy applications in developing economies, high-income countries have confirmed to be the major users of industrial policy in recent decades. This trend is evident among both non-democracies, such as China, Russia, and Saudi Arabia, and in many liberal democracies, with significant new programs being implemented, especially in the United States and Europe.[124]

Figure 3: Total Policies Classified as Industrial Policy



Source: Table adapted from Juhász et al. (2022, 24).

[124] Juhász et al., "The Who, What, When, and How of Industrial Policy," 16-18.

Quite interestingly, the studies also showed that the most employed policies are *traditional* measures of industrial policies, mainly subsidies and trade policy (export and, less, import-oriented tariffs). These are classified as "trade financing, state loans, financial grants, financial assistance in foreign markets, local sourcing, loan guarantees, and import tariffs[125]".

Figure 4: Count of Industrial Policy Measure Type

Source: Table adapted from Juhász et al. (2022, 22).

[125] Juhász et al., "The Who, What, When, and How of Industrial Policy," 16

The importance of these traditional policies has been somewhat side-lined by advocates of the new wave of *smart* industrial policy, mostly concentrated on knowledge generation, such as investments in R&D, to solve grand challenges. Along these lines, the goal of industrial policy should not be simply "picking winners" but fostering the creation of a good innovation environment where winners can arise by themselves[126]. Innovation arises mainly from research and development hubs – universities, laboratories and R&D departments – which, if sufficiently funded, can envision new technologies. At this point, firms can easily adopt such technologies and develop and distribute innovative activities generating value and fostering productivity and economic growth. In Bailey's words, "[a] new model of industrial prowess emerges that is centered on the nexus of science and technologies embedded in a matrix of industry, government and higher education[127]" It follows that a traditional view of industrial policy (strategy) is perceived as unnecessarily narrow and traditional instruments are set aside in light of a more holist approach to the process of innovation discovery[128].

Chang and Andreoni, while largely supportive of the concept of smart industrial policies, caution against completely disregarding more traditional forms of knowledge generation, such as production. Indeed, according to this holistic view, underperformance in production is attributed to inadequate investment in knowledge inputs, while

[126] David Bailey and Philip Tomlinson, "Back to the Future? UK Industrial Policy After the Great Financial Crisis," in *Economic Policies since the Global Financial Crisis*, ed. Philip Arestis and Malcolm Sawyer, (International Papers in Political Economy, Palgrave Macmillan: December 2017): 221–263, https://doi.org/10.1007/978-3-319-60459-6_6.

[127] Bailey et al., "New technologies and transformative innovation policies?," 171.

[128] *Ibid.*

deindustrialization or offshoring are not considered detrimental to learning, as innovation is perceived as totally distinct from production processes[129].

Instead, these increasingly critical challenges – widespread deindustrialization, offshoring, relocation, and outsourcing of production towards lower-cost countries – are precisely the obstacles that higher-income and higher-cost countries are facing. In recent decades, deindustrialization, intended as a decline in the share of manufacturing in GDP and employment, has been particularly acute in advanced economies, resulting in a productivity decline followed by wage stagnation and increased social inequality[130]. In turn, it has been argued that these very challenges have arisen due to the absence of a comprehensive industrial strategy for many decades. Now, industrial policy appears to be making a comeback to address them. As argued by Andreoni et al. "[i]n many cases, decline has been the result of a lengthy process of deterioration of the industrial base and the dismantling of both private and public entrepreneurial systems[131]". The authors emphasize the importance of acknowledging the role of learning in production and advocate for a return to the original focus of industrial policy centered on manufacturing and traditional measures:

[129] Chang and Andreoni, "Industrial Policy in the 21st Century," 332.

[130] Fiona Tregenna, "Deindustrialization and Reindustrialization," in *Pathways to Industrialization in the Twenty-First Century: New Challenges and Emerging Paradigms*, ed. Adam Szirmai, Wim Naudé, and Ludovico Alcorta (WIDER Studies in Development Economics: Oxford, May 2013): https://doi.org/10.1093/acprof:oso/9780199667857.003.0003, 76.

[131] Antonio Andreoni, Ha-Joon Chang, Sue Konzelmann and Alan Shipman, "Introducton to the Special Issue: Towards a production-centred agenda," *Cambridge Journal of Economics*, Vol. 42, Issue 6 (November 2018): 1495–1504, https://doi.org/10.1093/cje/bey042, p. 1496.

> "Once we recognize the importance of learning in production, we begin to see that no amount of 'smart' policies will generate innovation without those 'dumb' policies that keep firms in business and help them expand, improve and innovate their production activities."[132]

Viewed through Kaldorian[133] and structuralist perspectives, manufacturing is seen as a growth catalyst mainly in light of dynamic economies of scale, robust linkages with other sectors, and properties of learning-by-doing[134]. In contrast for example with resource extraction, manufacturing is a knowledge- and technology-intensive activity that, as seen in this chapter, has been historically central to the process of economic development[135]. Moreover, when it comes to manufacturing, once key industrial sectors are lost, they are often lost permanently. For instance, if a country loses its aerospace or computer chip industries to foreign competitors, the associated value vanishes along with the industry's supply chains, knowledge base, and industrial resources. In this case, the assumption in neoclassical economics that remaining assets will automatically transition to high-value-added sectors does not always hold true.

Another important characteristic of the return of industrial policy is its high degree of selectivity, with measures targeted at a relatively small number of sectors. According to Juhász's text-based approach, there is particular convergence of countries across income

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[132] Chang and Andreoni, "Industrial Policy in the 21st Century," 332.

[133] "Kaldor's growth laws posit that (a) as the manufacturing output grows, the overall economic product experiences a corresponding increase, and (b) that there exists a deterministic relationship between the growth of manufacturing productivity and the growth of manufacturing output.

[134] Tregenna, "Deindustrialization and Reindustrialization," 77.

[135] Dean et al., "Industrial policy-making after COVID-19," 284.

level on support for strategic sectors such as heavy and hi-tech industries[136]. The study at the OECD found that, across participating countries, sectoral support primarily targets energy, transport and manufacturing[137].

Thus, industrialized economies are doing much more than just shaping the overall macroeconomic environment for business, as a devotion to horizontal policies would prescribe. Certainly, as argued by many, targeted government interventions are increasingly taking the form of those innovation policies previously mentioned, pointing toward areas of global interest, such as climate change mitigation and green transformation. Nonetheless, it has also been argued that, as the global financial crisis revealed inefficient sectoral allocation, OECD countries are employing industrial policy to favor economic reallocation, searching for new sectors and growth areas to strengthen potential output growth, such as manufacturing[138].

Furthermore, governments increasingly turn to targeted industrial policies to support sectors or firms that have lost competitiveness compared to foreign counterparts[139]. Through this pattern, they seek to mirror the systematic and targeted use of industrial policy in such foreign countries to bolster their own industries. Quite often, these actions are vilified and seen as deeply unfair because they do not conform to the rules that the West has been forcefully imposing on the entire world. However, rather than assigning

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[136] Juhász et al., "The Who, What, When, and How of Industrial Policy," 19.

[137] Criscuolo et al, "Quantifying Industrial Strategies Across Nine OECD Countries," 33-40.

[138] Warwick, "Beyond Industrial Policy." 11.

[139] Chiara Criscuolo, Nicolas Gonne, Kohei Kitazawa and Guy Lalanne, "An industrial policy framework for OECD countries: Old debates, new perspectives", *OECD Science, Technology and Industry Policy Papers*, no. 127 (OECD Publishing: Paris, May 2022): https://doi.org/10.1787/0002217c-en, 12.

blame, it may be more productive to recognize that the existing growth structure is dangerously close to reaching its limits. It is imperative to reassess the changing dynamics of the current geoeconomic and geopolitical landscape to understand why most advanced economies are undergoing a necessary readaptation. This matter will be further investigated in the next chapter.

CHAPTER TWO: UNDERSTANDING THE CATALYSTS

Preliminary Remarks

The initial chapter effectively illustrated, using empirical examples and data, the resurgence of industrial policy. This chapter seeks to uncover the main catalysts that have brought this revival about in advanced economies, especially in the United States (US).

The US is a particularly interesting case study for at least two main reasons. Firstly, it is still considered the most market-oriented among wealthy countries and one with very "little patience for industrial interventions" [140] and, in general, for direct government intervention. However, as the ensuing analysis will demonstrate, major crises have softened the grip of this deep ideological commitment, leading different administrations to significant economic relief packages.

Secondly, as the world's largest economy and a leading global power, the US wields significant influence over international economic dynamics. Its economic size, power, policy leadership, and ideological influence have often served as a magnet for other economies to align themselves with the prevailing economic paradigm. As suggested by Wade, "what the US government does by way of economic policy has long shaped norms about economic policy in the rest of the world."[141] This influence was particularly evident in the post-Cold War era when the combination of economic hegemony, ideological

[140] Aiginger and Rodrik, "Rebirth of Industrial Policy and an Agenda for the Twenty-First Century," 192.

[141] Wade, "Return of Industrial Policy?," 229.

dominance, and military power allowed the US to exert considerable influence over global economic policies and trends.

Now, things are changing, the extent of US influence is being challenged by emerging powers and shifting geopolitical dynamics and Fukuyama's "end of history"[142] seems to be shifting far and far away. Nonetheless, as concluded by Beckley, US hegemony will continue to endure for the foreseeable future, and its role as a leading economic actor will continue to shape the contours of the international economic order[143]. In this regard, a closer look at the US response to the shocks of the last two decades provides essential insights into the dynamics of the international arena as a whole.

[142] Francis Fukuyama, *The End of History and the Last Man*, 1992, http://ci.nii.ac.jp/ncid/BA14011847.

[143] Michael Beckley, "China's Century? Why America's Edge Will Endure," *International Security* 36, no. 3 (2011): 41–78, http://www.jstor.org/stable/41428109.

2.1 STRUCTURAL SHIFTS IN THE INTERNATIONAL ECONOMY

The resurgence of industrial policy in recent times can be seen as part of governments' broader search for effective tools and strategies to address the repercussions of multiple compounding economic shocks: (a) sluggish growth following the financial crisis, (b) the COVID-19 pandemic with its associated supply disruptions, and (c) escalating geopolitical tensions and conflicts, particularly in response to China's increasing influence within the international arena.

These events have unfolded within a series of transformations that have shaped the world economy over the past four decades. Therefore, it is worthwhile to take a preliminary look at the broader context.

2.1.1 The Great Convergence

Since the 1990s a number of changes in the geopolitical end geoeconomical landscape gave rise to what Richard Baldwin called "The Great Convergence,"[144] meaning the trend of declining economic dominance of industrialized countries, particularly in the face of rising industrialization and economic development in emerging markets.

This phenomenon has been characterized by the narrowing gap in economic output and technological capabilities between the two blocs. In particular, technological advancements in transportation and communication have enabled global integration of

[144] Richard Baldwin, *The Great Convergence*, 2016, https://doi.org/10.2307/j.ctv24w655w.

production processes, which led to the dispersion of manufacturing activities across the globe. This global segmentation of production tasks has allowed emerging markets to leverage their lower labor costs and abundant resources to compete more effectively in global markets[145]. Technological advances, coupled with cost-reduction opportunities offered by the offshoring of labor-intensive manufacturing processes and the increasing openness to trade and investments resulted in a fully-fledged business revolution[146]. As the pace of offshore production started to accelerate dramatically – not only in manufacturing but also in retailing and established brand companies – the geography of value chains expanded, leading to the emergence of regional and global supply chains[147].

These transformations have led to a convergence in living standards, productivity levels, and economic growth rates between developed and developing countries. Asia, particularly East Asia, has been among the primary drivers of this phenomenon, transforming into an increasingly crucial node in Global Value Chains (GVCs). Countries like China, India, South Korea, and Taiwan experienced rapid industrialization and economic growth, leading to substantial convergence with advanced economies in terms of economic output, technological capabilities, and living standards.

On the other side, traditional economic powerhouses are encountering increasing difficulties in maintaining their dominance, especially with the growing competition from emerging economies encroaching on activities and markets that were once considered

[145] Chang and Andreoni, "Industrial Policy in the 21st Century."

[146] *Idid.*

[147] Gary Gereffi, "Global Value Chains in a post-Washington Consensus World," *Review of International Political Economy* 21, no. 1 (March 6, 2013): 9–37, https://doi.org/10.1080/09692290.2012.756414, 10.

core strengths of OECD countries[148]. The redistribution of global manufacturing has had particularly dramatic effects on the wealth and stability of the middle class in advanced economies. As showed by Milanovic, while the converge stimulated by the "rising Asia" effectively caused a decline in global inequality, it did not improve the relative position of the Western middle class, whose income growth continued to be "sluggish and lag behind the world median"[149]. In turn, as pointed out by Baldwin, this has been at the origin "of much of the anti-globalization sentiment in rich nations."[150]

The rise of Asia has also brought forth a new model of political economy, which – while still enabling a high degree of economic integration – features different rules, actors and dynamics compared to the Western one. As Jewellord Nem Singh observes, "in Asia Pacific the slow return of state-led forms of financing became the dominant mode of political economy models, including the establishment of sovereign wealth funds[151], the rise of national champions in global markets and, crucially in the case of China, the recalibration of power in favor of state-owned enterprises (SOEs)."[152]

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[148] Warwick, "Beyond Industrial Policy," 7.

[149] Branko Milanović, "After the Financial Crisis: The Evolution of the Global Income Distribution Between 2008 and 2013," *Review of Income and Wealth* 68, no. 1 (May 26, 2021): 43–73, https://doi.org/10.1111/roiw.12516, 29.

[150] Richard Baldwin, *The Great Convergence*, 2016, https://doi.org/10.2307/j.ctv24w655w, 1.

[151] A state-owned investment fund or entity that is commonly established from balance of payments surpluses, official foreign currency operations, the proceeds of privatizations, governmental transfer payments, fiscal surpluses, and/or receipts resulting from resource exports.

[152] Jewellord T. Nem Singh, "Recentring Industrial Policy Paradigm Within IPE and Development Studies," *Third World Quarterly* 44, no. 9 (June 9, 2023): 2015–30, https://doi.org/10.1080/01436597.2023.2216140, 2023.

The overall success of this model, in a world once believed to be exclusively dominated by the principles of market fundamentalism, is beginning to erode the mainstream consensus. The main difference is that most firms from emerging market economies, while significantly expanding their global presence, are able to maintain a distinct national identity compared to Western counterparts and often receive sizable state support. As underlined by Robert Wade, their rise "has made western companies and governments aware of nationality issues and more sympathetic to the idea of state support."[153]

[153] Wade, "Return of Industrial Policy?," 228

2.2 INDUSTRIAL POLICY IN TIMES OF CRISES

2.2.1 The Global Financial Crisis

In the aftermath of the global financial crisis, the then chief of staff to President-elect Barack Obama, Rahm Emanuel, stated: "You never want a serious crisis to go to waste. And what I mean by that is an opportunity to do things that you think you could not do before."[154]

Ever since, this expression, most likely borrowed from Winston Churchill, has become a catchphrase, often repeated by economists and policymakers when discussioning action plans in particularly distressed times. It is indeed commonly thought that crises, as they represent moments of deep uncertainty, often make space for policy change, becoming a fuel of renewal. As underlined by Joseph Stiglitz et al., "[i]t often takes a major disastrous historical event for even the most self-evident ideas to gain wide recognition."[155] Arguably, then, the Global Financial Crisis – widely considered the most significant downturn since the 1930s Great Depression – has successfully led to a reconsideration of many mainstream economic thoughts.

The common argument asserted that markets operated efficiently and, even when they did not, government intervention was likely to worsen rather than improve the situation.

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[154] https://www.wsj.com/video/rahm-emanuel-on-the-opportunities-of-crisis/3F6B9880-D1FD-492B-9A3D-70DBE8EB9E97

[155] Joseph E. Stiglitz, Justin Yifu, and Célestin Monga, *The Rejuvenation of Industrial Policy, World Bank Policy Research Working Paper*, 2013, https://doi.org/10.1596/1813-9450-6628, 2.

The 2008 crisis,[156] not only revealed the disruptive potential of market inefficiencies but also led most countries to agree that without robust government intervention, the market-based economies of the US and Europe could have likely collapsed[157]. All in all, the general response to the crisis departed significantly from the prevailing practice concerning the quasi-total reliance upon market forces and the minimal involvement of the state in the economy[158]. More generally, since the global financial crisis the number of countries adopting national industrial strategies and policy measures targeted at industrial sectors has increased dramatically. As Etienne Schneider highlighted, after the crisis, industrial policy remerged "wie Phönix aus der Asche," like a phoenix from the ashes[159]. Moreover, as pointed out by Andrea Szalavetz, "many of these measures showed remarkable resilience half a decade after the breakout of the crisis."[160]

[156] Considered the latest manifestation of structural imbalances resulting from widespread financialization.

[157] Stiglitz, Yifu, and Monga, *The Rejuvenation of Industrial Policy*, 2.

[158] Clift and Woll, "Economic Patriotism: Reinventing Control Over Open Markets."

[159] Etienne Schneider, "Paradigmenwechsel in der Industriepolitik?!", *Luxemburg*, October 2021, https://zeitschrift-luxemburg.de/artikel/paradigmenwechsel-in-der-industriepolitik/

[160] Andrea Szalavetz, "Post-crisis Approaches to State Intervention: New Developmentalism or Industrial Policy as Usual?," *Competition & Change* 19, no. 1 (February 1, 2015): 70–83, https://doi.org/10.1177/1024529414563009, 71.

2.2.1.1 The American Response

The US took the lead with the most extensive government economic intervention since the Great Depression, which featured an impressive $1.3 trillion financial sector bailout, while Europe's financial sector bailouts amounted to $2.8 trillion[161]. As a whole, bailouts by the western nations amounted to $4.1 trillion in commitments[162]. To illustrate the scale of intervention, consider that as of December 2008, only one year from the beginning of the crisis, the combined worth of banks and insurance companies being renationalized in the US, UK, and the rest of Europe roughly equated to undoing approximately half of all privatizations worldwide over the preceding 30 years[163].

Specifically, in the US the Emergency Economic Stabilization Act was passed by Congress and signed into law by President George W. Bush[164] in October 2008. It created the Troubled Asset Relief Program (TARP), by which $700 billion was allocated for a series of rescue measures, among which the acquisition of troubled assets from financial institutions, capital injections to banks, assistance to insurance organizations, provisional funds for several housing programs but also loans to the auto industry[165]. In fact, it soon

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[161] Stephen K. Aikins, "Global Financial Crisis and Government Intervention: A Case for Effective Regulatory Governance," *International Public Management Review* 10, no. 2 (January 1, 2009): 23–43, https://journals.sfu.ca/ipmr/index.php/ipmr/article/download/67/67, 23.

[162] *Ibid.*

[163] David Hall, "Economic crisis and public services: note 1, December 2008" *Public Services International Public Services International Research Unit* (December 2008): 1-14. http://www.psiru.org/reports/2008-12-crisis-1.doc, 6.

[164] President from 2001 to 2009.

[165] Basak Kus, "Relief, Recovery, Reform: A Retrospective on the US Policy Responses to the Great Recession," *Intereconomics* 55, no. 4 (July 1, 2020): 257–65, https://doi.org/10.1007/s10272-020-0910-4, 259.

became clear that a collapse of the automobile industry would have had devastating consequences for the overall economy. At this point, although primarily intended as a financial rescue plan, the TARP became instrumental in bailing out the auto industry.

On December 19, 2008, President Bush announced loans of $17.4 billion for the two big US automakers, General Motors and Chrysler, as part of the Automotive Industry Financing Program (AIFP)[166]. As a result, the American government became a major shareholder in the automobile groups[167]. Interestingly, Chrysler had already been bailed out in 1980 through a federal loan guarantee of $1.5 billion when rising gasoline prices and intensified competition from foreign automakers pushed the company to the brink of bankruptcy[168]. Comprehensively, in the aftermath of the crisis, the federal government provided close to $80 billion to stabilize the US auto industry through several bailout initiatives[169] – initiated during Bush's presidency and concluded in December 2014, well into President Barack Obama's second term[170] – which saved more than a million

[166] Alexander Nye, "The Rescue of the US Auto Industry, Module A: Automotive Bridge Loans," *Journal of Financial Crises* 4, no. 1 (2020): 49-92. https://elischolar.library.yale.edu/journal-of-financial-crises/vol4/iss1/2, 50.

[167] Daniela Arregui Coka et al., "Learning From Trump and Xi? Globalization and Innovation as Drivers of a New Industrial Policy. Bertelsmann GED Focus 2020," *GED Focus Paper*, 2020, http://aei.pitt.edu/102551/, 10.

[168] Hufbauer and Jung, "Scoring 50 years of US industrial policy, 1970–2020" P*eterson Institute for International Economics* (PIIE) Briefings 21-5 (November 2021):1-110, https://www.piie.com/publications/piie-briefings/2021/scoring-50-years-us-industrial-policy-1970-2020, 75 .

[169] U.S. Department of the Treasury, *Troubled Asset Relief Program (TARP): Auto Industry*, https://home.treasury.gov/data/troubled-assets-relief-program/automotive-programs

[170] Andrewv Glass, "Bush bails out U.S. automakers," *Politico*, December 19, 2008, https://www.politico.com/story/2018/12/19/bush-bails-out-us-automakers-dec-19-2008-1066932.

American jobs[171]. Thus, to some extent, a reevaluation of past ideological convictions was evident even in the initial response to the crisis.

As unemployment rates rose and private spending declined considerably, it became evident that early bailouts were merely the starting point. According to conventional Keynesian principles, the US government sought to increase public spending to stop further decline. This was not an easy task, given the profound resilience of neoliberal and market dominance core principles. Data from a national poll conducted in 2011 showed that 56 percent of those surveyed believed that "government spending when the government is already running a deficit is the wrong approach during an economic downturn because it is only a temporary solution that increases long-term debt."[172] Arguably, this is why the 2008 Economic Stimulus Act, which amounted to approximately $100 billion (about 1 percent of GDP), while undoubtedly mitigating the severity of the downturn, had limited impact on a then $14.4 trillion economy[173].

However, government efforts persisted. In February 2009, the newly elected President Obama signed into law the American Recovery and Reinvestment Act (ARRA)[174], a $787 billion package of government spending and tax cuts (roughly 5.5 percent of GDP) which was defined by the then Chair of the Council of Economic Advisors, Christina Romer, as

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[171] U.S. Department of the Treasury, *Troubled Asset Relief Program (TARP)*, https://home.treasury.gov/data/troubled-asset-relief-program

[172] Kus, ""Relief, Recovery, Reform," 260.

[173] *Ibid*, 261.

[174] Unlike the TARP, the ARRA did not receive bipartisan support. The initially envisioned $819 billion package of government spending and tax cuts was passed without the support of any Republicans, with eleven Democrats voting against the plan.

"the boldest countercyclical fiscal action in American history."[175] The overarching aim of the ARRA was to create jobs and jumpstart the economy through sustained spending in education in health. In the words of the Administration, the main goal of the act was to "modernize [the] nation's infrastructure, enhance energy independence, expand educational opportunities, preserve and improve affordable health care, provide tax relief, and protect those in greatest need."[176] The ARRA allocated $730 million to help small businesses with tax deductions, credits, and loan guarantees and sought to jumpstart the alternative energy industry in America, with $17 billion in renewable energy tax cuts.

However, there remained a prevailing sentiment that these measures were temporary, primarily prompted by the crisis and the momentum gained from the recent electoral victory. Moreover, the differential treatment of financial institutions vis-à-vis the general public quickly incited frustration among the majority of Americans. The widespread belief was that the TARP bailed out those very financial institutions that were primarily responsible for the crisis, leaving low and middle-class Americans to grapple with the repercussions of the crisis largely unsupported. While American banks were too big to fail, the American people were too big to bail. Additionally, the Obama administration did not take any steps to replace the management of those banks in which the government

[175] White House, *The Case for Fiscal Stimulus:The Likely Effects of the American Recovery and Reinvestment Act,* Council of Economic Advisers (CEA Chair's Remarks 02272009), https://obamawhitehouse.archives.gov/administration/eop/cea/speeches-testimony/02272009/.

[176] White House, *Recovery Act,* Office of Science and Technology Policy, https://obamawhitehouse.archives.gov/administration/eop/ostp/library/compliance/recoveryact

was forced to take a controlling share, thereby avoiding a substantial break from the past[177].

On the other hand, some initial steps were taken to tackle the crucial issue of the country's loss of manufacturing capacity. Indeed, the crisis and its aftermath led to a realization of the critical condition of US manufacturing. In March 2012, Gene Sperling, the director of the White House's National Economic Council, stated that a resurgence in national manufacturing would greatly benefit America[178]. This marked the first instance in which a prominent figure in the Obama administration, or indeed in several preceding administrations, expressed public support for manufacturing and emphasized the necessity of implementing industrial policies to support the sector. Obama then effectively made the revitalization of American manufacturing a key element of his economic agenda. Under the 'buy American' clauses, the Administration engaged in sectoral targeted measures of the kind the American government had long denied, not just to raise bank lending but also to boost innovation in selected sectors, like energy, medical, pharmaceuticals and IT[179].

[177] Robert H. Wade, "The Paradox of US Industrial Policy: The Developmental State in Disguise" *International Labour Organization* ILO (Geneva: 2014): 379-400. https://labordoc.ilo.org/discovery/fulldisplay/alma994866333402676/41ILO_INST:41ILO_V2, 383.

[178] Gene Sperling, *Remarks: Speech at Conference on the Renaissance of American Manufacturing.* Washington D. March 27, 2012. https://obamawhitehouse.archives.gov/sites/default/files/administration-official/sperling_-_renaissance_of_american_manufacturing_-_03_27_12.pdf

[179] Wade, "Return of Industrial Policy?," 228.

2.2.1.2 Accelerating the Manufacturing Shift

A further outcome of the financial crisis and later recession has been a dramatic acceleration of the ongoing transformations of the global manufacturing landscape, especially in terms of the redistribution of global manufacturing output from industrialized to developing countries. Arguably, China and India had been driving the manufacturing expansionary process of developing countries since 1995, but the scenario changed even more dramatically after the financial crisis[180]. During the period 2007-2012, all major industrialized economies suffered sizable losses in terms of their manufacturing activities[181]. As observed by William Bonvillian and Peter Singer, "[m]anufacturing was clearly a leading victim of the Great Recession, and its weakness was a leading culprit in the slow recovery."[182] On the contrary, a large number of developing countries where among the few to register increases in their manufacturing value added (MVA) per capita[183]. China registered a stunningly 56 percent increase, gaining an almost 6 percent share of the world MVA in just five years[184]. In 2010, the US relinquished the title of the economy with the largest industrial production to China. Data on manufacturing output mirrored growth trends. As Milanovic showed, while Western

[180] Andreoni, "After the Crisis, Back on the Agenda," 344.

[181] With the only exception of South Korea.

[182] William B. Bonvillian and Peter L. Singer, *Advanced Manufacturing: The New American Innovation Policies*, Perlego (MIT Press, 2023).

[183] The Manufacturing value added (MVA) of an economy is the total estimate of net-output of all resident manufacturing activity units obtained by adding up outputs and subtracting intermediate consumption.

[184] Andreoni, "After the Crisis, Back on the Agenda," 344.

Europe, North America, and Oceania experienced virtually no growth between 2008 and 2013, Asia witnessed an almost 50 percent increase in its average income[185].

On the other side, it is conceivable that the financial crisis not only accelerated ongoing transformation but also served as a significant catalyst for change in the global political economy discourse. The devastating consequences and the urgent need for a robust policy response in declining sectors have reignited interest in powerful manufacturing dynamics that were often overlooked. For instance, a report by the *Information Technology and Innovation Foundation* (ITIF)[186] and other economic evaluations[187] suggest that US manufacturing output data for the first decade of the twenty-first century was significantly overstated. Indeed, while it was argued that the US manufacturing job loss was a result of productivity-driven restructuring (mainly in terms of technological advancements and efficiency improvements), slow output growth was actually the most significant factor[188].

Especially in America, conventional economic wisdom suggested a series of well-crafted arguments: that decreases in manufacturing employment would be balanced out by gains in other sectors; that a transition from a production-based economy to a service-based one was natural; that lower-wage, lower-cost producers would inevitably replace higher-cost ones; that a decline in commodity production should not be considered alarming because

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[185] Milanović, "After the Financial Crisis," 10.

[186] Stephen Ezell and Robert D. Atkinson, "The Case for a National Manufacturing Strategy," *Information Technology and Innovation Foundation* (ITIF), April 26, 2011, https://itif.org/files/2011-national-manufacturing-strategy-atkinson.pdf.

[187] Susan N. Houseman et al., "Offshoring Bias in U.S. Manufacturing," *Journal of Economic Perspectives* 25, no. 2 (May 1, 2011): 111–32, https://doi.org/10.1257/jep.25.2.111.

[188] Ezell and Atkinson, "The Case for a National Manufacturing Strategy," 4.

the country would maintain its leadership in producing high-value advanced technologies; that the benefits of free trade would always outweigh any temporary negative effects; and that innovation and production were separate, meaning innovation capacity would remain intact even if production moved globally[189]. However, as it turned out, none of these arguments proved to be extremely accurate.

First of all, the reality of the advanced technological sector is not thriving as it should be to effectively offset the losses of the manufacturing sectors. As held by Gary Pisano and Willy Shih, there has been a progressive erosion of the industrial commons:

> "When a major player in an industry outsources an activity, cuts funding for long-term research, and gains a short-term cost advantage, competitive pressure often forces rivals to follow suit. […] Eventually, the commons loses a critical mass of work, skills, and scientific knowledge and can no longer support providers of upstream and downstream activities, which are, in their turn, forced to move away as well. This is what happened to the industrial commons serving a number of high-tech sectors in the United States."[190]

As a result, from 2000, the US trade balance in high-technology products – an historical bastion of the country's strength – began to decrease and the nation has been running a trade deficit since 2002[191].

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[189] Bonvillian and Singer, *Advanced Manufacturing: The New American Innovation Policies*.

[190] Gary P. Pisano and Willy C. Shih, "Restoring American Competitiveness," *Harvard Business Review* 87 (July 1, 2009): 114–25, https://www.hbs.edu/faculty/Pages/item.aspx?num=36203.

[191] Bonvillian and Singer, *Advanced Manufacturing: The New American Innovation Policies.*

A further concern is the overall sustainability of the "innovate here, produce there" model, which refers to the recurring scenario where companies in advanced economies conduct research, development, and innovation activities domestically while the manufacturing process is outsourced to developing or emerging economies with lower production costs. This distributed dynamic works well for some sectors but not so much for others. As pointed out by Bonvillian and Peter Singer, aerospace products, energy equipment, complex pharmaceuticals and capital goods still require a close connection between research, design, and production[192]. In the long term, the concern is that countries will continue to outsource and offshore relatively advanced, value-added intensive tasks, especially R&D activities, to peripheral GVC participants[193]. But if all stages need to be closely linked with each other, it is more likely that R&D and design will follow production offshore, rather than the other way around.

2.2.2 The Covid Pandemic and Supply Chain Vulnerability

The belief in the self-correcting nature of markets was profoundly shaken by the 2008/2009 financial crisis and its aftermath. Countries worldwide embraced the notion of stimulating their economies through public spending, influenced by recommendations from mainstream classical institutions. However, entrenched ideological faith in neoliberalism tempered the idea of a radical break from the past. Interventionist stances

[192] *Ibid*.

[193] Szalavetz, "Post-Crisis Approaches to State Intervention," 72.

were slow to gain traction, significant when implemented, yet often unable to stick beyond short-term reactions.

Similar to the Great Recession, the recent COVID-19 pandemic sparked immediate calls to reinforce state intervention in the economy. But this crisis struck amidst an even more fragmented geopolitical and economic situation characterized by notable weakness in the international governance framework, characterized by stagnation within the G-7 and G-20 economies and a substantially diminished role of international organizations like the United Nations and international financial institutions such as the World Bank and the IMF[194]. As Arkebe Oqubay points out, the pandemic has been "interlocked with a public health emergency at a time of weak global collaboration, making it the most complex and damaging crisis to hit the world in living memory and exposing the vulnerability of the economic system[195]". This led to an increasing acknowledgment that government support measures cannot be relegated to mere crisis-driven reactions but should be systematically adopted if countries hope to increase their resilience against similar shocks in the future.

Health-wise, the spread of COVID-19 marked the most severe pandemic since the Spanish flu outbreak of 1918–1920. Economically, as the pandemic declined itself as a profound supply and demand shock, it triggered the most serious downturn since 2008. Part of the severity of the shock stemmed from the fact that among most affected countries were the largest industrialized economies in the world – the US, Germany, the United Kingdom, France, Italy and Spain, as well as China itself and Japan – accounting for

[194] Arkebe Oqubay, "Industrial policy and COVID-19 responses," *ICE, Revista de Economía* 914 (June 2020):97-113, https://doi.org/10.32796/ice.2020.914.7055, 98.

[195] *Ibid*.

about 55 percent of world supply and demand in terms of GDP[196]. Moreover, supply chain vulnerability was unveiled as the pandemic interrupted one of the crucial nodes of world production, namely East Asia, and China in particular[197], rendering key industries around the world susceptible to disruptions and shortages[198]. This compelled leaders worldwide to address the inherent fragility of GVCs. Furthermore, the global health crisis contributed to the exacerbation of existing geopolitical tensions. As he signed an Executive Order to secure critical US supply chains, President Joe Biden famously remarked: "this will never happen again in the United States, period. We shouldn't have to rely on a foreign country – especially one that doesn't share our interests or our values – in order to protect and provide for our people during a national emergency."[199]

2.2.2.1 The American Response to the Pandemic-Induced Shortages

The pandemic triggered a global shortage of basic personal protective equipment (PPE) – gowns, gloves, surgical masks and goggles (particularly essential for healthcare

[196] Richard Baldwin and Tomiura Eiichi, "Thinking Ahead About the Trade Impact of COVID-19," in *Economics in the Time of COVID-19*, ed. Richard Baldwin and Beatrice Weder Di Mauro, 2020, https://www.labourline.org/Record.htm?Record=19314122124911323049, 59.

[197] Andrea Coveri et al., "Supply Chain Contagion and the Role of Industrial Policy," *ECONOMIA E POLITICA INDUSTRIALE* 47, no. 3 (July 14, 2020): 467–82, https://doi.org/10.1007/s40812-020-00167-6, 468.

[198] Naveen Siddiqui and Andrew Lautz, "Industrial Policy: Path to U.S. Competitiveness or Pitfall?," *Bipartisan Policy Center,* October 3, 2023, https://bipartisanpolicy.org/blog/industrial-policy-path-to-u-s-competitiveness-or-pitfall/.

[199] White House, *Remarks by President Biden at Signing of an Executive Order on Supply Chain,* February 24, 2021, https://www.whitehouse.gov/briefing-room/speeches-remarks/2021/02/24/remarks-by-president-biden-at-signing-of-an-executive-order-on-supply-chains/

workers) – whose top exporters were located in Asia. Specifically, China accounted for almost 50 percent of the global output of PPE[200], while Malaysia was the top exporter of hospital gloves[201]. Thus, when the pandemic first hit China, there was a steep decline in its net export. Consider that Chinese industrial production from January to February 2020 experienced a 13.5 percent decline relative to the corresponding period in the preceding year[202]. The overall economic impact was intensified by the fact that the pandemic outbreak occurred in the Chinese Hubei Province, the primary exporting province of the world's largest exporter of protective garments[203]. Exports began to recover only after the Chinese government announced a substantial expansion of domestic production, yet still in quantities insufficient to meet global demand, leading to dramatic price surges.

Supply chain disruptions led to acute PPE shortages worldwide[204]. These disruptions were particularly felt in Western economies, especially due to their heavy reliance on global supply chains and the corresponding lack of domestic capacity in relevant sectors. Both the US and EU had pre-pandemic domestic manufacturing for some items included in the PPE categorizations, but in quantities significantly lower than those necessary to address

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[200] Chad P. Bown, "COVID-19: China's exports of medical supplies provide a ray of hope," *Peterson Institute for International Economics* (PIIE), March 26, 2020, https://www.piie.com/blogs/trade-and-investment-policy-watch/covid-19-chinas-exports-medical-supplies-provide-ray-hope.

[201] Chad P. Bown, "How COVID-19 Medical Supply Shortages Led to Extraordinary Trade and Industrial Policy," *Asian Economic Policy Review* (July, 2021): 114-135, https://www.piie.com/sites/default/files/documents/wp21-11.pdf, 116.

[202] Coveri et al., "Supply Chain Contagion and the Role of Industrial Policy," 468.

[203] Bown, "How COVID-19 Medical Supply Shortages Led to Extraordinary Trade and Industrial Policy,"131.

[204] Frank-Jürgen Richter, "Reshoring to Rebuild America," *Horasis*, February 11, 2022, https://horasis.org/reshoring-to-rebuild-america/.

the incoming pandemic. For example, Admiral John Polowczyk, who served as director of the Supply Chain Task Force supporting the White House COVID-19 Response Team, stated that the US was producing 500 million nitrile gloves annually pre-pandemic, whereas, during the pandemic, Americans were using 1.8 billion gloves per week[205].

As Chinese exports declined and were not offset by a corresponding increase in imports from other sources, the only viable option was to boost domestic capacity. However, long-term deindustrialization process and manufacturing decline in Western economies significantly hindered the scope of this strategy. For some sectors there was too little domestic production capacity altogether, "[it] is not like you just get to put on another shift and make more gloves," underlined Polowczyk.

Nonetheless, similar to the response observed during the global financial crisis, the severity of the pandemic underscored the capacity of even the most liberal economies to swiftly deviate from conventional economic principles and implement extraordinary measures. The US Federal Reserve reduced interest rates nearly to zero, allowed purchases of government-owned and mortgage-backed debt and announced a $3 trillion fiscal stimulus package to support businesses, local governments, and households[206]. In 2020, subsidies for $1.2 billion were provided for the expansion of domestic PPE production capacity as well as for inputs along the PPE supply chain[207]. Then, in spring 2021, over $400 million were spent to expand capacity for nitrile glove production.

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[205] Cited in Bown, "How COVID-19 Medical Supply Shortages Led to Extraordinary Trade and Industrial Policy," 116.

[206] Oqubay, "Industrial policy and COVID-19 responses," 99.

[207] Bown, "How COVID-19 Medical Supply Shortages Led to Extraordinary Trade and Industrial Policy," 127-128.

Despite the significant size of the economic stimulus, the US response to the pandemic has been largely described as flawed, indecisive, uncoordinated and chaotic, leading to delays in implementation and difficulties in measuring outcomes[208]. As David Carter and Peter May pointed out, "[t]he U.S. response was handicapped early by an inability or unwillingness to acknowledge the novel coronavirus threat and articulate a clear vision for addressing it[209]". Surely, the Trump administration made some questionable calls in dealing with the crisis early on, such as over-politicalizing the pandemic, portraying it as a foreign problem (the "China virus") and evading evidence and suggestions from the scientific community on the necessity of early containment measures[210].

In May 2020, however, Operation Warp Speed was launched with the aim of establishing public-private partnerships for the discovery and manufacture of effective vaccines and further securing relevant supply chains[211]. The program, which received a total funding of $18 billion[212], involved partnerships between suppliers and vaccine sponsors ensured by large government purchases in advance. It also subsidized input production capacity, including capital equipment, raw materials, and intermediate goods, to minimize potential bottlenecks in vaccine manufacturing. The outcome has been the development of a range of extremely effective vaccines that utilize advanced technologies such as messenger

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[208] Oqubay, "Industrial policy and COVID-19 responses."

[209] David P. Carter and Peter May, "Making Sense of the U.S. COVID-19 Pandemic Response: A Policy Regime Perspective," *Administrative Theory & Praxis* (April 2, 2020): 1-13, https://doi.org/10.1080/10841806.2020.1758991, 4.

[210] *Ibid*.

[211] David Lim and Zachary Brennan"Trump names team to develop coronavirus vaccine at 'Warp Speed,'" Politico, May 15, 2020, https://www.politico.com/news/2020/05/15/trump-coronavirus-vaccine-development-team-260678.

[212] Hufbauer and Jung, "Scoring 50 years of US industrial policy," 86.

RNA (mRNA), and are now being used in the treatment of various other illnesses, including cancer[213]. The program has been widely recognized as a success.

On top of subsidies to stimulate domestic production of medical equipment and various high-tech products, the administration also implemented policies aimed at bringing back US firms, especially those with operations in China[214]. Indeed, supply chain disruptions and product shortages prompted a critical reassessment of *where* America was manufacturing. It is fair to say that, although most policy actions to rebuild or expand the domestic capacity were adopted too late to have meaningful short-term positive effects, the "subsidization combined with the demand shock induced entry by American firms and changed the domestic industry landscape"[215]. A recent survey showed that 69 percent of U.S. manufacturers have begun reshoring their supply chains, with 94 percent reporting success in doing so[216].

Overall, the COVID-19 crisis underscored the significance of geographically diversified production, both within the US and globally. While relying solely on domestic production remains excessively risky, so is relying excessively on imports, especially if they originate primarily from one source (single sourcing). Furthermore, the challenges faced in

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[213] Cathy Hills, "Lessons From Past Industrial Policy Offer Insight For Chip Development," *TradeAlgo*, March 1, 2023, https://www.tradealgo.com/news/lessons-from-past-industrial-policy-offer-insight-for-chip-development.

[214] Hufbauer and Jung, "Scoring 50 years of US industrial policy," 4.

[215] Bown, "How COVID-19 Medical Supply Shortages Led to Extraordinary Trade and Industrial Policy," 127-128.

[216] Medius, *US manufacturers plan to increase reshoring to get better value and more security*, https://www.medius.com/news/cid-BCE234516BD3FE66/us-manufacturers-plan-to-increase-reshoring-to-get-better-value-and-more-security/.

bolstering domestic capacity revealed how years of dependence on imports may have hindered the government's expansion capacity during emergencies.

Finally, despite efforts to stimulate the economy through public spending, the lack of a clear industrial policy vision may have hindered the efficiency of the crisis response. Alternatively, greater experience in implementing industrial policy and closer state-business relations might have facilitated the overall process. To assess this, it is instructive to examine how other countries addressed the crisis.

2.1.2.2 East Asia: a More Coordinated Approach

East Asian countries enjoyed relative success in containing the COVID-19 pandemic early on[217]. Arguably, the key factors contributing to this success were their prior experience with SARS[218] and MERS[219] epidemics, as well as decades of industrial policy expertise, which significantly enhanced state-business relations and led to a more cohesive response to the pandemic.

Considering its proximity to China, South Korea was among the first to be affected by the pandemic, yet its response has been widely regarded as a model of crisis management. Undoubtedly, the country's experience with the 2015 MERS outbreak provided a valuable lesson on how to deal with the current scenario without replicating errors from the past.

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[217] Habibul Haque Khondker, "State and COVID-19 Response in the Asian Tiger Economies," *Comparative Sociology* 20, no. 6 (December 10, 2021): 695–717, https://doi.org/10.1163/15691330-bja10043.

[218] Severe Acute Respiratory Syndrome (SARS).

[219] Middle East Respiratory Syndrome (MERS).

One should not forget, however, that the country also had more than sixty years of industrial policymaking to fall back on. For instance, while most countries relied almost exclusively on the import of testing kits, South Korea produced them domestically in those very same biotechnology firms that had benefited from government support in the previous decade[220].

Equally, it is widely argued that Taiwan's successful policy response stemmed from "efficient coordination across the public and private sectors coupled with innovative deployment of advanced technology – the very same recipe that has delivered decades of economic growth."[221]

In China, the COVID-19 health crisis had profound economic repercussions, affecting industries, trade, and economic growth. However, China's economy maintained resilience even during the outbreak and soon picked up recovery. Oqubay argues that "China's significant advantage was that it was able to use its industrial capacity and scale to build new hospitals and manufacture medical equipment and pharmaceutical goods[222]". Furthermore, the role of state-owned enterprises (SOEs) likely bolstered policymakers' ability to effectively manage the pandemic. Francesco Macheda delineates three primary reasons for this: (1) SOEs provided stability by operating in sectors shielded from market competition, allowing the government to implement stringent lockdown measures

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[220] Juliette Schwak, "Korea's Exemplary Response to the COVID-19 Pandemic: Successes and Challenges," *National Defense University Press*, https://ndupress.ndu.edu/Media/News/News-Article-View/Article/2944861/koreas-exemplary-response-to-the-covid-19-pandemic-successes-and-challenges/.

[221] Evan A. Feigenbaum and Jeremy Smith, "How Taiwan Can Turn Coronavirus Victory Into Economic Success," Foreign Policy Magazine, https://foreignpolicy.com/2020/06/01/taiwan-coronavirus-pandemic-china-economy-technology/.

[222] Oqubay, "Industrial policy and COVID-19 responses," 102.

without undue market influence; (2) their enhanced productivity enabled them to supply goods and services during the crisis, reducing resolution times and preventing inflationary pressures; (3) the direct relationship between the central bank and state-owned banks facilitated efficient monetary transmission, directing resources to small and medium enterprises (SMEs) to uphold the industrial supply chain[223].

Overall, governments with expertise in industrial policy, particularly in East Asia, have leveraged their capabilities to formulate effective public health emergency responses. At a time when interest in industrial policy is increasing this underscores a valuable lesson regarding the adaptability and efficacy of industrial policy[224].

[223] Francesco Macheda, "Il Ruolo Delle Imprese a Conduzione Statale Nella Lotta Della Cina Contro Il COVID-19 (the Role of State-Owned Enterprises in China's Fight Against the Coronavirus Disease)," *Moneta E Credito* 73, no. 290 (July 18, 2020): 111–39, https://doi.org/10.13133/2037-3651_73.290_1.

[224] Oqubay, "Industrial policy and COVID-19 responses," 98.

2.3 INCREASING GEOPOLITICAL & GEOECONOMIC TENSIONS

2.3.1 The Rise of China

Undeniably, the renewed interest in industrial policy in the United States since the beginning of the 21st century is significantly influenced by the global presence of China. In the words of Aiginger and Rodrik:

> "In the USA, China has rapidly become a bogey man. American businesses complain about inadequate market access and unfair trade practices in China. Labor advocates worry about the large footprint of Chinese exports in communities that are experiencing difficulties producing sufficient numbers of good jobs. The US national security establishment meanwhile is increasingly concerned about technology transfer to a strategic and geopolitical rival and loss of US technological edge. All these have combined to yield both a hard line against China and a desire for more robust industrial policies at home."[225]

2.3.1.1 Coming Out Strong from the Crisis

The rise of China has been an ongoing process that has predated the global financial crisis. Nonetheless, if the crisis accelerated the preexisting dynamics of the power shift discussed above, clearly, China has been the main beneficiary of these shifts. As the crisis unfolded, China faced its own set of challenges, and it would be inaccurate to argue that

[225] Aiginger and Rodrik, "Rebirth of Industrial Policy and an Agenda for the Twenty-First Century," 190.

the government did not encounter sustained difficulties in dealing with the aftermath of the 2008 crisis. However, as Shawn Breslin points out, "if the crisis has generated problems for the Chinese leadership, they were problems that other world leaders might well have preferred to their own."[226]

China's policy response was early, large, and well-designed, and it effectively showed the ability of the government to mobilize major resources in support of national goals, underscoring the strength of the Chinese economic system[227]. The main legislative action consisted of a 4 trillion Yuan stimulus package announced in November 2008, aimed at containing the impact of the crisis and stimulating domestic demand. In addition, the government implemented a series of industrial policies for the recovery and revitalization of pivotal sectors such as automobile, steel, textiles, equipment machinery, and other manufacturing industries. Furthermore, authorities halted the appreciation of the Renminbi to alleviate the decline in exports[228].

Eventually, the country emerged from the crisis with the three biggest banks in the world, as the world's biggest exporter, the world's second-biggest economy, and a fundamental actor in global politics. In the meantime it also sought to strengthen its economic ties with economies around the world, shifting patterns of interactions. For instance, as shown by

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[226] Shaun Breslin, "Paradigm(s) Shifting?: Responding to China's Response to the Global Financial Crisis," in *The Consequences of the Global Financial Crisis: The Rhetoric of Reform and Regulation*, ed. Wyn Grant and Graham K. Wilson (Oxford University Press, 2012), 226–246, https://doi.org/10.1093/acprof:oso/9780199641987.003.0012, 238.

[227] Nicholas R. Lardy, "The Sustainability of China's Recovery From the Global Recession," *Policy Briefs*, January 1, 2010, https://ideas.repec.org/p/iie/pbrief/pb10-7.html.

[228] Liqing Zhang, "China's Policy Responses to the Global Financial Crisis: Efficacy and Risks," *Yale University Library*, (2009) https://perma.cc/K8CJ-ELBT, 2-4.

John Whalley and Dana Medianu, increasing trade with China has played a significant role in facilitating the swift and seemingly effortless recovery of resource-rich developing nations like Brazil from the aftermath of the financial crisis[229]. China has also become a more active and skilled global player seeking to establish rules of global governance both in collaboration with existing global powers through the G20 and IMF reform and within new blocs, such as the BRICS[230]. Something similar happened within the WTO, which China entered as a cautious participant but gradually learned to navigate the system, and it is now able to "create spaces for its industrial policy objectives to prop up local and national champions."[231]

Most importantly, the realization of China's effective response to the crisis in the rest of the world sparked interest in what Breslin calls the "China model", i.e. an important alternative to the neoliberal modes of economic growth and development[232]. According to the same author, the importance of the model itself lies not in the specifics of its economic theory but rather in what it is perceived to be, in the idea it conveys:

> "The China model has become a standard bearer for what it is not; it is not big bank shock therapy liberalization, it is not economic liberalization accompanied by political democratization, and it is not doing what the international liberal

[229] John Whalley and Dana Medianu, "The Deepening China-Brazil Economic Relationship," *CESifo Economic Studies* 59, no. 4 (August 20, 2012): 707–30, https://doi.org/10.1093/cesifo/ifs031.

[230] Breslin, "Paradigm(s) Shifting?," 226-227.

[231] Aggarwal and Reddie, "New Economic Statecraft," 147.

[232] Shaun Breslin, "The 'China Model' and the Global Crisis: From Friedrich List to a Chinese Mode of Governance?," *International Affairs* 87, no. 6 (November 1, 2011): 1323–43, https://doi.org/10.1111/j.1468-2346.2011.01039.x.

> global order wants—for example, liberalizing financial sectors and allowing free-floating market exchange rates."[233]

Truthfully, since 1978, China adopted a gradualist approach to economic liberalization, not only in terms of setting the pace of reform but also as a deliberate effort to preserve certain aspects of its traditional system, effectively creating a hybrid economic model[234]. This model has been focused on the employment of huge public and private resources to diversify and upgrade the country's production matrix, transitioning from lower-value to higher-value added stages of production while simultaneously constructing a progressively comprehensive value chain within the borders of Southeast Asia.

Following the global financial crisis, China responded to the economic shock by implementing an even broader and more conservative industrial policy[235]. The effective implementation of these measures has been fundamental in securing the country's global economic advantage.

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[233] Breslin, "Paradigm(s) Shifting?," 238.

[234] Scott Kennedy et al., "The Beijing Playbook: Chinese Industrial Policy and Its Implications for the United States," in *Meeting the China Challenge: Responding to China's Managed Economy*, ed. James Andrew Lewis (CSIS, 2018), 1-9, http://www.jstor.org/stable/resrep22421.5, 2.

[235] Alessandro Gili and Davide Tentori, "The Fight for Global Technology Leadership: a Matter of Geopolitics (and Industrial Policy Too)," in *The Comeback of Industrial Policy: The Next Geopolitical Great Game*, ed. Alessandro Gili and Davide Tentori (Ledizioni, 2024), 15–74, https://www.ispionline.it/wp-content/uploads/2023/12/The-Comeback-of-Industrial-Policy-Report-ISPI-2023.pdf, 41.

2.3.1.2 The Cornerstones of China's Industrial Policy

Since assuming office in 2013, CCP General Secretary Xi Jinping has overseen a notable escalation in China's industrial policy initiatives – mostly as attraction towards the liberal market waned following the global financial crisis[236].

In 2013, the Chinese government launched the Belt and Road Initiative (BRI), a colossal infrastructure project designed to enhance the country's global connectivity, particularly along the East-West route, as well as support its export capabilities. Since its inception, the BRI total expenditure has been estimated at $962 billion, making it one of the most ambitious infrastructure projects ever conceived[237]. The plan successfully highlights the interconnectedness of industrial policies, infrastructure investments, and trade priorities while also serving as a significant instrument for the country's geopolitical influence.

In May 2015, Xi Jinping's cabinet issued the *Made in China 2025* strategic plan[238], formalizing the establishment of an approach to economic development – mostly in terms of innovation independence and technology self-reliance – with increasingly sophisticated industrial policy at its core. The plan sets the goal for China to become the world's "manufacturing superpower," boosting domestic manufacturing companies' competitiveness, prioritizing innovation, technological advancement, and self-sufficiency

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[236]Scott Kennedy et al., "The Beijing Playbook: Chinese Industrial Policy and Its Implications for the United States," 3.

[237] João Paulo Meneses, "Special Report – BRI: How much has China spent so far?," *Macau Business*, October 2023, https://www.macaubusiness.com/special-report-how-much-has-china-spent-so-far/.

[238] Bai Gao, "The Renaissance of Industrial Policy: Developmentalism in the Era of Post Globalization," İstanbul Üniversitesi Sosyoloji Dergisi 40, no. 2 (December 31, 2020), https://doi.org/10.26650/sj.2020.40.2.0058, 587.

across key strategic industries such as new-generation IT, aviation and space equipment, energy, new materials, biomedicine and high-performance medical equipment[239].

Despite highlighting indigenous innovation, *Made in China 2025* still contains characteristics of the hybrid model discussed above. These include attracting foreign investment in high-tech and advanced manufacturing, encouraging foreign companies and research institutions to establish R&D centers within the country and promoting collaboration between Chinese enterprises and foreign counterparts[240]. Overall, the strategy signaled that the Chinese government is not just merely disregarding established norms but seeking to set new conditions for international competition, playing the liberal model to its own advantage[241].

Then, in 2016, China's State Council announced the *13th National Five-Year Plan for the Development of Strategic Emerging Industries*, which provides a comprehensive roadmap for the advancement of key sectors deemed crucial for the country's long-term economic growth and technological progress. The plan includes twelve innovation indicators, thirteen major special projects in the near term, nine significant science and technology

[239] Michael Settelen, "MADE IN CHINA 2025' AND CHINA'S EVOLVING INDUSTRIAL POLICY," *Expertise Switzerland Global Enterprise*, January 03, 2023, https://www.s-ge.com/en/article/expertise/2022-e-china-c5-industrial-policy?ct.

[240] Zongyuan Zoe Liu, "China's Long March Towards Global Industrial and Tech Leadership," in The Comeback of Industrial Policy: The Next Geopolitical Great Game, ed. Alessandro Gili and Davide Tentori (Ledizioni, 2024), 233-248, https://www.ispionline.it/wp-content/uploads/2023/12/The-Comeback-of-Industrial-Policy-Report-ISPI-2023.pdf, 238.

[241] Gao, "The Renaissance of Industrial Policy: Developmentalism in the Era of Post Globalization," 588.

programs for the longer term, and a focus on developing ten specific technological areas to establish a modern industrial technology system[242].

These initiatives represent only a fraction of the policies implemented by the Chinese government. A recent research carried out by the Center for Strategic and International Studies (CSIS) revealed the magnitude of China's industrial policy spending[243]. According to a conservative estimate, China's industrial policy expenditure in 2019 amounted to at least 1.73 percent of its GDP. This translates to over $248 billion in nominal exchange rates and $407 billion in purchasing power parity exchange rates, almost double its defense spending for the same year. China's spending far exceeds that of any other economy featured in the research, with expenditures over double that of the US.

2.3.2 America's Policy Response to Increasing Tensions

Dynamics of increased economic integration coupled with an ever more evident redistribution of economic and political power in an era of free trade regimes also have important geopolitical and strategic implications. During the 1990s, prominent economic authors appeared so ever confident of the unstoppable rise of economic imperatives, of the unfettered advantages of free trade and of the continuous integration of markets. Yet,

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[242] An summary of the "13th FYP for Science and Technology Innovation" is available at http://un.china-mission.gov.cn/eng/chinaandun/economicdevelopment/kj/201709/P020210901031849043248.pdf

[243] Gerard DiPippo, Ilaria Mazzocco and Scott Kennedy, "Red Ink, Estimating Chinese Industrial Policy Spending in Comparative Perspective" ed. Scott Kennedy and Matthew P. Goodman (CSIS, 2022), 1-87, https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/220523_DiPippo_Red_Ink.pdf?VersionId=LH8ILLKWz4o.bjrwNS7csuX_C04FyEre.

thirties year later, the world appears much more fragmented than previous predictions had indicated. A widespread ideological 'handicap' has prevented the West from conceiving that an alternative policymaking model – centered around broad government interventionism – could actually create long-term and strong economic competitors[244]. Now, the US is no longer the sole political and economic superpower and the liberal order shaped by the "Washington Consensus" is no longer the economic mantra to which all other economies are expected to comply in order to catch up with advanced ones[245]. As a consequence, geopolitical tensions and competition between economic blocs have been escalating dramatically – especially between the US and China.

A signficant shift in the balance of power between the US and China has been visible since China joined the WTO in 2001. However, while China was indeed recognized as a rising economic power, it was still not perceived as an imminent threat to US superiority – mainly in light of the latter advantage in the cutting-edge technological sectors. Things have changed considerably since then.

As discussed above, thanks to the robustness of its own economic model, China has emerged successful from the global crisis, and it has been able to swiftly recover from the global pandemic and ensuing economic crisis, emerging as an ever more aggressive and assertive global power. In the meantime, China has also made significant strides in technological innovation, leveraging particularly effectively the synergies between

[244] Vijay Gokhale, "How the 'Unilateral Neoliberalism' of the US Helped China to Weaponise its Economy for Geopolitics," *The Wire*, September 16, 2023, https://thewire.in/books/how-the-unilateral-neoliberalism-of-the-us-helped-china-to-weaponise-its-economy-for-geopolitics.

[245] Paolo Magri, "Introduction," in *The Comeback of Industrial Policy: The Next Geopolitical Great Game*, ed. Alessandro Gili and Davide Tentori (Ledizioni, 2024), 7-14, https://www.ispionline.it/wp-content/uploads/2023/12/The-Comeback-of-Industrial-Policy-Report-ISPI-2023.pdf, 13.

defense and commercial developments in dual-use technologies[246]. If China's ascendancy as the sole manufacturing superpower failed to prompt a decisive American response, the threat posed to US technological primacy undeniably has.

Above all, it was most likely China's announcement of its *Made in China 2025* plan which raised the level of concern among policymakers. Exemplificatory is the opening of a report by the *US Senate Committee on Small Business and Entrepreneurship* drafted soon after the publication of the Chinese plan, which reads:

> "In a world of state competition for valuable industries, a domestic policy of neutrality among activities is itself a selection of priority. 'Not choosing' is a choice, however it is made. The relevant policy consideration, then, is not whether states should organize their economies, but how they should be organized. Total neutrality among interacting economic system is impossible, but relative material decline is not […] The U.S. cannot escape or avoid decisions about industrial policy."[247]

Even more indicatively, a notion that has been dormant in the US since the Cold War – that of great-power competition – has recently remerged. In 2017, following the release by the Trump administration of the *National Security Strategy*, the Pentagon published

[246] Linda Weiss, "Re-emergence of Great Power Conflict and US Economic Statecraft," *World Trade Review* 20, no. 2 (January 7, 2021): 152–68, https://doi.org/10.1017/s147474562000056,157.

[247] U.S. Senate Committee on Small Business and Entrepreneurship, *Made in China 2025 and the Future of American Industry*, 2019 https://www.rubio.senate.gov/wp-content/uploads/_cache/files/0acec42a-d4a8-43bd-8608-a3482371f494/262B39A37119D9DCFE023B907F54BF03.02.12.19-final-sbc-project-mic-2025-report.pdf.

its own *National Defense Strategy,*[248] which emphasizes very clearly how the "central challenge to U.S. prosperity and security is the re-emergence of long-term, strategic competition" to be addressed through "increased and sustained investment." The report also states that in order to maintain the country's technological advantage, "changes to industry culture, investment sources, and protection" will be required.

Unlike the Cold War, which was predominantly fought on ideological and military fronts, the current rivalry between the US and China is primarily economic and centered on specific high-tech sectors. Indeed, it is clear how, in the framework of US-China relations (but also of global competition in general), the link between technology, innovation and security has become critical. Evidently, industrial policy is an integral part of this equation. Indeed, major international actors are using industrial policy to support and expand industries vital to their national defense innovation system, with civilian–military integration (dual use technologies) as a cornerstone of industrial policy[249]. As stressed by Alessandro Gili and Davide Tentori, "governments are assuming a larger role in shaping industrial agendas […] actively supporting the development of strategic sectors through subsidies and other policy interventions that influence market dynamics[250].

However, accepting that an increased targeted intervention in the economy to support strategic industries presents the most viable solution is, as commonly said, easier said than done. In this regard, the contrast between the two countries could not be sharper.

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[248] U.S. Department of Defense, *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge*, 2018, https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf.

[249] Aggarwal and Reddie, "New Economic Statecraft," 139.

[250] Gili and Tentori, "The Fight for Global Technology Leadership," 39.

As argued, the economic model of the Asian country has been built upon the unrestricted use of industrial policy. In contrast, in the US, the very idea is met, at best, with skepticism. It follows that the US will inevitably be compelled to adjust its economic model if only to accommodate credible justifications for industrial policy – a challenge from which China is entirely exempt. Moreover, it is not only the possibility of easily deploying an industrial strategy without public upheaval; it is the capability to do so that China has refined over the last decades that truly sets it apart in global competition.

Particularly, the establishment of close and robust relationships between firms and the government plays a pivotal role. As underlined by Geoffrey Gertz and Miles Evers, in the current global context, to leverage their power and accomplish their goals "states need to work with the private firms that constitute the networked global economy[251]". In this regard, the Chinese government already uses businesses to further its geopolitical interests because the establishment of deep and extensive ties with the private sector brought about a convergence of interests, knowledge, and capabilities between the two. On the contrary, in the US, the government has traditionally maintained a distant relationship with the private sector, further exacerbated by decades of deregulation and a " business culture that celebrates independence from the state."[252] So, while not all state-firms relationships are distant, it is arguable that the US government has only a limited history and thus ability to influence business decisions. Moreover, the market-liberal economic model that has nurtured American companies is governed by strict profit-

[251] Geoffrey Gertz and Miles M. Evers, "Geoeconomic Competition: Will State Capitalism Win?," *The Washington Quarterly* 43, no. 2 (April 2, 2020): 117–36, https://doi.org/10.1080/0163660x.2020.1770962, 117.

[252] *Ibid*, 124.

seeking rules, which often fail to align with, and may even counteract, the interests of the state.

2.3.2.1 Economic Statecraft & Economic Patriotism

Surely, while industrial policy is China's strongest suit, it is more like the Achilles heel of America. However, this may not be entirely accurate. While claiming that the US has ever pursued a coordinated and fully-fledged industrial policy strategy might be an overreach, the country's unique history of government intervention serves as a valuable foundation for the implementation of successful industrial policy in the future. Linda Weiss argues that this is a history based more on successful "economic statecraft" rather than industrial policy[253].

In the conceptualization of Vinod Aggarwal and Andrew Reddie, "economic statecraft", represents a country's ability to use economic tools as means to achieve security objectives[254]. The two concepts differ mainly in terms of ultimate purpose. In the words of Weiss, while "[i]ndustrial policy may or may not be a government's targeted response to international competitive pressures," economic statecraft is "always a response to challenges arising from the international arena, whether such pressures are geopolitical or geoeconomic in nature." [255]

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[253] Linda Weiss, "Re-emergence of Great Power Conflict and US Economic Statecraft," *World Trade Review* 20, no. 2 (January 7, 2021): 152–68, https://doi.org/10.1017/s1474745620000056, 164.

[254] Aggarwal and Reddie, "New Economic Statecraft," 139.

[255] Weiss, "Re-Emergence of Great Power Conflict and US Economic Statecraft," 164.

In this sense, while the outcomes of US government sponsored technology programs might have been commercialized worldwide, this was merely a side-effect, for the policies that led to such innovations had, first and foremost, geopolitical defense and military objectives. To cite perhaps the most important example, half a century ago the Defense Advanced Research Projects Agency (DARPA)[256] invented and developed the digital protocols that gave birth to the Internet[257]. The agency is widely considered the driver of the military-industrial complex and many of its originally appointed scientists came from the Manhattan Project[258].

Thus, while industrial policy and economic statecraft are inherently different, revolutionary innovations resulting from the latter still gave rise to globally competitive US industries. In other words, the purpose might differ but the outcome will remain the same. In today's landscape, where it becomes increasingly apparent that great power competition is predominantly economic rather than political in nature, the US is in the process of strengthening its economic-security nexus. Hence, while entrenched market liberal tendencies may pose some barriers to the explicit use of industrial policy instruments, the country has significant experience in employing similar strategies in a more covert and disguised manner, proving particularly successful when national security is at risk.

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[256] The establishment of DARPA and its role within the history of US industrial policy will be covered in the next chapter.

[257] Mitch Waldrop and Roger Anderson, *DARPA and the Internet Revolution*, 2012, https://www.darpa.mil/attachments/(2O15)%20Global%20Nav%20-%20About%20Us%20-%20History%20-%20Resources%20-%2050th%20-%20Internet%20(Approved).pdf.

[258] Cori Brosnahan, "DARPA: Weapons of the Future.," *American Experience*, January 2018, https://www.pbs.org/wgbh/americanexperience/features/secret-tuxedo-park-darpa/.

Concerns over China's growing economic and ideological influence may catalyze an even stronger reaction. It is well understood that policies aimed at addressing security issues tend to garner bipartisan consensus among American policymakers. What was less foreseeable, however, was that this consensus would lead even staunch Republicans to advocate for a reevaluation of fundamental neoliberal principles. Speaking about the rise of China at the National Defense University in 2019, Republican Senator Marco Rubio said:

> "Responding to this challenge will require us to reject the fundamentalism that argues that the greatest virtue in American policy is to maximize "efficiency." The market will always reach the most efficient economic outcome, but sometimes the most efficient outcome is at odds with the common good and the national interest. Outsourcing jobs to China may be more efficient because it lowers labor costs and increases profits. But the good jobs we lose end up destroying families and communities. […] This isn't a call to socialism or a rejection of capitalism; it's a call to policymakers to remember that the national interest, not economic growth, is our central obligation.[…] It is a call for a 21st-century pro-American industrial policy." [259]

The economic statecraft argument can be seen in a much broader way, not limited to the case of the US. In this regard, Ben Clift and Cornelia Woll have developed the notion of "economic patriotism," whereby economic choices are made to prioritize the interests of

[259] Marco Rubio, "American Industrial Policy and the Rise of China" (speech at National Defense University, December 10, 2019), https://www.rubio.senate.gov/wp-content/uploads/_cache/files/5922cc54-2966-48a1-8e88-f7b51bbeca06/D0E7312935012E45F20C67A3450DDAFD.ndu-china-industrial-policy.pdf.

one's own country. This involves favoring certain social groups, companies, or sectors perceived as insiders due to their territorial status. According to the authors, this is a universal phenomenon "endemic within interdependent markets and economic jurisdictions[260]".

In brief, economic patriotism reflects the desire to influence market outcomes for the nation's benefit in a geopolitical and geoeconomic context where international trade regulations and competition rules constrain traditional forms of industrial policy. Interestingly, this brings us back to the "paradox of neoliberal democracy" discussed in the previous chapter. Indeed, advanced democracies are marked by an enduring tension between national politics and global markets, whereby the rules, laws, and institutions that support integrated global markets also constrain national sovereignty. In this context, the notion of economic patriotism helps explain the current repurposing of economic policymaking:

> "The integration of markets and the concurrent weaving together of regulatory frameworks put pressure on national economic intervention to eschew old-style industrial policy. Governments therefore had to become creative to assure traditional economic policy objectives with new means."[261]

Especially when national strategic goals are at stake, countries are no longer willing to let market forces freely shape global economic outcomes and respond by adopting a more proactive stance.

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[260] Clift and Woll, "Economic Patriotism: Reinventing Control Over Open Markets," P. 309

[261] *Ibid*.

CHAPTER THREE: THE DYNAMICS OF INDUSTRIAL POLICY IN THE UNITED STATES

3.1 INDUSTRIAL POLICY AMIDST NEOLIBERAL NORMS AND POLITICAL REALITIES

3.1.1 American Neoliberal Wisdom

For the past four decades, the US government has espoused economic norms of *laissez-faire* more strongly than almost any other advanced capitalist country. Deregulation, privatization, de-unionization and the proliferation of free-trade agreements have carried neoliberal ideals into every corner of American life, and now "[e]ven universities, hospitals, churches and the Post Office compete to put themselves onto 'sound market principles'"[262].

Around the mid-20th century, a powerful intellectual movement arose from the University of Chicago's economics department, advocating free-market principles, limited government intervention in the economy, and emphasis on the efficiency of markets. Key figures associated with the Chicago School include economists such as Milton Friedman, Friedrich Hayek, George Stigler, and Ronald Coase. By postulating the optimality of market solutions in theory rather than through empirical studies and questioning, the Chicago school assumes that state action is no longer justified – not even in the presence

[262] Wade, "The Paradox of US Industrial Policy," 382.

of market failures – as, in principle, the market cannot fail[263]. Governments, on the other side, were considered almost sure to fail. Government interference distorts markets, erodes entrepreneurial values, and skews incentives in favor of specific interest groups. Moreover, while governments are not adept at selecting successful ventures, unsuccessful ones can influence government decisions. Hence, the common phrase: "Governments cannot pick winners but losers can pick governments" [264]. But the government was not considered just corrupt and inefficient but overall bad for democracy and freedom. As Friedman himself stated, "[e]very act of government intervention limits the area of individual freedom directly and threatens the preservation of freedom indirectly" [265].

From Chicago, support for these ideas spread all over the country, becoming intensively endorsed in think tanks such as the American Enterprise Institute (established in 1943), the Cato Institute, the Manhattan Institute, and the Heritage Foundation (all established in the 1970s) which in turn provide public policy research, analysis and advice to American policymakers[266].

Not surprisingly, as neoliberal core ideas rose to prominence, industrial policies as an economic solution – inherently based upon substantial government intervention in the economy – have been largely disregarded. Prominent American economist and Nobel

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[263] Vivien A. Schmidt, "The Roots of Neo-liberal Resilience: Explaining Continuity and Change in Background Ideas in Europe's Political Economy," *The British Journal of Politics and International Relations* 18, no. 2 (May 1, 2016): 318–34, https://doi.org/10.1177/1369148115612792, 321.

[264] Wade, "The Paradox of US Industrial Policy," 383-84.

[265] Milton Friedman, *Capitalism and Freedom: Fortieth Anniversary Edition* (University of Chicago Press, 2009), 32.

[266] John E. Roemer, "Ideological and Political Roots of American Inequality," *Challenge* 54, no. 5 (September 1, 2011): 76–98, https://doi.org/10.2753/0577-5132540505.

laureate Gary Becker famously stated in 1985 that "the best industrial policy is none at all[267]". John Williamson, the economist who coined the term 'Washington Consensus,' wrote, "[l]ittle in the record of industrial policy suggests that the state is very good at 'picking winners'."[268] Larry Summers wrote that government "is a crappy venture capitalist."[269] Economist Charles Schultz from Brookings dealt a decisive blow to the idea of industrial policy, stating "[w]e have enough real problems without creating new ones."[270]

The extent to which the state should interfere with the functioning of the markets was cut to a minimum; states should limit themselves to create favorable overall conditions for businesses, where entrepreneurs could then thrive by themselves. This vision is exemplified by those 'horizontal' or 'functional' broad-based interventions that apply across multiple sectors or industries with the aim of improving overall economic conditions (such as productivity, efficiency, and innovation) but without any alleged favoritisms. In 2011, only 10 percent of Americans expressed trust in the government to consistently act in the best interest of the people. The prevailing belief among the

[267] Gary Becker, "The best industrial policy is none at all," *Business Week*, August 26, 1985.

[268] Cited in Rob Atkinson, "I Finally Agree with Krugman," *American Compass*, September 26, 2020, https://americancompass.org/i-finally-agree-with-krugman/.

[269] Cited in Wade, "The Paradox of US Industrial Policy," 381.

[270] Cited in Rob Atkinson, "I Finally Agree with Krugman," *American Compass*, September 26, 2020, https://americancompass.org/i-finally-agree-with-krugman/.

remaining 90 percent is that government corruption roams due to manipulation by rent-seekers and predatory individuals. [271]

3.1.2 Political Economy Argument against Industrial Policy

Besides the more ideologically driven debate around industrial policy and government interventionism, there is what can be defined as a 'political economy argument'[272] against the implementation of industrial policies in the US. As already mentioned in Section 1.1.2, this argument stems largely from the "varieties of capitalism" literature, first developed by Peter Hall and David Soskice.

To summarize, the authors distinguish between Liberal Market Economies (LMEs) and Coordinated Market Economies (CMEs). In LMEs, such as the United States and the United Kingdom, coordination between firms is typically achieved through market mechanisms. These economies prioritize market flexibility, competition, and individual firm autonomy. On the other hand, in CMEs like Germany and Japan, coordination between firms is achieved through non-market mechanisms, such as long-term relationships between firms and banks, industry associations, or vocational training systems. These economies prioritize cooperation, coordination, and collective action. Industrial policy in CMEs is more active and more likely to be effective due to the nature of firm-state relationships. On the other hand, industrial policy in LMEs tends to be

[271] New York Times/CBS News Poll: 2012 Republicans, Obama and the Economy, (April 21, 2011), https://archive.nytimes.com/www.nytimes.com/interactive/2011/04/22/us/politics/20110422-poll-republicans-economy.html.

[272] Wade, "The Paradox of US Industrial Policy," 384-385.

limited and unlikely to be effective in improving market outcomes because of the weakness of institutional support.

In the United States case in particular, they suggest that industrial policy encounters further challenges due to the specific political feature of the country: the strong separation of powers between the executive, legislature and judiciary and between the federal, state and local levels.

While firms in LMEs typically have a high degree of autonomy and independence, as they become powerful market actors, they can influence government policies and decisions (often through lobbying, campaign contributions, or other forms of political influence), steering governments into engaging in industrial policy. Nevertheless, because of the absence of coordination in the system and the sway of vested interests, these policies will have overall negative consequences[273]. As Kevin Philips argues, industrial policy in such a fragmented political structure is both 'inevitable and ineffective'[274].

Overall, those who endorse a heavy neoliberal perspective tend to argue that industrial policy in the US does not exist at all; for those who acknowledge its existence, it is still perceived as inevitably ineffective. Michael Mann articulates this very effectively.

> "There is no serious American industrial policy; this is left to the post-war powerhouses of the US economy, the large corporations. Much of this [industrial policy failure] is due to the radical separation of powers enshrined in the US Constitution. A coordinated political economy cannot easily be run by a President

[273] *Ibid*.

[274] Kevin P. Phillips, "U.S. Industrial Policy: Inevitable And Ineffective," *Long Range Planning* 26, no. 1 (February 1, 1993): 156, https://doi.org/10.1016/0024-6301(93)90338-g, 104.

and his cabinet, two Houses of Congress, a Supreme Court and fifty 'states' (which are also fragmented by the same separation of powers) – especially when they belong to different political parties."[275]

3.1.3 Changing Climates: a Hidden Developmental State?

The preceding chapter demonstrated how a series of shocks, challenges, and transformations have progressively altered the normative climate in America, thus creating an opportunity for a reassessment of industrial policy. The 2008 crisis eroded the perception of the infallibility of self-regulating markets, while the COVID-19 pandemic underscored national security concerns regarding supply chain vulnerabilities. Additionally, the ongoing geopolitical and economic ascendance of China continues to challenge US leadership. These factors, compounded by mounting concerns regarding deindustrialization, the evolving nature of disruptive technologies, and climate change, have prompted a response from the American government.

Some consider the recent initiatives of the Biden administration alone to constitute the most significant commitment to industrial policy in American history since the Cold War era[276]. As it becomes increasingly challenging to deny that something is indeed changing, the theoretical discourse surrounding the long history of US industrial policy is being

[275] Michael Mann, "Has Globalization Ended the Rise and Rise of the Nation-state?," *Review of International Political Economy* 4, no. 3 (January 1, 1997): 472–96, https://doi.org/10.1080/096922997347715.

[276] Joe Seydl, Jessica Matthews and Ian Schaeffer. "The opportunity in renewed U.S. industrial policy," *J.P. Morgan*, June 1, 2023, https://privatebank.jpmorgan.com/nam/en/insights/markets-and-investing/the-opportunity-in-renewed-us-industrial-policy.

revisited. What is being argued is that if the country is indeed embarking on a new era of industrial policymaking, it is certainly not starting from scratch. While ideologically, the matter remains contentious in America's political and academic spheres, like any other government, Washington has a long history of industrial policy implementation. Nonetheless, the values underlying those policies, the process by which they are conceived and implemented, and the scope and methods of these policies are unique to the country and warrant further analysis. The question then arises: what characteristics does this history have, and how can they inform future challenges?

As with many aspects of this topic, the answer to this question is heavily debated. Authors such as Block, Mazzucato, and Wade argue that the US has consistently pursued industrial policy, although it has often operated as a 'hidden developmental state' due to entrenched ideological and structural constraints. Their research offers a comprehensive view of the country's experience with industrial policy. These authors also accurately depict the notion of 'below-the-radar' policymaking: the idea is that whenever a particular policy significantly diverged from the consensus of market fundamentalism, if a particular administration or department sought to endorse it, it often had to do so covertly.

It is necessary, however, to approach the term 'developmental' with caution. The concept of a 'developmental state' was coined by Chalmers Johnson to describe a highly specific form of coordinated economic planning, exemplified by the strategies employed by East Asian economies since the mid-20th century. In contrast, American efforts in this regard have consisted of a series of disconnected initiatives, consistently lacking a coordinated strategy[277]. Proponents of the 'developmental state in disguise' theory counter this

[277] Weiss, "Re-Emergence of Great Power Conflict and US Economic Statecraft," 163.

criticism by arguing that it is premature to assume that effective industrial policy necessarily requires centralized and coordinated entities to foster particular industries or companies, as in the conventional understanding of East Asian industrial policy[278].

However, the concern should be less on efficiency and more on the underlying objective. The distinctive feature of a developmental strategy is that its aim is economic in nature. In the words of Leftwich, developmental states "pursue and encourage the achievement of explicit developmental objectives, whether by establishing and promoting the conditions and direction of economic growth, or by organizing it directly, or a varying combination of both."[279] With the possible exception of the plan envisioned by Hamilton for 19th-century America – which was indeed grounded in a clear economic rationale for favoring certain industries over others – there are no other instances in US history of conceiving such a comprehensive economic strategy centered around the role of American industries. Johnson explains this well:

> "The United States government has many regulations concerning the antitrust implications of the size of firms, but it does not concern itself with what industries ought to exist and what industries are no longer needed. The developmental, or *plan-rational,* state, by contrast, has as its dominant feature precisely the setting of such substantive social and economic goals.[280]"

[278] Wade, "Return of Industrial Policy?," 224.

[279] Adrian Leftwich, "Bringing Politics Back in: Towards a Model of the Developmental State," *Journal of Development Studies* 31, no. 3 (February 1, 1995): 400–427, https://doi.org/10.1080/00220389508422370, 401.

[280] Chalmers Johnson, *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975* (Stanford University Press, 1982), 58.

In a plan-rational state, an industrial strategy is devised with the aim of shaping the structure of domestic industries to enhance the nation's global competitiveness. Conversely, a market-rational state usually lacks a coordinated industrial policy and is discouraged from even acknowledging it. Instead, the tools typically associated with industrial policy are often utilized in the context of broader foreign policy objectives, prioritizing political rather than purely economic goals[281]. This point is supported by Weiss when she argues that US industry-related programs and agencies have been established not primarily to achieve significant economic gains – whether they ultimately delivered such benefits or not is beside the point – but rather for geopolitical and strategic reasons[282].

It would be shortsighted to claim that the US has never implemented policies with industrial implications or that such measures cannot in any way amount to an 'industrial policy'. However, the primary objective behind such measures has historically been quite distinct from a direct strategy of economic development.

Arguably, this trend is a byproduct of the fragmentation of the American political system, compounded by decentralized power and traditional values such as radical individualism, private ownership, and free enterprise. In this sense, the US political apparatus – deliberately designed by the founding Fathers to accommodate diverse political forces and philosophical perspectives – renders policymaking the outcome of a complex interplay among different branches and across various levels of government. This model ensures limited power appropriation through a system of constant checks and balances,

[281] *Ibid*, 59.

[282] Weiss, "Re-Emergence of Great Power Conflict and US Economic Statecraft," 163-165.

but it does so at the expense of efficiency[283]. For this reason, Nester argues that while "Washington conducts industrial policies," they are "shaped far more by politics than grand strategy"[284]. He further explains:

> "Within this elaborate federalist system, most policies change incrementally. Dramatic policy shifts are rare; they usually occur only during crises when the president and legislators feel compelled to do something. The system encourages politicians and bureaucrats to tinker with existing programs rather than establish new ones."[285]

Overall, a series of incremental changes have indeed defined the evolution of industrial initiatives and relevant agencies. These changes have often been disconnected, reflecting the diverse economic stances of different administrations, forever torn between greater and lesser government intervention in the economy. The following analysis shall highlight some of the pivotal moments that have shaped the history of industrial policy in the US, revealing the principal dynamics that have characterized efforts in this direction.

[283] William R. Nester, A Short History of American Industrial Policies (Springer, 2016), 12-13.

[284] *Ibid*.

[285] *Ibid*.

3.2 A PEEK INTO US INDUSTRIAL POLICY EVOLVING HISTORY

3.2.1 From Hamilton to Lincoln

As illustrated in the first chapter, the first true examples of US industrial policies can be traced back to the political and economic vision of Alexander Hamilton, the first Secretary of the Treasury, who, in order to catch up with Britain, outlined a strategy for promoting American manufacturing.

Hamilton advocated for tariffs to generate revenue to reinvest in transportation infrastructure and in a national financial system and for pecuniary bounties (subsidies) to advance the creation of new comparative advantages in the manufacturing sectors[286]. Hamilton also advocated for the government's assumption of the national debt and for the creation of a national bank[287]. Indeed, alongside his report on manufacturers, between 1970 and 1971, Hamilton also sent to Congress the Report on Public Credit, the Report on a National Bank and the Report on the Constitutionality of the Bank of the United States[288]. Overall, Hamilton set in motion the first and most extensive project of redesigning of the American economy, one that was crucial to its rapid industrial growth. Historian Vernon Louis Parrington wrote of Hamilton:

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[286] Todd Tucker, "Industrial Policy and Planning: What It Is and How to Do It Better," *Roosevelt Institute*, (July 2019): 1-49. https://ssrn.com/abstract=345698, 18.

[287] Cohen and DeLong, *Concrete Economics: The Hamilton Approach to Economic Growth and Policy*.

[288] Tucker, "Industrial Policy and Planning," 18.

> "[i]n his understanding of credit finance and the factory economy, he grasped the meaning of the economic revolution which was to transform America from an agrarian to an industrial country; and in urging the government to further such development, he blazed the path that America has since followed".[289]

However, his vision was not universally agreed upon. The most fierce opposition came from Thomas Jefferson, Washington's Secretary of State, who, instead, favored a *laissez-faire* approach to the economy, where government interference was minimal, tariffs were low, and the economy was left to operate largely through market forces. Unlike Hamilton, who supported the creation of a manufacturing economy, Jefferson believed in a society of independent farmers and small landowners and viewed agriculture as the foundation of American prosperity. Jefferson was against mercantilism and strenuously endorsed Adam Smith's argument that nations should specialize in producing goods based on their natural endowments – which for America at the time was arable land and vast forests – and then engage in trade for other products[290]. In his 1784 'notes on the state of Virginia' he explained:

> "Such is our attachment to agriculture, and such our preference for foreign manufactures, that be it wise or unwise, our people will certainly return as soon as they can, to the raising raw materials, and exchanging them for finer manufactures than they are able to execute themselves […] While we have land to labour then, let us never wish to see our citizens occupied at a work-bench […]

[289] George Rogers Taylor, *Hamilton and the National Debt* (Wildside Press LLC, 2009), 106.

[290] Nester, *A Short History of American Industrial Policies*, 2.

but, for the general operations of manufacture, let our work-shops remain in Europe. It is better to carry provisions and materials to workmen there."[291]

Jefferson's ideas resonated with and complemented those of another pivotal figure in early American history, James Madison. Madison – founding father, Secretary of Treasury under Jefferson and then President of the United States from 1809 to 1817 – vigorously argued for a limited government, contending that by permitting Hamilton to establish the First Bank of the United States, the federal government had overstepped its constitutional mandate[292].

However, in practice, both Jefferson and Madison somewhat deviated from their advocacy of a small government. Despite initially opposing the creation of a second national bank during his presidency, Madison eventually acquiesced due to a deteriorating economic situation and the need for a more stable paper currency, ultimately approving the establishment of the bank in 1816.[293] Even Jefferson's radical individualism did not reflect most of the practical decisions made by the US government during his time. For instance, Bradford DeLong argues that the federal government played a major role in creating the pioneer American farmers' way of life favored by the Jeffersonians. This involved deploying soldiers to relocate Native Americans in order to make land available for settlement west of the Appalachians, as well as building canals to facilitate the

[291] Thomas Jefferson, "Query XIX; an excerpt from Notes on the State of Virginia by Thomas Jefferson (1784)" *Encyclopedia Virginia*, Virginia Humanities, (December 07, 2020), https://encyclopediavirginia.org/primary-documents/query-xix-an-excerpt-from-notes-on-the-state-of-virginia-by-thomas-jefferson-1784/.

[292] Cohen and DeLong, *Concrete Economics: The Hamilton Approach to Economic Growth and Policy*.

[293] Sean Wilentz, *The Rise of American Democracy: Jefferson to Lincoln* (W. W. Norton & Company, 2005), 205.

transportation of farmers' produce to markets[294]. Most importantly, both Jefferson's and Madison's administrations eventually raised tariffs substantially. As stated by Charles McFarland and Navin Neal, "[t]he chief period of applying protection to young industries came in the years immediately after 1807, largely as a result of the policies of Thomas Jefferson and James Madison."[295]

All things considered, from the very beginning of American history, a tension has existed between contrasting beliefs regarding the appropriate level of government intervention in the economy. Nonetheless, while ideological arguments for a small government were rooted and resilient, their proponents had to coexist with a distinctly different reality. As Garry Willis underscores:

> "Jefferson had opposed the bank of the United States, public debt, a navy, a standing army, American manufacturing, federally funded improvement of the interior, the role of a world power, military glory, an extensive foreign ministry, loose construction of the Constitution, and subordination of the states to the federal government. All those things were firmly back in place in the aftermath of the [British-American] war. Madison's program for 1816 included a protective tariff for manufacturing interests, a permanent army staff, new ships for the navy, and internal improvements…"[296].

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[294] Cohen and DeLong, *Concrete Economics: The Hamilton Approach to Economic Growth and Policy*; see also https://billofrightsinstitute.org/essays/alexander-hamilton-and-the-national-bank

[295] Charles E. McFarland and Nevin E. Neal, "The Nascence of Protectionism: American Tariff Policies, 1816-1824," *Land Economics* 45, no. 1 (February 1, 1969): 22, https://doi.org/10.2307/3145258, 22.

[296] Garry Wills, *James Madison: The American Presidents Series: The 4th President, 1809-1817* (Times Books, 2015), 151.

The three successive presidencies superseded Hamiltonian's vision.

President James Monroe[297] opposed further government intervention, mostly on constitutional grounds. While Hamilton argued that a national industrial policy fell within the constitutional mandate to provide for the country's common defense and general welfare, Monroe held that the Constitution ought to be amended in order for the government to undertake national planning[298]. However, Monroe was ambivalent on the issue of tariffs. He expressed "little enthusiasm for either protection or free trade: he recommended only that the subject of tariff be touched with the greatest caution."[299]

President John Quincy Adams[300] was critical of the slow progress in planning, but his attempts to revive Hamilton's plans were thwarted by his rival Andrew Jackson[301], who, upon assuming office, dismantled the remaining financial, trade, infrastructure, and land-planning capabilities of the nation[302]. This resulted in the decentralization and privatization of US planning capacity.

Hamilton's economic policies were then partially revived by the Whig Party under the leadership of Henry Clay, who advocated for a system based on government funds for internal improvements and protective tariffs. These policies directly influenced the young

[297] President from 1817 to 1825.

[298] Tucker, "Industrial Policy and Planning," 21.

[299] McFarland and Neal, "The Nascence of Protectionism: American Tariff Policies, 1816-1824," 27.

[300] President from 1825 to 1829.

[301] President from 1829 to 1837.

[302] Tucker, "Industrial Policy and Planning," 21.

Abraham Lincoln, who, himself a Whig, considered Clay as a political role model[303]. Lincoln espoused Clay's "American System," which sought to promote economic growth through "high tariffs to protect strategic industries, federal land grants, government procurement to secure markets and subsidies to infrastructure development."[304] In the 1860s, Lincoln launched the building of the transcontinental railway, probably the most ambitious civil engineering undertaking in world history in world history up to that point[305]. The project reshaped the American economy by opening up vast regions to farming and settlement and by linking the agro-industrial bloc with the emerging engineering bloc. In this sense, Lincoln's tool of industrial policy was mostly land. As remarked by the former director of the *National Economic Council*, Brian Deese, "President Lincoln then empowered states to invest directly in their people and their local industries, by using federal lands."[306]

In summary, as supported by Richard Kozul-Wright, government intervention has consistently played a significant role in American economic development[307]. The most continuous instrument of industrial policy in this era was the implementation of high tariffs. Research by Paul Bairoch highlights that the period of rapid growth from 1870 to

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[303] https://henryclay.org/henry-clay/henry-clay-and-abraham-lincoln/

[304] Tucker, "Industrial Policy and Planning," 22-23.

[305] Wade, "The Paradox of US Industrial Policy," 386.

[306] White House, *Remarks on Executing a Modern American Industrial Strategy by NEC Director Brian Deese*, October 13, 2022, https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/10/13/remarks-on-executing-a-modern-american-industrial-strategy-by-nec-director-brian-deese/.

[307] Richard Kozul-Wright, "The Myth of Anglo-Saxon Capitalism: Reconstructing the History of the American State," in *The Role of the State in Economic Change*, ed. Ha-Joon Chang and Robert Rowthorn, 1995, 80–113, https://doi.org/10.1093/acprof:oso/9780198289845.003.0004, 99.

1890 coincided with increasing protectionism in US trade policy while major competitors were endorsing liberal policies[308]. These policy decisions significantly contributed to the accelerated development of several industries and facilitated the accumulation of tacit knowledge essential for industrial development during this era. Additionally, as early as 1844, the government sought to reduce uncertainty for infant entrepreneurs by creating market demand through the introduction of a 'Buy American' clause into appropriations legislation[309].

3.2.2 Wartime Mobilization

From the turn of the century, however, industrial policy efforts became more fragmented, often characterized by periods of growth during wartime, while peacetime often saw a retreat or scaling back of such policies. Todd Tucker highlights two contrasting trends of US industrial policy: peacetime decentralization to the states and leadership of the private sector on the one hand[310], and intermittent national mobilizations during wartime, when policymakers rushed to redirect production from civilian to military purposes, on the other [311].

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[308] Paul Bairoch*, Economics and World History: Myths and Paradoxes*, Southern Economic Journal (University of Chicago Press, 1993), 53.

[309] Eberhard Grabitz and Armin Von Bogdandy, *U.S. Trade Barriers: A Legal Analysis* (Oceana Publications, 1991), 60.

[310] While Hamilton had envisioned a much stronger central government, the states were wary of empowering a higher authority to rule over them. It has been argued that the extensive authority held by states and municipalities in the American system eventually thwarted Hamilton's proposal.

[311] Tucker, “Industrial Policy and Planning,” 21.

In the midst of the Civil War, the government heavily depended on corporate leaders to mobilize the industry. This was largely due to the relatively primitive state of military technology, which meant that private factories did not require a complete conversion to produce different products[312]. However, as military technology advanced, increased government involvement became necessary. In December 1916, Wilson created a *Council of National Defense* to advise his administration on the mobilization of industry. The Council was then reorganized in July 1917 into the *War Industries Board* (WIB). The WIB created more than 300 war service committees, which, in turn advised 57 commodity groups regarding the supply, demand, and pricing of goods and services[313].

These committees extended their scope beyond establishing production goals. They acknowledged the importance of fostering the right work conditions so that workers could scale up production – such as improved housing, recreation, healthcare, and sanitation – and urged industries to adopt such measures[314]. The government also appropriated private railways and a substantial portion of the shipping industry[315]. Additionally, the government utilized airmail fees to subsidize the infant civil aviation industry and, mostly through public procurement, helped establish the early aircraft industry and promote advancements in the chemical sector[316].

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[312] Koistinen, Paul A. C. 2004. Arsenal of World War II: The Political Economy of American Warfare, 1940-1945. Lawrence, KS: University Press of Kansas. general

[313] Nester, *A Short History of American Industrial Policies*, 151-152.

[314] *Ibid*.

[315] Tucker, "Industrial Policy and Planning," 22.

[316] Wade, "The Paradox of US Industrial Policy," 387.

On the whole, during World War I, there was an unparalleled level of cooperation between the Federal government and businesses. This marked the first instance in American history where the Federal government systematically regulated and coordinated the economy, exerting control over virtually all industries.

3.2.3 Roosevelt and the New Deal

The Franklin D. Roosevelt administration is widely regarded as the most successful attempt at peacetime national industrial planning. With the New Deal, Roosevelt launched the largest government intervention the US economy had yet seen. While the overall impact of these measures is still debated – mainly because many survived, but just as many were declared unconstitutional or became politically unpopular – they succeeded in positively altering the perception of government intervention in the economy.

New Deal measures, essentially reflective of Keynesian economic policy, increased citizens' purchasing power – so that increased demand could boost supply – through increased direct government spending. This amounted to a radical shift from the traditional *laissez-faire* Republican approach, which had from time to time used government spending to finance infrastructure projects or military expansion, but never as a broad strategy to reinvigorate the economy as a whole.

Alongside the macro-level discourse on the proper role of government in providing economic security, a significant portion of the New Deal was actually directed toward the micro-level, particularly in shaping business-government relationships. As pointed out by Wade, Roosevelt's measures "provided the context for a more concerted US industrial

policy, involving efforts not only to ensure industrial recovery after the Great Depression but also to change the way that business behaved and to help increasingly large firms to operate more efficiently[317].

In this regard, the most famous example was the National Industrial Recovery Act (NIRA) which established codes of competition for industries, set production limits to raise prices, set minimum wages and limited the number of working hours[318]. The Act was, however, short-lived. It was enacted in June 1933 and overturned by the Supreme Court in May 1935 on grounds of separation of powers[319]. Nonetheless, as noted by Anderson, the NIRA set legal standards which would later be incorporated into other laws like the Robinson-Patman Act (1936), the Fair Labor Standards Act (1938), and the Wagner Act (1935).

Some measures of the New Deal agenda had a more lasting and positive impact. For instance, as Tucker observed, the Agricultural Adjustment Act effectively ensured agricultural supply to bolster farmers' incomes, a practice that persists to this day[320]. Moreover, the Reconstruction Finance Corporation (RFC) provided substantial loans to revitalize private industry and subsequently support the war effort[321].

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[317] *Ibid*.

[318] Industry codes governed matters such as minimum wages, child labor, and relaxation of antitrust enforcement.

[319] Schechter Corp. v. United States, 295 U.S. 495 (1935).

[320] Tucker, "Industrial Policy and Planning," 24.

[321] Nester, *A Short History of American Industrial Policies*, 166.

The single largest legacy of New Deal interventions was, however, the Tennessee Valley Authority (TVA). The TVA was a federally-owned corporation intended to modernize the economy of the then rural Tennessee River Valley through a series of large scale infrastructure investments for the construction of electricity generating dams and an extensive network of new roads, canals, and flood control systems. In the words of Roosevelt, it was to function as "a corporation clothed with the power of government but possessed of the flexibility and initiative of a private enterprise."[322] The TVA is widely regarded as the United States' first and most ambitious place-based industrial policy. There is substantial evidence indicating that it accelerated the industrialization of the Tennessee Valley and yielded lasting benefits to the region through the creation of high-paying manufacturing jobs[323].

Eventually, the numerous legal challenges faced by the New Deal on top of the worsening economic climate took a toll on public sentiment towards the program. By the late 1930s, numerous New Dealers had renounced support for broad government intervention and instead avocat for a softer system of "power-sharing arrangements" that still allowed substantial involvement of local authorities, policymakers, and organized private actors (opposed by most Republican progressives and conservative southern Democrats) [324].

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[322] Andrew Glass, "Tennessee Valley Authority created, May 18, 1933," *Politico*, May 18, 2017, https://www.politico.com/story/2017/05/18/tennessee-valley-authority-created-may-18-1933-238325.

[323] Patrick Kline and Enrico Moretti, "Local Economic Development, Agglomeration Economies, and the Big Push: 100 Years of Evidence From the Tennessee Valley Authority," *The Quarterly Journal of Economics* 129, no. 1 (November 8, 2013): 275–331, https://doi.org/10.1093/qje/qjt034, 30.

[324] Michael J. Hogan, *A Cross of Iron: Harry S. Truman and the Origins of the National Security State, 1945-1954* (Cambridge University Press, 1998), 27.

Ultimately, it was the US's participation in World War II, rather than the New Deal, that propelled the economy from depression to dynamism. During the war, the government heavily subsidized the miliary-industry. It also held ownership in the aircraft, synthetic rubber, magnesium and aluminum and machine tool industries[325]. Moreover, Washington played a substantial part in building factories and infrastructure, including the nationwide system of natural gas and oil pipelines, refineries, storage tanks, port facilities, warehouses, electricity plants, and military bases[326]. A lasting partnership between industry and the military emerged, forging what Wade aptly describes as the "government-military-industrial complex"[327]. This complex has witnessed the most extensive application of industrial policies. In a sense, since the twentieth century, the tension between liberal market economic principles and the need for more government support for American industries was reconciled within the framework of national defense.

[325] Nester, *A Short History of American Industrial Policies*, 172.

[326] *Ibid*.

[327] Wade, "The Paradox of US Industrial Policy," 387.

3.3 INDUSTRIAL POLICY THROUGH NATIONAL DEFENSE

3.3.1 From Post-WWII to the Cold War Era

In the decade after the Second World War, the US transformed into both a *national security state* and a technology leader[328]. But the formulation and establishment of a national security strategy did not occur as an automatic and swift transition from World War II to the Cold War period. Instead, it marked the culmination of a longstanding debate on the role of the American State, spanning from the founding of the republic to the New Deal era of the 1930s[329].

In 1947, the same year the Marshall Plan was announced, the National Security Act unified the three military branches – the Army, Navy, and the newly created Air Force – into the *National Military Establishment*, which in 1949 became the *Department of Defense* (DoD). The Act also created the *Central Intelligence Agency* (CIA) and the *National Security Council* (NSC), the President's principal forum for the consideration of national security and foreign policy matters composed by security advisors and cabinet officials. In this way, the Truman administration was reconciling American anti-statist

[328] Linda Weiss, *America Inc.?: Innovation and Enterprise in the National Security State*, Perlego (Cornell University Press, 2014).

[329] Hogan, *A Cross of Iron: Harry S. Truman and the Origins of the National Security State*, 1945-1954, 23-24.

values with the emerging imperative of national security[330]. This also led to an expansion of executive powers.

The awareness of inefficiencies and redundancies within the military branches during WWII had convinced Truman to streamline and reorganize the entire apparatus. Initially, however, the desire to return to a peacetime economy made him cautious about significantly increasing military budgets. Nonetheless, geopolitical developments soon outweighed concerns about balanced budgets. Escalating tensions with the Soviet Union, fueled by fears of communist expansionism, heightened concerns about national security. Particularly, the blockade of Berlin in 1948, the communist takeover of China and the outbreak of the Korean War in 1950 further underscored the need for a robust military.

All throughout the Cold War, innovation was seen as a vital geopolitical asset, which legitimized extensive government support funded by the DoD[331]. With roots in the Truman military reform and rationalized by clear geopolitical goals, early US industrial policy efforts were entirely channeled through defense budget allocations.

The main historical catalyst of this transformation was without doubt the Sputnik crisis of 1957 which, as sated by McDougall, "transformed governments into self-conscious promoters, not just of technological change but of perpetual technological revolution[332]". The crisis prompted the establishment of two new research and technology-oriented

[330] Weiss, *America Inc.?: Innovation and Enterprise in the National Security State*.

[331] Tucker, "Industrial Policy and Planning," 25-26.

[332] William McDougall, "Technocracy and Statecraft in the Space Age--Toward the History of a Saltation," The American Historical Review 87, no. 4 (October 1, 1982): 1010–40, https://doi.org/10.2307/1857903, 1011.

agencies, the *Defense Advanced Research Projects Agency* (DARPA) and the *National Aeronautics and Space Administration* (NASA) [333].

3.3.1.1 The Integrated Defense Innovation System

DARPA was created in 1958 by President Dwight D. Eisenhower as a research and development agency within the DoD, to ensure that the US would be "the initiator and not the victim of strategic technological surprises[334]". The agency was established with a broad mandate that has enabled it to effectively bridge the gap between the military and civilian industrial sectors, yielding results such as the development of the Internet, automated voice recognition and language translation, and Global Positioning System (GPS). Yet, the agency's path of developing new technologies starts with a focus on military applications. The foundational assumption of DARPA's work is that national security depends on a diverse and dynamic industrial and technological base[335]. As further explained by Richard Bingham, DARPA,

> "searches the nation for new technologies with military potential. When it identifies a promising new concept or product, DARPA contracts out research in the area to universities, government labs, and private corporations. The private firms provide the research to fulfill DARPA's military needs, but are free to fully

[333] William B. Bonvillian, "Emerging Industrial Policy Approaches in the United States," *Information Technology and Innovation Foundation* (ITIF), October 2021, 1-36, https://www2.itif.org/2021-industrial-policy.pdf, 6.

[334] https://www.darpa.mil/about-us/about-darpa

[335] Nester, *A Short History of American Industrial Policies*, 51.

> exploit commercial applications of any unclassified research results. The results of the majority of the agency's projects fall into this "dual use" category—whereby innovations have both important defense and civilian applications."[336]

On the other side, NASA was established (also in 1958) as an independent agency with the primary mission of promoting peaceful exploration of space, conducting scientific research, and advancing technology for civilian applications. Nonetheless, it has always been a key component of the US defense establishment. In its early years, NASA collaborated closely with the National Reconnaissance Organization (NRO), which was responsible for highly classified reconnaissance from space aimed at gathering information on threats and intentions of US geopolitical adversaries[337]. The agency also directly supported particular military objectives by collaborating closely with the armed services, the CIA, and the DoD[338]. Due to its extensive Congress mandate, NASA, similar to DARPA, is engaged in the development of dual-use technologies, which often lead to significant advancements. Sufficient to think that the moon landing endeavors represented a form of industrial policy which fostered the development of space technology and satellite communications that were subsequently extensively commercialized[339]. In

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[336] Richard D. Bingham, *Industrial Policy American-style: From Hamilton to HDTV: From Hamilton to HDTV*, Perlego (Routledge, 2016).

[337] Vance O. Mitchell, "(U) Sharing Space: The Secret Interaction between the National Areounatics & Space Administration & the National Reconnaissance Office," *Center for the study of National Reconnaissance*, July 2012, https://www.nro.gov/Portals/65/documents/foia/declass/ForAll/012422/F-2019-00002_C05116216.pdf.

[338] Hogan, *A Cross of Iron: Harry S. Truman and the Origins of the National Security State, 1945-1954*, 23-24

[339] William B. Bonvillian, "Emerging Industrial Policy Approaches in the United States," Information Technology and Innovation Foundation (ITIF), October 2021, 1-36, https://www2.itif.org/2021-industrial-policy.pdf, 6.

addition to DARPA and NASA, the Defense Department and other intelligence agencies brought under their purview numerous federal agencies with associated federally owned and funded laboratories.

The *Department of Energy* (DOE) was created in 1977 in the aftermath of the 1973 oil crisis, but it originated from the former *Atomic Energy Commission* (AEC), which in turn was created to control the future of Manhattan Project programs after WWII. From the start, a significant portion of the DoE's budget was dedicated to defense objectives (especially nuclear weapons development and testing) and only after a smaller portion supported the civilian development of energy-saving and renewable energy technologies[340].

There is also a historical connection between Health and the military. The *National Institutes of Health* (NIH), the primary US agency for public health research, inherited the responsibilities of the *Office of Scientific Research and Development*, created to coordinate scientific research for military purposes during WWII. Indeed, as Swain highlights, it was the transfer of wartime research contracts that provided the momentum for the administration of increased grants to the NIH, which had previously been denied by the Bureau of the Budget[341].

Hence, a multitude of disparate entities – including the *Central Intelligence Agency*, the *Department of Energy*, the *National Aeronautics and Space Administration*, the *Defense Advanced Research Projects Agency*, the *National Science Foundation*, the *National*

[340] Hogan, *A Cross of Iron: Harry S. Truman and the Origins of the National Security State, 1945-1954*, 23-24.

[341] Donald C. Swain, "The Rise of a Research Empire: NIH, 1930 to 1950," *Science* 138, no. 3546 (December 14, 1962): 1233–37, https://doi.org/10.1126/science.138.3546.1233, 1235

Institutes of Health, as well as laboratories and not-for-profit companies created, sponsored, or operated by various state agencies – collectively formed the foundational framework of the extensive US "government-military-industrial complex"[342]. This complex has cultivated an array of technological advancements in the postwar decades. However, it has done so mostly to sustain military advantage. What bound together the industrial-related efforts of these agencies was a shared focus on national security objectives as well as access to DoD procurement opportunities.

The DoD does not fit the conventional profile of an industrial policy leader. Its primary focus is on defense rather than economic development, and its orientation is defensive, centered on addressing threats rather than seizing opportunities. This distinction sets it apart from government agencies dedicated to fostering economic growth and industrial development in a classical developmental state. Nonetheless, within the distinctive industrial policy landscape of the US, the association with defense and the presence of legitimizing specific geopolitical imperatives have propelled the effectiveness of these agencies as well as their initiatives. As emphasized by Bingham, "there has always been a DoD role of some kind in industrial policy[343]".

By and large, from the institutions established in the early postwar decades emerged a new engine for innovation focused on increased federal research involvement for "big science" projects. This system has its roots in the principles expressed by Eisenhower[344] in his 1961 Military-Industrial Complex Speech:

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[342] Nester, *A Short History of American Industrial Policies*, 175-6.

[343] Bingham, *Industrial Policy American-Style: From Hamilton to HDTV: From Hamilton to HDTV*.

[344] President from 1953 to 1961

> "[...] Today, the solitary inventor, tinkering in his shop, has been overshadowed by task forces of scientists in laboratories and testing fields. In the same fashion, the free university, historically the fountainhead of free ideas and scientific discovery, has experienced a revolution in the conduct of research. Partly because of the huge costs involved, a government contract becomes virtually a substitute for intellectual curiosity. For every old blackboard there are now hundreds of new electronic computers. The prospect of domination of the nation's scholars by Federal employment, project allocations, and the power of money is ever present and is gravely to be regarded."[345]

These idea were then further propelled by Kennedy's commitment to increase government research, development and procurement spending – a legacy that was partially carried on by the Lyndon Johnson administration. This engine secured American dominance in military technology while concurrently providing the nation with substantial civilian technological advantages throughout the 1950s and 1960s[346]. As Nelson writes, "[d]uring the first quarter-century after World War II U.S. firms pioneered in the leading-edge industries, and the resultant manufacturing exports dominated world markets."[347]

As argued, however, this model of 'doing' industrial policy was particularly effective due to the involvement of the defense sector. Bonvillian and Singer even distinguish between

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[345] President Dwight D. Eisenhower's Farewell Address (1961) https://www.archives.gov/milestone-documents/president-dwight-d-eisenhowers-farewell-address

[346] Richard R. Nelson, "What Has Happened to U.S. Technological Leadership?," in *Technological Competition and Interdependence: The Search for Policy in the United States, West Germany, and Japan,* ed. Gunter Heiduk and Kozo Yamamura (University of Washington Press, 2016), Perlego.

[347] *Ibid*.

two parallel support systems for innovation [348]. In the more integrated defense innovation system, government support extends to every phase of innovation, from research to development, prototyping, testing, and demonstration, often additionally creating the initial market creation and securing demand. This is the system that facilitated the most significant spill-overs toward civilian innovation, contributing to US technological dominance during this period. Outside defense, however, remained another model, less connected, where civilian R&D agencies receive government support mostly for the research phase while subsequent development phases are left to market forces.

As long as advancements in military technology generated substantial spillover effects for the civilian sector, there was room for overall economic growth. However, as the rate of these spillovers decreased – mostly as a consequence of reduced defense spending, as during the détente period[349] – the US began to lose its competitive edge, vis-a-vis global competitors.

3.3.2 Reorientation: A Shift Toward National Competitiveness

Despite industrial policy issues had been present in American economic policy since the time of Hamilton, the term itself formally entered the debate in the 1980s as the worsening of the country's economic situation prompted a reconsideration of the functioning of the innovation system. Overall, the defining theme of the 1980s was a shift towards commercially significant involvement of the national security state, intertwined with the

[348] Bonvillian and Singer, *Advanced Manufacturing: The New American Innovation Policies,* chap. 2.

[349] Nelson, "What Has Happened to U.S. Technological Leadership?".

emergence of a narrative emphasizing national competitiveness in the interest of national security.

3.3.2.1 The US-Japan Battle for Technological Supremacy

In the process of reindustrialization after WWII Japan undertook a strategy that departed from standard recommendations of neoclassical economics. A very similar path to the one employed by the US in the 19th century to reach economic independence from Britain[350].

Japan built its comparative advantage into high technology industries,[351] undertaking innovation *in* production, thus "using manufacturing as a mean to bring the country to the frontier of international technology and economic competitiveness[352]". The Japanese model of industrial policy differentiated substantially from the American one. First of all it focused on traditional industrial planning heavily sustained by the government. It was articulated around clusters of independently managed firms with close and stable economic ties (*keiretsu* grouping)[353] further cemented by substantial government support. Secondly, instead of trading manufacturing for innovation, it built on the idea that "economic innovation waves can stem from manufacturing technology and process

[350] Reinert, "Competitiveness and its Predecessors."

[351] *Ibid*, 37

[352] Bonvillian and Singer, *Advanced Manufacturing: The New American Innovation Policies*, chap. 3.

[353] Jerzy Grabowiecki, *Keiretsu Groups: Their Role in the Japanese Economy and a Reference Point (or a Paradigm) for Other Countries*, 2006, http://ci.nii.ac.jp/ncid/BA76644900.

breakthroughs."[354] The Ministry of International Trade and Industry (MITI) provided R&D support focused on industry and not just research university, along with technology targets and strategies, and trade controls and import restrictions. Moreover, the Bank of Japan used currency controls to keep the yen valued lower than the dollar to help assure a competitive trade advantage in manufactured goods[355].

Throughout the 1980s, Japan emerged as both a geopolitical threat, seen as potentially displacing US technology leadership and an economic threat due to the deteriorating economic outlook of the country. For the first time, national security concerns intertwined with those of national competitiveness. Japan's new kind of manufacturing system, heavily oriented around quality innovations in production, allowed the country to capture industrial leadership in automotive and electronics sectors which were previously led by the US.

Looking more closely at the Japanese model, American policymakers and academics identified a fundamental difference: while Japan had strengthened the link between technology and manufacturing, the US had been gradually and consistently weakening it, closing industries and offshoring production. This realization paved the way for a renewed emphasis on military and commercial integration.

The initial step involved reforming the patent system. In 1980, President Jimmy Carter[356] signed two acts into law aimed at complementing the longstanding focus on basic federal

[354] Bonvillian and Singer, *Advanced Manufacturing: The New American Innovation Policies,* chap. 3.

[355] *Ibid*.

[356] President from 1977 tto 1981.

research and encouraging technology transfers from the federal and university levels to the private sector. The Bayh-Dole Act shifted ownership of federally funded research results to universities, giving them a stake in its commercialization and fostering entrepreneurship among university researchers. Then the Stevenson-Wydler Technology Innovation Act required national laboratories to actively engage in processes of technology transfer. This Act marked the beginning of a series of laws aimed at making technology transfer to the private sector a mission for those national laboratories – Los Alamos, Sandia, and Lawrence Livermore, among others – that owned their existence to significant public investments through the DoE, the Pentagon, NASA, and other intelligence agencies[357]. From primarily serving as basic R&D entities, these labs started to actively engage in entrepreneurial activities. A third step was to redirect government R&D efforts towards manufacturing industries and small and mid-sized innovation firms.

This subsequent phase of the commercial revitalization of the US innovation system was carried out under the Ronald Reagan[358] and George H. W. Bush[359] administrations. Quite interestingly, Reagan, despite his rhetoric of small government and anti-statism, actually demonstrated a consistent interest in the science and technology domain. When Japan's threat was identified, he took serious steps in the context of technological competition. These included programmatic and procurement reforms, new technology procurement programs, and organizational reforms. New procurement programs included, for example, the Small Business Innovation Research (SBIR), which offered competitive

[357] Weiss, *America Inc.?: Innovation and Enterprise in the National Security State*.

[358] President from 1981 to 1989.

[359] President from 1989 to 1993.

R&D grant funding to small and startup companies, ensuring that innovative small businesses were duly considered in the federal government's R&D efforts. Essentially, the SBIR required government agencies with large research budgets – such as the DoD and DOE – to devote a fraction of their research funding to support initiatives that came from small, independent, for-profit firms. On the model of the SBIR, the 1992 Small Business Research and Development Enhancement Act created the Small Business Technology Transfer Program (SBTTR), which was instead focused on collaborations between small nonprofit research institutions, such as hospitals and universities.

3.3.2.2 Semiconductor Leadership & SEMATECH

SEMATECH represented a further initiative to address the significant challenge posed by Japanese competition in the semiconductor industry. Arguably, it was the first real US industrial policy push.

The semiconductor technology was pioneered by multiple scientists and engineers working independently, but the key figures often credited with their development are William Shockley, John Bardeen, and Walter Brattain, who invented the first transistor at Bell Laboratories in 1947. Military applications in this realm were recognized early on, particularly for computing and missile guidance systems. Indicatively, in the early stages of the industry's development, significant support came from government procurement –

primarily from the DoD[360] – while the bulk of demand was assured by the Air Force and NASA, which became the primary customers for integrated circuits[361].

From the mid-1960s to the late 1970s, the percentage of US semiconductor production purchased by the government decreased from 40 to 10 percent[362]. Around the same time, Japan implemented a very large-scale project of industry coordination between Hitachi, Mitsubishi, Fujitsu, Toshiba, and five major electric companies. These firms, protected by vertical integration and nontariff barriers, were able to offer extremely competitive prices and captured more than half of the world memory chips market[363].

On one side, the US responded with the US-Japan Semiconductor Trade Agreement – whereby Japan agreed to stop "dumping" semiconductors globally and to allocate 20 percent of their domestic market to foreign producers within five years[364]. On the other, there was the creation of the SEMATECH (SEmiconductor MAnufacturing TECHnology) public-private consortium in 1987.

The consortium was the result of an association between DARPA – which provided funding for the initial five years, totaling $870 million – and industry leaders who persuaded American semiconductor companies to pool resources for R&D and

[360] Hufbauer and Jung, "Scoring 50 years of US industrial policy," 36.

[361] Bonvillian and Singer, *Advanced Manufacturing: The New American Innovation Policies.*

[362] Hufbauer and Jung, "Scoring 50 years of US industrial policy," 36.

[363] Particularly dynamic random-access memory (DRAM) chips and erasable and programmable read-only memory (EPROM) chips.

[364] Douglas A. Irwin, "The U.S.-Japan Semiconductor Trade Conflict," *RePEc: Research Papers in Economics*, January 1, 1996, 5–14, https://www.nber.org/chapters/c8717.pdf.

manufacturing[365]. Indeed, all firms in the sector faced expensive and slow manufacturing processes that needed improvement. However, the separation of R&D efforts between companies resulted in costly duplication. The consortium created an environment where knowledge, expertise, and resources were shared among its members, thereby exploiting technology spillovers. The initiative is largely considered a success. Through robust collaboration between government and industry, resources were efficiently directed toward addressing critical industry bottlenecks, resulting in US firms regaining a significant market share from foreign competitors[366].

Collectively, programs like the SBIR, STTR and Sematech represented focused federal economic intervention in the innovation process. These initiatives aimed to stimulate specific sectors or segments, such as innovative smaller firms and small manufacturers, to enhance their competitive position. The overall effectiveness of these programs encouraged further endeavors in this direction.

For instance, the Human Genome Project, a research effort aimed at mapping and sequencing the DNA from a typical human cell, was quite improbably initiated by the DOE and jointly managed by the NIH[367]. As Block points out, the project largely embraced the new "DARPA model of industrial policy," which involved the repurposing

[365] Wade, "The Paradox of US Industrial Policy," 390.

[366] Fred Block, "Swimming Against the Current: The Rise of a Hidden Developmental State in the United States," *Politics & Society* 36, no. 2 (June 1, 2008): 169–206, https://doi.org/10.1177/0032329208318731, 182.

[367] Aristides Patrinos and Daniel Drell, "The Human Genome Project: View From the Department of Energy.," *PubMed* 52, no. 1 (January 1, 1997): 8–10, https://pubmed.ncbi.nlm.nih.gov/9033165.

federal laboratories and the redirection of budgets that were previously used for military programs, for new civilian purposes.

The process of civilian reorientation, marked by the adoption of traditional industrial policy initiatives, was not universally successful. Certain initiatives failed, notably in cases where there was a lack of consistent procurement efforts from the DoD. A prominent example is the case of Solyndra.

3.3.2.3 The Department of Energy & Solyndra

The effort to tackle climate change gave a new impetus to US industrial policy. Such efforts were channeled through the DOE which underwent a radical transformation. Previously focused on fossil fuels, nuclear power, basic physical science research, nuclear stockpiles, and cleanup, the DOE – under the Clinton and Obama administrations – transitioned into a more technology innovation-focused organization aiming to tackle climate change through the development of new technologies. The DOE was supplemented with the Advanced Research Projects Agency-Energy (ARPA-E) modeled after DARPA[368].

Contrary to DARPA, however, the agency was not structured around a solid DoD procurement program but planned on using the US venture capital system to gather its funds. When venture capitalists withdrew from energy technology investments during 2008–2009 (citing concerns over risk and long-term returns), ARPA-E adopted a more

[368] https://arpa-e.energy.gov/about/arpa-e-history

creative strategy to drive its technologies into markets. As Bonvillian explains, it funded "only those projects with a reasonable roadmap toward market acceptance, using DOE applied programs to help with scale-up after ARPA-E's initial investments, and establishing a 'Tech-to-Market' team in the agency with private sector expertise to develop commercialization plans for each project."[369]

Among the recipients of the DOE loan guarantee program was Solyndra, which in 2009 received a federal guarantee of $535 million. Solyndra designed and manufactured solar photovoltaic (PV) systems but with a different technology compared to the dominant one on the market. Instead of conventional flat silicone panels, the company developed cylindrical panels made of copper indium gallium selenide (CIGS) thin-film solar cells. However, shortly after introducing this new technology, the price of polysilicon, used in flat panels, plummeted by nearly 90 percent. As a result, Solyndra's cylindrical panels, which were more costly to produce, struggled to compete effectively in the solar energy market. A simultaneous drop in the price of natural gas, a competing energy source, further exacerbated the company's struggles. In 2011, Solyndra declared bankruptcy.

Sure, Solyndra represented a significant failure in terms of industrial policy. More than one thousand employees were laid off, and the net federal loss on the loan guarantee was approximately $476 million. The company's premises were raided by FBI agents in search of evidence related to potential fraudulent activities and Republicans launched a Congressional investigation on the matter.[370] The Obama administration faced

[369] Bonvillian, "Emerging Industrial Policy Approaches in the United States," 7-8.

[370] Hufbauer and Jung, "Scoring 50 years of US industrial policy," 57-60

accusations of having overlooked certain troubling signs that were (allegedly) already evident in the solar energy marketplace[371].

The company's downfall was also deeply scrutinized by the media, and soon enough newspapers and broadcasting networks began to talk about the "Solyndra Mess[372]" and "Solyndra Scandal[373]". Upon closer examination, however, this failure is not particularly remarkable. First of all, it is widely accepted that the introduction of innovation into commoditized markets carries a certain amount of risk. Moreover, the Solyndra experience represents just one case within the broader DOE clean energy loan guarantee program, which funded 24 firms, 22 of which successfully repaid their loans[374]. Largely overlooked by the media, for instance, is the fact that among the DOE industrial policy "winners" is one of the most successful electric automakers of our generation, Tesla. In 2009, Tesla received DOE loans totaling $465 million, which the company repaid, plus interest, in 2013, nine years prior to the fixed deadline[375].

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[371] Eric Lipton and John M. Broder, "In Rush to Assist a Solar Company, U.S. Missed Signs," *New York Times*, September 22, 2011, https://www.nytimes.com/2011/09/23/us/politics/in-rush-to-assist-solyndra-united-states-missed-warning-signs.html.

[372] New York Times, *The Solyndra Mess*, November 24, 2011. https://www.nytimes.com/2011/11/25/opinion/the-solyndra-mess.html.

[373] ABC News, *Investigations of the Year: The Solyndra Scandal*, December 20, 2011. https://abcnews.go.com/Blotter/abc-news-investigations-year-solyndra-scandal/story?id=15199603.

[374] Robert Pollin et al., "Green Growth: A U.S. Program for Controlling Climate Change and Expanding Job Opportunities," *Center for American Progress & Political Economy Research Institute*, (September 2014): 1-407, https://cdn.americanprogress.org/wp-content/uploads/2014/09/PERI.pdf?_ga=2.177173223.319859051.1602855757-711970118.1601726654%20general.

[375] Hufbauer and Jung, "Scoring 50 years of US industrial policy," 84-86.

All in all, this demonstrates that as the innovation system, originally built around defense imperatives, underwent a reform towards a more commercial orientation, it has become more scrutinized, difficult to legitimize, and complicated to manage. The transformation was carried out through incremental changes, building upon already existing agencies that have been gradually repurposed over time. Moreover, rooted ideological beliefs contributed to the lack of public awareness regarding these progressive shifts in American industrial policymaking. Failures are highly publicized, while successes rarely receive the same kind of attention.

3.3.2.4 Lessons from the failure of the Advanced Technology Program

Perplexity surrounding the US stance on industrial policy matters also stems from the fact that contrary to a limited view, which would suggest Democratic endorsement and Republican opposition, the issue has often garnered bipartisan support (especially when economic priorities align with national security interest). As a matter of fact, the drive to civilianize technology policy continued during the presidency of George H. W. Bush, who had to come to terms with a Democratic-controlled Congress[376]. President Bush, although philosophically opposed to government involvement in commercial undertakings, supported the SEMATECH semiconductor venture and even the Advanced Technology Program (ATP).

The story of the ATP exemplifies yet another dynamic at play in the US political landscape: that sometimes, for the sake of ideology, political gestures are more important

[376] Weiss, *America Inc.?: Innovation and Enterprise in the National Security State*.

than actual economic results. The ATP was a government-industry research partnership program established in 1991 aimed at fostering the development and commercialization of challenging, high-risk technologies with the potential to yield significant, broad-based economic benefits for the nation[377]. The program was initiated under the Bush administration and then enacted and implemented under the presidency of Bill Clinton[378]. However, despite its successful track record, the ATP came under attack by Republicans in Congress and faced strong opposition from the George W. Bush administration, which eventually brought to its suspension in 2005. Block argued that Bush joined "the right wing's assault" on the ATP to appease the most ideological market fundamentalists and reinforce the narrative that the US remained committed to free enterprise[379].

3.3.3 A Focus on Strategic Imperatives

There is no denying that the US has been engaged in a specific type of 'under the radar' industrial policy, which has often yielded incredibly positive results. Nonetheless, these efforts have never amounted to a grand, overarching strategy with centralized control. Policy programs have been scattered, and although vigorous, they have lacked coordination[380]. When government officials were able to foster economic development

[377] The Advanced Technology Program: https://nvlpubs.nist.gov/nistpubs/sp958-lide/359-362.pdf

[378] President from 1993 to 2001

[379] Block, "Swimming Against the Current," 184.

[380] Wade, "The Paradox of US Industrial Policy," 394.

by providing financial support and other forms of assistance to new and existing firms, they did so through small and obscure government agencies without much advertisement.

As a result, not only of the consensus of the 1980s/1990s but also of the deeply ideological discourse that has characterized the political debate since early American history, traditional industrial policy has always been perceived as an 'aut aut' alternative to market fundamentalism. Such a mindset has significantly hindered both its acceptance and cohesive implementation.

Usurpingly, the most cohesive and long-lasting efforts have historically been associated with national defense prerogatives. On the other side, no integrated federal program has ever been created to accelerate these innovations' deployment for public use. Most time increases in the defense budget have come at the expense of purely civilian public spending[381]. Moreover, state initiatives with this aim – such as subsidies and feed-in tariffs – have been fragmented and varied widely from state to state, lacking consistent implementation[382].

Nonetheless, mostly due to a spillover effect from defense programs and always with a clear strategic objective in mind, large government funding succeeded in transforming the country into an engine of innovation. In this regard, claims by academics like Mazzucato asserting that the US has been the greatest entrepreneur and innovator hold considerable truth. Michael Lind, author of "*Land of Promise: An Economic History of the United States*," encapsulates this idea as follows:

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[381] *Ibid*, 395.

[382] *Ibid*.

> "The most innovative entrepreneur in the 20th century was the US government. The federal government invented or developed nuclear energy, computers, the Internet and the jet engine. And it built the interstate highway system and completed the national electric grid, creating a continental market based on the technologies of the second industrial revolution. To be sure, the government has sometimes backed failures, usually in the fad-driven energy field ... But few private venture capitalists can match the remarkable record of success of Uncle Sam. Indeed, venture capitalists in IT and social networking have exploited and commercialized technologies from the transistor to the Internet that were originally developed by America's home-grown version of state capitalism."[383]

But affirming the US government's entrepreneurship capacities is not to argue that it has matured them as a conscious developmental state. Instead, the state's willingness to implement industrial policy measures has most often emerged as a reaction to geopolitical and security concerns. As argued by Linda Weiss and Elizabeth Thurbon, "geopolitical concerns have led policymakers to factor some commercial benefits into national security-related, high-tech programmes"; however, "the key issue is not whether a programme has commercial benefits – but why it may be designed to produce such benefits in the first place[384]". Undeniably, this security-driven rationale comes with its own set of distortions and contradictions and the overall disconnected nature of the innovation system does not encourage the most efficient policymaking. Nonetheless, it

[383] Michael Lind, *Land of Promise: An Economic History of the United States*, Perlego (Harper Collins, 2012).

[384] Linda Weiss and Elizabeth Thurbon, "Developmental State or Economic Statecraft? Where, Why and How the Difference Matters," *New Political Economy* 26, no. 3 (May 20, 2020): 472–89, https://doi.org/10.1080/13563467.2020.1766431, 9.

has been precisely this historical imperative of countering pressures from geopolitical adversaries that has fostered a gradual reassessment and incremental implementation of a US industrial strategy.

CONCLUSION

Few topics in economic studies have sparked as much controversy as the concept of industrial policy. Tellingly, not just its effectiveness but its very existence has been put into question. Nonetheless, against the backdrop of significant political and economic transformations, the idea of industrial policy is now being reevaluated. This thesis has provided an overview of the various dynamics surrounding this recent resurgence of industrial policy in advanced economies, with a particular focus on the case of the United States.

The first chapter has introduced the theoretical background, highlighting the inherent elusiveness surrounding the concept of industrial policy. While strictly the notion conveys the idea of government support towards the industrial sector, the interplay between industrialization and economic development has allowed the emergence of a much broader conceptualization. In this view, industrial policy is largely associated with a type of public action that aims at structurally transforming the economic activity of a country. Such a broad definition is not universally accepted. A minority of authors even argue that there is no such thing as industrial policy. For instance, Robert Reich stated that industrial policy is "one of those rare ideas that has moved swiftly from obscurity to meaninglessness without any intervening period of coherence."[385]

[385] Cited in Robert D. Atkinson, "The Case for a National Industrial Strategy to Counter China's Technological Rise," *Information Technology and Innovation Foundation*, April 13, 2020, https://itif.org/publications/2020/04/13/case-national-industrial-strategy-counter-chinas-technological-rise.

The polarizing nature of this debate has its roots in the broader discourse on the appropriate role of the state in the economy. While proponents of the developmental economics school – drawing largely from Keynesian economics – argue for a more active role of the state (especially through direct support for domestic industries), neoclassical economists generally advocate for limited government intervention in the economy, emphasizing the efficiency of free markets.

As the neoliberal paradigm began to gain prominence in the latter half of the 20th century, industrial policy as a tool to spur economic growth was largely marginalized in favor of broad macroeconomic stabilization policies and liberalization measures. Proponents of neoliberalism initially praised its benefits, asserting that market-oriented reforms would stimulate economic growth and development. However, academic scrutiny of these market-friendly measures implemented in developing regions, particularly Latin America and South Africa, led to a reevaluation of their overall effectiveness. Concomitantly, unexpected success stories of growth in East Asia highlighted the importance of strategic intervention in promoting sustainable economic growth and development.

The final section of the chapter showed how, today, industrial policy is making a comeback precisely in those liberal market economies that have ardently embraced the principles of market fundamentalism. This revival entails an important reassessment of traditional industrial policy instruments with an emphasis on manufacturing (particularly subsidies and tariffs), alongside newer innovation-focused approaches.

The second chapter delved into the principal catalysts behind the resurgence of industrial policy in the United States. Indeed, despite its ideological commitment to minimal government intervention, the US witnessed a shift in economic policy in the aftermath of

major crises. The 2008 financial crisis saw a departure from conventional economic wisdom, with governments worldwide adopting national industrial strategies and policy measures targeted at industrial sectors. The United States, in particular, responded with extensive government economic interventions, including significant bailouts and stimulus packages, albeit with mixed success. COVID-19 exposed vulnerabilities in global supply chains, calling for increased government intervention to address shortages and disruptions. While these crises undoubtedly accelerated the US policy shift, the chapter has argued that a deep underlying cause can be appreciated in the ongoing structural shift that has affected the international economy since the 1990s. Indeed, technological advancements and global integration of production processes have facilitated a convergence between developed and emerging countries, which effectively reshaped global value chains around new economic powerhouses, most notably Asia.

Since the early 21st century, China's global presence has significantly influenced US industrial policy, sparking concerns over market access, unfair trade practices, and technology transfer. In response to China's ascendancy, the US is faced with a dilemma, mostly in light of its ideological skepticism over industrial policy measures. However, while the US might not have a history of coordinated and planned industrial policy initiatives, it surely has plenty of experience in leveraging economic tools for security objectives.

The final chapter explored the historical dynamics of industrial policy in the United States, tracing its roots in the early visions of Alexander Hamilton. While the history of the US offers commendable examples of traditional industrial policy measures, like for instance, Roosevelt's Tennessee Valley Authority, it was ultimately wartime mobilization

that laid the groundwork for the establishment of a powerful government-military-industrial complex, where industrial policies found extensive application in the pursuit of national defense. From the post-WWII era, all throughout the Cold War, the US has developed into a national security state where national security imperatives play the largest role in driving industrial policy and innovation. The backbone of this integrated system is represented by key institutions like the Department of Defense (DoD), the Central Intelligence Agency (CIA), and DARPA.

Through this analysis, it becomes evident that the recent revival of industrial policy within advanced economies is not merely a contemporary phenomenon but rather an ongoing process dating back to at least the turn of the century. This resurgence is deeply rooted in the multitude of economic, political, societal, and technological transformations that have gradually but steadily reshaped the global landscape.

Traditionally, industrial policy was conceived as a tool to enhance economic development. However, it has now assumed a new geopolitical and geoeconomic significance, encompassing a strong strategic and security component. Government funding is directed not only toward ensuring international competitiveness but also towards bolstering national security by investing in industries vital to defense capabilities[386].

[386] Stormy-Annika Mildner and Claudia Schmucker, "The EU, the United States, and China: On the Brink of a New Global Industrial Policy and Trade War," in *The Comeback of Industrial Policy: The Next Geopolitical Great Game*, ed. Alessandro Gili and Davide Tentori (Ledizioni, 2024), 167-187, https://www.ispionline.it/wp-content/uploads/2023/12/The-Comeback-of-Industrial-Policy-Report-ISPI-2023.pdf, 168.

This shift in attitude among advanced liberal market economies reflects a serious reconsideration of the benefits and risks of economic interdependencies enshrined in the market-led economic system and deepened by globalization[387].

Deep economic interdependencies were once portrayed in a largely positive light by (neo)liberal scholars and policymakers, emphasizing how they would foster economic convergence – and perhaps, eventually, even political convergence[388]. Trade and investment agreements, which inevitably increase economic interdependence, were seen as means to foster peace and cooperation. The idea was that the more interconnected states are, the less likely a conflict situation becomes precisely because the multitude of entanglements in the system raises the economic costs of conflict between states[389]. Thus the slogan, "World Peace through World Trade". These principles formed the foundation of the post-Cold War global order championed by the US.

Today, this liberal assessment appears to be under significant stress as the hegemon of our global order is promoting and implementing a huge industrial policy plan.

As explained by Roberts et al., a hegemon typically advocates for increased market integration as long as it does not perceive a threat from the economic expansion of its

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[387] J. Hillebrand Pohl, Cordelia Buchanan Ponczek and Mikael Wigell, "Strategic Capitalism: Implementing Economic Security Through Industrial Policy," in *The Comeback of Industrial Policy: The Next Geopolitical Great Game*, ed. Alessandro Gili and Davide Tentori (Ledizioni, 2024), 187-212, https://www.ispionline.it/wp-content/uploads/2023/12/The-Comeback-of-Industrial-Policy-Report-ISPI-2023.pdf, 190.

[388] Henry Farrell and Abraham L. Newman, "Weaponized Interdependence: How Global Economic Networks Shape State Coercion," *International Security* 44, no. 1 (January 1, 2019): 42–79, https://doi.org/10.1162/isec_a_00351, 44.

[389] See Erik Gartzke, "The Capitalist Peace," *American Journal of Political Science* 51, no. 1 (January 1, 2007): 166–91, https://doi.org/10.1111/j.1540-5907.2007.00244.x.

strategic rivals. Provided that the dominant power maintains a significant margin of superiority over its economic competitors, relative shifts in their economic power are not a concern. However, "when the relative size of the economies of the hegemon and its strategic rival converge to a sufficient degree, the hegemon's calls for free trade will weaken in favour of the adoption of greater protectionism.[390]" When the hegemon's sense of security diminishes, it might start to prioritize its own economic interests.

It is not hard to see these dynamics at play in the real world.

While the US remains the predominant political and economic power in the international system, its margin of dominance has grown thinner, slipping particularly against those actors that have successfully combined market integration and government intervention. As argued, this is precisely the case with China and the primary reason why its rise has had such significant repercussions within the global order. On the one hand, state-led investment and industrial policies enable China to strategically allocate resources, prioritize, and protect key industries, thereby gaining a competitive edge in global markets. On the other, its integration into the global economy grants access to foreign markets, allowing domestic companies to expand internationally and compete directly with foreign firms. Ultimately, the country's economic strength – resulting from both intervention and integration – enhances China's geopolitical influence, enabling it to adopt a more assertive and revisionist stance.

[390] Anthea Roberts, Henrique Choer Moraes, and Victor Ferguson, "Toward a Geoeconomic Order in International Trade and Investment," *Journal of International Economic Law* 22, no. 4 (November 25, 2019): 655–76, https://doi.org/10.1093/jiel/jgz036, 659.

In light of these considerations, it is not surprising that, in America, the emerging industrial policy is characterized by a renewed attention to capability loss, supply chain vulnerability, and offshoring-related risks – all perceived as critical to national and economic security vis-à-vis geoeconomic adversaries. Following the realization that the nation was losing its leadership position due to the cohesive and systematic industrial policies enacted by other nations, coupled with a lack of a similar response by the US, recent administrations have begun to take measures in this regard.

Throughout the Trump administration, it became evident that the US viewed China's actions as detrimental to American industrial competitiveness. This led to an escalation of the US-China trade wars[391]. But Trump's trade wars have extended beyond China to affect a number of American allies. Notably, in March 2018, Section 232 of the Trade Expansion Act of 1962 was invoked to impose tariffs of 25 percent on steel and 10 percent on aluminum imported from several countries, citing concerns that these imports posed a threat to national security[392]. Trump also implemented stricter measures to safeguard American technologies and infrastructure through the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (NDAA). The NDAA includes stricter export controls on dual-use goods through the Export Control Reform Act (ECRA) and a more rigorous review process of foreign investments through the Foreign Investment Risk

[391] Cheng Li, "Assessing U.S.-China relations under the Obama administration," *Brookings*, August 30, 2016, https://www.brookings.edu/articles/assessing-u-s-china-relations-under-the-obama-administration/.

[392] Inu Manak and Scott Lincicome, "In Biden's Steel Tariff Deal with Europe, Trump's Trade Policy Lives On," *Cato Institute*, November 2, 2021. https://www.cato.org/blog/bidens-steel-tariff-deal-europe-trumps-trade-policy-lives.

Review Modernization Act (FIRRMA)[393]. In 2019, the President issued an Executive Order to secure the ICT supply chain from foreign threats[394].

This protectionist trend has not changed under the Biden administration. In fact, in August 2023, Biden launched, through an Executive Order, the Outbound Investment Security Program, a screening process to regulate and possibly block US investment in foreign companies[395]. The program is clearly aimed at hampering Chinese development of typical dual-use advanced technologies, such as semiconductors, microelectronics, artificial intelligence, quantum computing. In addition, Biden has maintained Section 301 tariffs against China initiated by the Trump administration. When Trump left office, the average US tariff on imports from China stood at 19.3 percent, impacting 58.3 percent of imports – these figures remain unchanged as December 2023[396].

While there are substantial differences in approach, Biden, much like Trump, is using trade and industrial policy to favor American workers and strengthen the competitiveness of domestic companies. As argued, the perceived threat posed by China is acting as an incredible driver of consensus. Stormy-Annika Mildner and Claudia Schmucker emphasized how "[t]here is little appetite for market access either among Democrats or

[393] President Trump Signs Export Control Reform Act of 2018 Into Law: https://content.next.westlaw.com/practical-law/document/I1b537fe2a46c11e8a5b3e3d9e23d7429/President-Trump-Signs-Export-Control-Reform-Act-of-2018-Into-Law?viewType=FullText&transitionType=Default&contextData=(sc.Default)

[394] Executive Order 13873 (May 15, 2019)

[395] Executive Order 14105 (August 09, 2023)

[396] Mildner and Schmucker, "The EU, the United States, and China: On the Brink of a New Global Industrial Policy and Trade War," 172.

Republicans, who stand united in their tough stance towards China[397]". In this regard, discussions regarding the US "decoupling" from China (reducing economic dependence) appear realistic – whether it is right to refer to it as decoupling or de-risking. The trend is gradual and concentrated in sectors considered vital for national security but nonetheless likely to be continued regardless of the outcome of the next elections.

Most importantly, under the banner of "Build Back Better," Biden has passed groundbreaking legislation which incorporates a significant industrial component in American economic policy. Particularly relevant are the CHIPS and Science Act (CHIPS Act) and the Inflation Reduction Act (IRA).

The CHIPS and Science Act, signed into law in August 2022, allocates approximately $280 billion in new funding to enhance semiconductor manufacturing capacity[398]. On one hand, the Strategy adheres to the traditional goal of kickstarting R&D in the sector, but this time with a particular emphasis on commercialization and workforce upskilling. Within the context of the renewed race to reshore critical production for national security purposes, the Strategy aims to restore capacity in the country, bringing back leading-edge manufacturing[399].

In a broader perspective, the act can be viewed as an important effort toward the revitalization of the US industrial (innovation) strategy. Referring to the bill, Biden said it represents "more than chips […] It's about saying, decades ago we used to invest 2

[397] *Ibid*.

[398] CHIPS Act of 2022 Provisions and Implementation: https://crsreports.congress.gov/product/pdf/R/R47523

[399] Gili and Tentori, "The Fight for Global Technology Leadership," 45-6.

percent of our GDP and led the world in everything. We lead the world in everything from internet to GPS. Today, we invest less than 1 percent [of the nation's GDP].[400]"

However, the centerpiece of Biden's legislative achievements is undoubtedly the Inflation Reduction Act, an ambitious $369 billion plan of subsidies and tax credits. The act represents the most substantial investment in clean energy and climate action to date (about $160 billion in tax credits).

The aims of this landmark federal law are two-fold: economic and geopolitical. On one hand, the IRA serves as a tool to help the country achieve its climate objectives, enhance energy security, create high-skilled and well-paying jobs, and reduce energy and healthcare costs. Indeed, subsidies and tax credits for the production of electric vehicles and renewable energy technologies are offered to companies under the condition that manufacturing takes place within the country. On the other hand, it is part of a broader strategy to mitigate security risks by minimizing interdependencies and securing the energy supply chain[401].

While the full impact of the IRA remains to be seen, given its recent implementation, its overall significance should not be overlooked. Importantly, the act includes certain protectionist elements that have drawn international criticism for distorting markets and exacerbating an uneven playing field for global competition. Specifically, local content

[400] Lamar Johnson, "Biden ends slog on semiconductor bill with signature," *Politico*, August 9, 2022, https://www.politico.com/news/2022/08/09/biden-ends-slog-on-semiconductor-bill-with-signature-00050530.

[401] White House, Inflation Reduction Act Guidebook, 2023, https://www.whitehouse.gov/wp-content/uploads/2022/12/Inflation-Reduction-Act-Guidebook.pdf.

requirements[402] are prohibited under WTO rules and are perceived as a blow to the multilateral trading system. In a way, when the US explicitly shields its domestic industries from foreign competition, it undermines the principles of free trade and economic openness that it promotes globally.

Due to its discriminatory nature, the act has faced heavy criticism from the European Union, concerned about the possible damages to European industries as well as reduced demand for EU goods[403]. However, after months of vehement denunciations of these measures, the Union has recently tempered its criticisms and appears to be moving towards aligning its regulations as closely as possible with those of the US. In this sense, the US is leading the way in a new trend of industrial policies. As emphasized by Gili and Tentori:

> "Caught between imminent dangers of loss of competitiveness and the risk of being cut off from the development of an industrial supply chain for critical technologies for the energy and technology transition, the EU has responded, as of early 2023, with a package of coordinated measures including the European Green Deal Industrial Plan, the Net Zero Industry Act and the Critical Raw Materials Act."[404]

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[402] Rules that ensure that a company derives a certain amount of the final value of a good or service from domestic firms, either by purchasing from local companies or by manufacturing or developing the good or service locally.

[403] Kim Mackrael, "European Frustration Over U.S. Subsidies Mounts Ahead of Key Meeting," *The Wall Street Journal*, December 2, 2022, https://www.wsj.com/articles/european-frustration-over-u-s-subsidies-mounts-ahead-of-key-meeting-11669979658?mod=article_inline.

[404] Gili and Tentori, "The Fight for Global Technology Leadership," 58.

Overall, industrial policy, especially when targeted, has historically been perceived as misguided or unfair, contradicting cherished market economy principles (particularly when executed by foreign competitors like China). However, a series of shocks that have overturned conventional economic wisdom, coupled with the shift in stance by the United States, appears to have persuaded advanced economies, if not of the desirability, at least of the necessity of adopting traditional targeted industrial policies.

It is hard to predict where this renewed interest in industrial policy will lead. There are understandable concerns that poorly executed policies could jeopardize global economic stability, potentially fueling the spread and growth of ethnonationalist populism. Both the IMF and WTO have cautioned about the negative spillover effects of such policies on trading partners, which have the potential to trigger retaliation and tit-for-tat dynamics, further exacerbating international tensions.

On the other hand, there are positive indications that these initiatives could pave the way for the establishment of a more integrated Western supply chain. In this regard, consensus on industrial policy could enhance resilience by diversifying and strengthening domestic supply chains, thereby reducing vulnerability to global disruptions. Well-crafted policies can also aim at mitigating the negative effects of deindustrialization by revitalizing declining sectors, promoting the development of high-value-added industries and attracting new investments. Finally, as a byproduct of broader geopolitical and geoeconomic objectives, the recent industrial policy initiatives have enabled a global transition to clean energy, thereby incorporating a crucial sustainability aspect into the analysis.

Regardless of what lies ahead, it is safe to say that the renewed interest in industrial policy in advanced economies is not merely a temporary phenomenon; rather, it is a trend that will continue to gain significance in the years to come. All countries, whether in line with their mainstream economic ideology or not, will have to reckon with this new reality.

BIBLIOGRAPHY

Agarwal, Ruchir. “INDUSTRIAL POLICY AND THE GROWTH STRATEGY TRILEMMA.” *International Monetary Fund Finance & Development*, March 21, 2023. https://www.imf.org/en/Publications/fandd/issues/Series/Analytical-Series/industrial-policy-and-the-growth-strategy-trilemma-ruchir-agarwal.

Aggarwal, Vinod K., and Andrew Reddie. “New Economic Statecraft: Industrial Policy in an Era of Strategic Competition.” *World Trade Review* 20 (June 1, 2020): 137–51. https://doi.org/10.1017/S147474562000049X.

Aiginger, Karl, and Dani Rodrik. “Rebirth of Industrial Policy and an Agenda for the Twenty-First Century.” *Journal of Industry, Competition and Trade*, Vol. 20, Issue 2, no 1 (January 2020): 189–207. https://doi.org/10.1007/s10842-019-00322-3.

Aikins, Stephen K. “Global Financial Crisis and Government Intervention: A Case for Effective Regulatory Governance.” *International Public Management Review* 10, no. 2 (January 1, 2009): 23–43. https://journals.sfu.ca/ipmr/index.php/ipmr/article/download/67/67.

Andreoni, Antonio. “The Political Economy of Industrial Policy: After the Crisis, Back on the Agenda.” In *Research Handbook on Political Economy and Law*, edited by Ugo Mattei and John D. Haskell: 342–68. Edward Elgar Publishing, November 2015. https://doi.org/10.4337/9781781005354.00031.

———. "Varieties of Industrial Policy: Models, Packages, and Transformation Cycles." In *Efficiency, Finance, and Varieties of Industrial Policy: Guiding Resources, Learning, and Technology for Sustained Growth*, edited by Akbar Noman and Joseph E. Stiglitz, Chapter 9: 245–305. New York Chichester, West Sussex: Columbia University Press, 2016. https://doi.org/10.7312/noma18050-009.

Andreoni, Antonio, and Ha-Joon Chang. “The political economy of industrial policy: Structural interdependencies, policy alignment and conflict management,”

Structural Change and Economic Dynamics, Vol. 48 (March 2019): 136-150, https://doi.org/10.1016/j.strueco.2018.10.007.

Andreoni, Antonio, Ha-Joon Chang, Sue Konzelmann and Alan Shipman. "Introduction to the Special Issue: Towards a production-centred agenda." *Cambridge Journal of Economics*, Vol. 42, Issue 6 (November 2018): 1495–1504, https://doi.org/10.1093/cje/bey042.

Arifin, Bustanul. "The Failure of the Washington Consensus, the Need for a New Reform and the Rise of the Beijing Consensus." *Journal of International Relations* 1(January 12, 2018).

Atkinson, Robert D. "The Case for a National Industrial Strategy to Counter China's Technological Rise." *Information Technology and Innovation Foundation*, April 13, 2020. https://itif.org/publications/2020/04/13/case-national-industrial-strategy-counter-chinas-technological-rise.

———. "I Finally Agree with Krugman." *American Compass*. September 26, 2020. https://americancompass.org/i-finally-agree-with-krugman/.

Bailey, David, Amy Glasmeier, Philip R. Tomlinson, Peter Tyler. "Industrial policy: new technologies and transformative innovation policies?." *Cambridge Journal of Regions, Economy and Society*, Vol. 12, Issue 2 (July 2019): 169–177, https://doi.org/10.1093/cjres/rsz006,

Bailey, David, and Philip Tomlinson. "Back to the Future? UK Industrial Policy After the Great Financial Crisis." In *Economic Policies since the Global Financial Crisis*, edited by Philip Arestis and Malcolm Sawyer: 221–263. International Papers in Political Economy, Palgrave Macmillan: December 2017. https://doi.org/10.1007/978-3-319-60459-6_6.

Bairoch, Paul. *Economics and World History: Myths and Paradoxes*. *Southern Economic Journal*. University of Chicago Press, 1993.

Balassa, Bela. “The Lessons of East Asian Development: An Overview.” In “Front Matter,” *Economic Development and Cultural Change*, Vol. 36, No. 3 (The University of Chicago Press, April1988). http://www.jstor.org/stable/1566534.

Baldwin, Richard, and Tomiura Eiichi. “Thinking Ahead About the Trade Impact of COVID-19.” In *Economics in the Time of COVID-19*, edited by Richard Baldwin and Beatrice Weder Di Mauro, 59, 2020. https://www.labourline.org/Record.htm?Record=19314122124911323049.

Baldwin, Richard. *The Great Convergence*, 2016. https://doi.org/10.2307/j.ctv24w655w.

Becker, Gary. “The best industrial policy is none at all.” *Business Week*. August 26, 1985.

Beckley, Michael. “China’s Century? Why America’s Edge Will Endure.” *International Security* 36, no. 3 (2011): 41–78. http://www.jstor.org/stable/41428109.

Bianchi, Patrizio, and Sandrine Labory. "From ‘Old’ Industrial Policy to ‘New’ Industrial Development Policies.". In *International Handbook on Industrial Policy*, edited by P. Bianchi and S. Labory, Chapter 1. Edward Elgar Publishing, August 2006. https://doi.org/10.4337/9781847201546.00008.

———. “European Industrial Policy: A Comparative Perspective.” In *The Oxford Handbook of Industrial Policy*, edited by Arkebe Oqubay, Christopher Cramer, Ha-Joon Chang, and Richard Kozul-Wright, Chapter 21: 594–620. Oxford Handbooks, November 2020. https://doi.org/10.1093/oxfordhb/9780198862420.013.22.

Bingham, Richard D. *Industrial Policy American-style: From Hamilton to HDTV: From Hamilton to HDTV*. Perlego. Routledge, 2016.

Block, Fred. “Swimming Against the Current: The Rise of a Hidden Developmental State in the United States.” *Politics & Society* 36, no. 2 (June 1, 2008): 169–206. https://doi.org/10.1177/0032329208318731.

Bonvillian, William B. “Emerging Industrial Policy Approaches in the United States.” *Information Technology and Innovation Foundation* (ITIF), October 2021. https://www2.itif.org/2021-industrial-policy.pdf

Bonvillian, William B., and Peter L. Singer. *Advanced Manufacturing: The New American Innovation Policies*. Perlego. MIT Press, 2023.

Bown, Chad P. “COVID-19: China's exports of medical supplies provide a ray of hope” P*eterson Institute for International Economics* (PIIE). March 26, 2020. https://www.piie.com/blogs/trade-and-investment-policy-watch/covid-19-chinas-exports-medical-supplies-provide-ray-hope.

———. “How COVID-19 Medical Supply Shortages Led to Extraordinary Trade and Industrial Policy.” P*eterson Institute for International Economics* (PIIE) Working Paper 21-11. (July, 2021): 1-30. https://www.piie.com/sites/default/files/documents/wp21-11.pdf.

Breslin, Shaun. “The ‘China Model’ and the Global Crisis: From Friedrich List to a Chinese Mode of Governance?” *International Affairs* 87, no. 6 (November 1, 2011): 1323–43. https://doi.org/10.1111/j.1468-2346.2011.01039.x.

———. “Paradigm(s) Shifting?: Responding to China’s Response to the Global Financial Crisis.” In *The Consequences of the Global Financial Crisis: The Rhetoric of Reform and Regulation*, edited by Wyn Grant and Graham K. Wilson, 226–246. Oxford University Press, 2012. https://doi.org/10.1093/acprof:oso/9780199641987.003.0012.

Brosnahan, Cori. “DARPA: Weapons of the Future.” *American Experience*. January 2018. https://www.pbs.org/wgbh/americanexperience/features/secret-tuxedo-park-darpa/.

Bulfone, Fabio. “Industrial Policy and Comparative Political Economy: A Literature Review and Research Agenda.” *Competition & Change* 27, no. 1 (March 25, 2022): 22–43. https://doi.org/10.1177/10245294221076225.

Carter, David P., and Peter May. “Making Sense of the U.S. COVID-19 Pandemic Response: A Policy Regime Perspective.” *Administrative Theory & Praxis* (April 2, 2020): 1-13. https://doi.org/10.1080/10841806.2020.1758991.

Chang, Ha-Joon. “Industrial Policy: Can We Go Beyond an Unproductive Confrontation?.” *Discussion Paper* No. 2010/1, Turkish Economic Association, Ankara, January 2010.

Chang, Ha-Joon, and Antonio Andreoni. “Industrial Policy in the 21st Century.” *Development and Change* 51, no. 2 (January 2020): 324–51, https://doi.org/10.1111/dech.12570.

Cherif, Reda, and Fuad Hasanov. “The Return of the Policy That Shall Not Be Named: Principles of Industrial Policy.” *IMF Working Paper*, Vol. 2019, Issue 074 (March 1, 2019): https://doi.org/10.5089/9781498305402.001.

Cimoli, Mario, Giovanni Dosi, and Joseph E. Stiglitz. “The Political Economy of Capabilities Accumulation: The Past and Future of Policies for Industrial Development.” In *Industrial Policy and Development: The Political Economy of Capabilities Accumulation*, 1–16, 2009. https://doi.org/10.1093/acprof:oso/9780199235261.003.0001.

Clift, Ben, and Cornelia Woll. “Economic Patriotism: Reinventing Control Over Open Markets.” *Journal of European Public Policy*, Vol. 19, Issue 3 (February 2012): 307-323. 10.1080/13501763.2011.638117.

Cohen, Elie. “Theoretical foundations of industrial policy.” *EIB Papers*, ISSN 0257-7755, European Investment Bank (EIB), Vol. 11, Iss. 1 (Luxembourg, 2006): 84–106.

Cohen, Stephen S., and Bradford J. DeLong. *Concrete Economics: The Hamilton Approach to Economic Growth and Policy*, Harvard Business Review Press, 2016, https://www.perlego.com/book/837104/concrete-economics-the-hamilton-approach-to-economic-growth-and-policy-pdf.

Cohen, Stephen S. *Modern Capitalist Planning: The French Model*. University of California Press, 1977.

Coka, Daniela Arregui, Bernhard Bartsch, Cora Jungbluth, Anika Laudien, Markus Overdiek, Dominic Ponattu, Thomas Rausch, and Felix Vemmer. "Learning From Trump and Xi? Globalization and Innovation as Drivers of a New Industrial Policy. Bertelsmann GED Focus 2020." *GED Focus Paper*, 2020. http://aei.pitt.edu/102551/.

Coveri, Andrea, Claudio Cozza, Leopoldo Nascia, and Antonello Zanfei. "Supply Chain Contagion and the Role of Industrial Policy." *ECONOMIA E POLITICA INDUSTRIALE* 47, no. 3 (July 14, 2020): 467–82. https://doi.org/10.1007/s40812-020-00167-6.

Coyle, Diane, and Adam Muhtar. "UK's Industrial Policy: Learning from the Past?." *Productivity Insights Paper*, No. 002 (The Productivity Institute: October 2021).

Criscuolo, Chiara, Nicolas Gonne, Kohei Kitazawa and Guy Lalanne. "An industrial policy framework for OECD countries: Old debates, new perspectives." *OECD Science, Technology and Industry Policy Papers*, No. 127. OECD Publishing, Paris, May 2022. https://doi.org/10.1787/0002217c-en.

Dean, Mark, Al Rainnie, Jim Stanford and Dan Nahum. "Industrial policy-making after COVID-19: Manufacturing, innovation and sustainability." *The Economic and Labour Relations Review*, Vol. 32, Issue 2 (May 2021): 283–303. https://doi.org/10.1177/10353046211014755.

Delcker, Janosch. "Germany's Chinese investment problem," *Politico*, November 25, 2016, https://www.politico.eu/article/germanys-chinese-investment-problem-sigmar-gabriel-eu/.

Devlin, Robert. *Debt and Crisis in Latin America: The Supply Side of the Story*, Princeton: Princeton University Press, 1989.

DiPippo, Gerard, Ilaria Mazzocco and Scott Kennedy. “Red Ink, Estimating Chinese Industrial Policy Spending in Comparative Perspective” edited by Scott Kennedy and Matthew P. Goodman, 1-87. Center for Strategic and International Studies (CSIS),May 2022. https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/220523_DiPippo_Red_Ink.pdf?VersionId=LH8ILLKWz4o.bjrwNS7csuX_C04FyEre.

Evenett, Simon, Adam Jakubik, Fernando Martín and Michele Ruta. “The Return of Industrial Policy in Data.” *IMF Working Paper*, No. 2024/001 (January 4, 2024).

Ezell, Stephen, and Robert D. Atkinson. “The Case for a National Manufacturing Strategy.” *Information Technology and Innovation Foundation (ITIF)*, April 26, 2011. https://itif.org/files/2011-national-manufacturing-strategy-atkinson.pdf.

Farrell, Henry, and Abraham L. Newman. “Weaponized Interdependence: How Global Economic Networks Shape State Coercion.” *International Security* 44, no. 1 (January 1, 2019): 42–79. https://doi.org/10.1162/isec_a_00351.

Feigenbau, Evan A. and Jeremy Smith. “How Taiwan Can Turn Coronavirus Victory Into Economic Success.” *Foreign Policy Magazine*. https://foreignpolicy.com/2020/06/01/taiwan-coronavirus-pandemic-china-economy-technology/.

Friedman, Milton. *Capitalism and Freedom: Fortieth Anniversary Edition*. University of Chicago Press, 2009.

Fukuyama, Francis. *The End of History and the Last Man*, 1992. http://ci.nii.ac.jp/ncid/BA14011847.

Gao, Bai. “The Renaissance of Industrial Policy: Developmentalism in the Era of Post Globalization.” *İstanbul Üniversitesi Sosyoloji Dergisi* 40, no. 2 (December 31, 2020). https://doi.org/10.26650/sj.2020.40.2.0058.

Gartzke, Erik. “The Capitalist Peace.” *American Journal of Political Science* 51, no. 1 (January 1, 2007): 166–91. https://doi.org/10.1111/j.1540-5907.2007.00244.x.

Gereffi, Gary. “Global Value Chains in a Post-Washington Consensus World.” *Review of International Political Economy* 21, no. 1 (2014): 9–37. http://www.jstor.org/stable/24673063.

Gertz, Geoffrey, and Miles M. Evers. “Geoeconomic Competition: Will State Capitalism Win?” *The Washington Quarterly* 43, no. 2 (April 2, 2020): 117–36. https://doi.org/10.1080/0163660x.2020.1770962.

Glass, Andrew. “Bush bails out U.S. automakers.” *Politico*, December 19, 2008. https://www.politico.com/story/2018/12/19/bush-bails-out-us-automakers-dec-19-2008-1066932.

Glass, Andrew. “Tennessee Valley Authority created, May 18, 1933.” *Politico*. May 18, 2017. https://www.politico.com/story/2017/05/18/tennessee-valley-authority-created-may-18-1933-238325.

Gokhale, Vijay. “How the 'Unilateral Neoliberalism' of the US Helped China to Weaponise its Economy for Geopolitics.” *The Wire*. September 16, 2023. https://thewire.in/books/how-the-unilateral-neoliberalism-of-the-us-helped-china-to-weaponise-its-economy-for-geopolitics.

Grabitz, Eberhard, and Armin Von Bogdandy. *U.S. Trade Barriers: A Legal Analysis*. Oceana Publications, 1991.

Grabowiecki, Jerzy. *Keiretsu Groups: Their Role in the Japanese Economy and a Reference Point (or a Paradigm) for Other Countries*, 2006. http://ci.nii.ac.jp/ncid/BA76644900.

Hall, David. “Economic crisis and public services: note 1, December 2008” *Public Services International Public Services International Research Unit* (December 2008): 1-14. http://www.psiru.org/reports/2008-12-crisis-1.doc

Hall, Peter A., and David Soskice. *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*. New York: Oxford University Press, 2001.

Hamilton, Alexander. “Alexander Hamilton’s Final Version of the Report on the Subject of Manufactures, [5 December 1791],” *Founders Online*, National Archives, https://founders.archives.gov/documents/Hamilton/01-10-02-0001-0007. Original source: *The Papers of Alexander Hamilton*, Vol. 10, December 1791–January 1792, ed. Harold C. Syrett. New York: Columbia University Press, 1966, pp. 230–340.

Hausmann, Ricardo, and Dani Rodrik. “Doomed to Choose: Industrial Policy as Predicament.” Harvard University, September 2006. http://tinyurl.com/y49lzv4a.

Hayward, Jack. "Industrial Enterprise and European Integration: From National to International Champions in Western Europe." *OUP Catalogue*, Oxford University Press, 1995.

Hills, Cathy. “Lessons From Past Industrial Policy Offer Insight For Chip Development.” *TradeAlgo*. March 1, 2023. https://www.tradealgo.com/news/lessons-from-past-industrial-policy-offer-insight-for-chip-development.

Hogan, Michael J. *A Cross of Iron: Harry S. Truman and the Origins of the National Security State, 1945-1954*. Cambridge University Press, 1998.

Houseman, Susan N., C Kurz, Paul Lengermann, and Benjamin R. Mandel. “Offshoring Bias in U.S. Manufacturing.” *Journal of Economic Perspectives* 25, no. 2 (May 1, 2011): 111–32. https://doi.org/10.1257/jep.25.2.111.

Hufbauer C. Gary and Euijin Jung. “Scoring 50 years of US industrial policy, 1970–2020” *Peterson Institute for International Economics (PIIE) Briefings* 21-5 (November 2021):1-11. https://www.piie.com/publications/piie-briefings/2021/scoring-50-years-us-industrial-policy-1970-2020.

Irwin, Douglas A. “Chapter Eight. MILL AND THE INFANT INDUSTRY ARGUMENT.” In *Against the Tide: An Intellectual History of Free Trade*.

Princeton: Princeton University Press, 1996, https://doi.org/10.1515/9780691213019-011, pp. 116–137.

Jefferson, Thomas. "Query XIX; an excerpt from Notes on the State of Virginia by Thomas Jefferson (1784)" *Encyclopedia Virginia*. Virginia Humanities, (December 07, 2020). https://encyclopediavirginia.org/primary-documents/query-xix-an-excerpt-from-notes-on-the-state-of-virginia-by-thomas-jefferson-1784/.

Johnson, Chalmers. *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975*. Stanford University Press, 1982.

Johnson, Lamar. “Biden ends slog on semiconductor bill with signature.” *Politico*. August 9, 2022. https://www.politico.com/news/2022/08/09/biden-ends-slog-on-semiconductor-bill-with-signature-00050530.

Johnstone, Phil, Karoline S. Rogge, Paula Kivimaa, et al. “Exploring the Re-Emergence of Industrial Policy: Perceptions Regarding Low-Carbon Energy Transitions in Germany, the United Kingdom and Denmark.” *Energy Research & Social Science* 74 (April 2021): 1–15. https://doi.org/10.1016/j.erss.2020.101889.

Juhász, Réka, Nathaniel Lane and Dani Rodrik. “The New Economics of Industrial Policy.” *SocArXiv*, August 2023. https://doi.org/10.31235/osf.io/gsyq4.

Juhász, Réka, Nathaniel Lane, Emily Oehlsen and Verónica C. Pérez. “The Who, What, When, and How of Industrial Policy: A Text-Based Approach.” November 20, 2022. http://dx.doi.org/10.2139/ssrn.4198209.

Kennedy, Scott, John J. Hamre, Matthew P. Goodman, Andrew P. Hunter, Scott Miller, Samm Sacks, John Schaus, and Stephanie Segal. “The Beijing Playbook: Chinese Industrial Policy and Its Implications for the United States.” In *Meeting the China Challenge: Responding to China’s Managed Economy*, edited by James Andrew Lewis, 1-9. Center for Strategic and International Studies (CSIS), 2018. http://www.jstor.org/stable/resrep22421.5.

Khondker, Habibul Haque. “State and COVID-19 Response in the Asian Tiger Economies.” *Comparative Sociology* 20, no. 6 (December 10, 2021): 695–717. https://doi.org/10.1163/15691330-bja10043.

Kline, Patrick, and Enrico Moretti. “Local Economic Development, Agglomeration Economies, and the Big Push: 100 Years of Evidence From the Tennessee Valley Authority.” *The Quarterly Journal of Economics* 129, no. 1 (November 8, 2013): 275–331. https://doi.org/10.1093/qje/qjt034.

Koebner, R. “Adam Smith and the Industrial Revolution.” *The Economic History Review*, Vol. 11, No. 3 (1959): 381–91, https://doi.org/10.2307/2591461.

Kozul-Wright, Richard. “The Myth of Anglo-Saxon Capitalism: Reconstructing the History of the American State.” In *The Role of the State in Economic Change*, edited by Ha-Joon Chang and Robert Rowthorn, 80–113, 1995. https://doi.org/10.1093/acprof:oso/9780198289845.003.0004.

Kus, Basak. “Relief, Recovery, Reform: A Retrospective on the US Policy Responses to the Great Recession.” *Intereconomics* 55, no. 4 (July 1, 2020): 257–65. https://doi.org/10.1007/s10272-020-0910-4.

Landesmann, Michael. “Industrial Policies and Social Corporatism.” In *Social Corporatism: A Superior Economic System?*, edited by Jukka Pekkarinen, Matti Pohjola and Bob Rowthorn, Content 8: 242–279 Oxford University Press, 1992.

Lardy, Nicholas R. “The Sustainability of China’s Recovery From the Global Recession.” *Policy Briefs*, January 1, 2010. https://ideas.repec.org/p/iie/pbrief/pb10-7.html.

Leftwich, Adrian. “Bringing Politics Back in: Towards a Model of the Developmental State.” *Journal of Development Studies* 31, no. 3 (February 1, 1995): 400–427. https://doi.org/10.1080/00220389508422370.

Li, Cheng. “Assessing U.S.-China relations under the Obama administration.” *Brookings*. August 30, 2016. https://www.brookings.edu/articles/assessing-u-s-china-relations-under-the-obama-administration/.

Lim, David and Zachary Brennan. “Trump names team to develop coronavirus vaccine at ‘Warp Speed.’” *Politico*. May 15, 2020. https://www.politico.com/news/2020/05/15/trump-coronavirus-vaccine-development-team-260678.

Lind, Michael. *Land of Promise: An Economic History of the United States*. Perlego. Harper Collins, 2012.

Linsi, Lukas. “The discourse of competitiveness and the dis-embedding of the national economy.” *Review of International Political Economy*, Vol. 27, Issue 4 (August 2020): 855–879 https://doi.org/10.1080/09692290.2019.1687557.

Lipton, Eric and John M. Broder. “In Rush to Assist a Solar Company, U.S. Missed Signs.” *New York Times*. September 22, 2011. https://www.nytimes.com/2011/09/23/us/politics/in-rush-to-assist-solyndra-united-states-missed-warning-signs.html.

Liu, Zongyuan Zoe. “China’s Long March Towards Global Industrial and Tech Leadership.” In *The Comeback of Industrial Policy: The Next Geopolitical Great Game*, edited by Alessandro Gili and Davide Tentori, 233-248. Ledizioni, 2024. https://www.ispionline.it/wp-content/uploads/2023/12/The-Comeback-of-Industrial-Policy-Report-ISPI-2023.pdf.

Lucas Robert E. “Making a Miracle.” *Econometrica*, Vol. 61, No. 2 (March 1993): 251–272. https://doi.org/10.2307/2951551.

Macheda, Francesco. “Il Ruolo Delle Imprese a Conduzione Statale Nella Lotta Della Cina Contro Il COVID-19 (the Role of State-Owned Enterprises in China’s Fight Against the Coronavirus Disease).” *Moneta E Credito* 73, no. 290 (July 18, 2020): 111–39. https://doi.org/10.13133/2037-3651_73.290_1.

Mackrael, Kim. “European Frustration Over U.S. Subsidies Mounts Ahead of Key Meeting.” *The Wall Street Journal.* December 2, 2022. https://www.wsj.com/articles/european-frustration-over-u-s-subsidies-mounts-ahead-of-key-meeting-11669979658?mod=article_inline.

Magri, Paolo. “Introduction,” in *The Comeback of Industrial Policy: The Next Geopolitical Great Game*, edited by Alessandro Gili and Davide Tentori, 7-14. Ledizioni, 2024. https://www.ispionline.it/wp-content/uploads/2023/12/The-Comeback-of-Industrial-Policy-Report-ISPI-2023.pdf.

Manak, Inu and Scott Lincicome. “In Biden’s Steel Tariff Deal with Europe, Trump’s Trade Policy Lives On.” *Cato Institute*. November 2, 2021. https://www.cato.org/blog/bidens-steel-tariff-deal-europe-trumps-trade-policy-lives.

Mann, Michael. “Has Globalization Ended the Rise and Rise of the Nation-state?” *Review of International Political Economy* 4, no. 3 (January 1, 1997): 472–96. https://doi.org/10.1080/096922997347715.

Marco Rubio. “American Industrial Policy and the Rise of China.” (speech at National Defense University, December 10, 2019). https://www.rubio.senate.gov/wp-content/uploads/_cache/files/5922cc54-2966-48a1-8e88-f7b51bbeca06/D0E7312935012E45F20C67A3450DDAFD.ndu-china-industrial-policy.pdf

Mazzucato, Mariana. “From Market Fixing to Market-Creating: A New Framework for Innovation Policy.” *SWPS 2015-25* (August 2015): 140–156, http://dx.doi.org/10.2139/ssrn.2744593.

McDougall, William. “Technocracy and Statecraft in the Space Age--Toward the History of a Saltation.” *The American Historical Review* 87, no. 4 (October 1, 1982): 1010–40. https://doi.org/10.2307/1857903.

McFarland, Charles E., and Nevin E. Neal. “The Nascence of Protectionism: American Tariff Policies, 1816-1824.” *Land Economics* 45, no. 1 (February 1, 1969): 22. https://doi.org/10.2307/3145258.

Meneses, João Paulo. “Special Report – BRI: How much has China spent so far?” *Macau Business*. October 2023. https://www.macaubusiness.com/special-report-how-much-has-china-spent-so-far/.

Milanović, Branko. “After the Financial Crisis: The Evolution of the Global Income Distribution Between 2008 and 2013.” *Review of Income and Wealth* 68, no. 1 (May 26, 2021): 43–73. https://doi.org/10.1111/roiw.12516.

Mildner, Stormy-Annika and Claudia Schmucker. “The EU, the United States, and China: On the Brink of a New Global Industrial Policy and Trade War,” in *The Comeback of Industrial Policy: The Next Geopolitical Great Game*, edited by Alessandro Gili and Davide Tentori, 167-187. Ledizioni, 2024. https://www.ispionline.it/wp-content/uploads/2023/12/The-Comeback-of-Industrial-Policy-Report-ISPI-2023.pdf.

Mitchell, Vance O. “(U) Sharing Space: The Secret Interaction between the National Areounatics & Space Administration & the National Reconnaissance Office.” *Center for the study of National Reconnaissance*. July 2012. https://www.nro.gov/Portals/65/documents/foia/declass/ForAll/012422/F-2019-00002_C05116216.pdf.

Nelson, Richard R. “What Has Happened to U.S. Technological Leadership?”. In *Technological Competition and Interdependence: The Search for Policy in the United States, West Germany, and Japan*, edited by Gunter Heiduk and Kozo Yamamura. University of Washington Press, 2016.

Nester, William R. *A Short History of American Industrial Policies*. Springer, 2016.

Neto, Alcino F. Câmara, and Matias Vernengo. “Globalization, a Dangerous Obsession: Latin America in the Post-Washington Consensus Era,” *International Journal of Political Economy*, Vol. 32, no. 4 (Winter, 2002/2003): 4–21.

Nye, Alexander. “The Rescue of the US Auto Industry, Module A: Automotive Bridge Loans.” *Journal of Financial Crises* 4, no. 1 (2020): 49-92. https://elischolar.library.yale.edu/journal-of-financial-crises/vol4/iss1/2.

Oqubay, Arkebe. “Industrial policy and COVID-19 responses.” *ICE, Revista de Economía* 914 (June 2020):97-113. https://doi.org/10.32796/ice.2020.914.7055.

Pack, Howard, and Kamal Saggi. “Is There a Case for Industrial Policy? A Critical Survey.” *The World Bank Research Observer*, Vol. 21, Issue 2, Fall 2006 (July 2006): 267–297. https://doi.org/10.1093/wbro/lkl001.

Patomäki, Heikki. “Neoliberalism and the Global Financial Crisis.” *New Political Science* 31, no. 4 (December 1, 2009): 431–42. https://doi.org/10.1080/07393140903322497.

Patrinos, Aristides, and Daniel Drell. “The Human Genome Project: View From the Department of Energy.” *PubMed* 52, no. 1 (January 1, 1997): 8–10. https://pubmed.ncbi.nlm.nih.gov/9033165.

Peres, Wilson, and Annalisa Primi. *Theory and Practice of Industrial Policy: Evidence From the Latin American Experience*. Santiago de Chile: Naciones Unidas, CEPAL, 2009.

Phillips, Kevin P. “U.S. Industrial Policy: Inevitable And Ineffective.” *Long Range Planning* 26, no. 1 (February 1, 1993): 156. https://doi.org/10.1016/0024-6301(93)90338-g.

Pisano, Gary P., and Willy C. Shih. “Restoring American Competitiveness.” *Harvard Business Review* 87 (July 1, 2009): 114–25. https://www.hbs.edu/faculty/Pages/item.aspx?num=36203.

Pohl, J. Hillebrand, Cordelia Buchanan Ponczek and Mikael Wigell. “Strategic Capitalism: Implementing Economic Security Through Industrial Policy.” in *The Comeback of Industrial Policy: The Next Geopolitical Great Game*, edited by Alessandro Gili and Davide Tentori, 187-212. Ledizioni, 2024. https://www.ispionline.it/wp-content/uploads/2023/12/The-Comeback-of-Industrial-Policy-Report-ISPI-2023.pdf.

Pollin, Robert, Heidi Garrett-Peltier, James Heintz, and Bracken Hendricks. “Green Growth: A U.S. Program for Controlling Climate Change and Expanding Job Opportunities.” *Center for American Progress & Political Economy Research Institute*, (September 2014): 1-407. https://cdn.americanprogress.org/wp-content/uploads/2014/09/PERI.pdf?_ga=2.177173223.319859051.1602855757-711970118.1601726654%20general

Raymond, Daniel. *Thoughts on political economy. In two parts*. Baltimore: Fielding Lucas Jun’r, 1820.

Reinert, Erik S. “Competitiveness and its Predecessors—A 500-year Cross-National Perspective.” *Structural Change and Economic Dynamics*, Vol. 6, Issue 1 (Elsevier, March 1995): 23–42, https://doi.org/10.1016/0954-349X(94)00002-Q.

———. “How rich nations got rich. Essays in the history of economic policy.” *Centre for Development and the Environment*, Working Paper Nr. 2004/01, University of Oslo, 2004.

Roberts, Anthea, Henrique Choer Moraes, and Victor Ferguson. “Toward a Geoeconomic Order in International Trade and Investment.” *Journal of International Economic Law* 22, no. 4 (November 25, 2019): 655–76. https://doi.org/10.1093/jiel/jgz036.

Robinson, James A. “Industrial Policy and Development: A Political Economy Perspective.” *Revue d'économie du développement*, Vol. 18, No. 4 (January 2010): 21– 45.

Rodrik, Dani. “Goodbye Washington Consensus, Hello Washington Confusion? A Review of the World Bank’s Economic Growth in the 1990s: Learning from a Decade of Reform.” *Journal of Economic Literature*, Vol. 44, No. 4 (December 2006): 973–987.

———. “The New Global Economy and Developing Countries: Making Openness Work.” *Washington, DC: Overseas Development Council*, Policy Essay No. 24 (1999). https://doi.org/10.1002/1099-1328(200007)12:5<765::AID-JID670>3.0.CO;2-L.

Roemer, John E. “Ideological and Political Roots of American Inequality.” *Challenge* 54, no. 5 (September 1, 2011): 76–98. https://doi.org/10.2753/0577-5132540505.

Schmidt, A. Vivien. “The Roots of Neo-Liberal Resilience: Explaining Continuity and Change in Background Ideas in Europe’s Political Economy.” *The British Journal of Politics and International Relations*, Vol. 18, Issue 2 (May 2016): 318–334. https://doi.org/10.1177/1369148115612792.

Schneider, Etienne “Paradigmenwechsel in der Industriepolitik?!” *Luxemburg*, October 2021, https://zeitschrift-luxemburg.de/artikel/paradigmenwechsel-in-der-industriepolitik/.

Schneider, Etienne. “Germany’s Industrial strategy 2030, EU competition policy and the Crisis of New Constitutionalism. (Geo-)political economy of a contested paradigm shift.” *New Political Economy*, Vol. 28, Issue 2 (June 2022): 241–258, https://doi.org/10.1080/13563467.2022.2091535.

Schumpeter, Joseph A. *History of Economic Analysis*. Edited from manuscript by Elizabeth Boody Schumpeter. New York: Oxford University Press, 1954.

Schwak, Juliette. “Korea’s Exemplary Response to the COVID-19 Pandemic: Successes and Challenges.” *National Defense University Press*. https://ndupress.ndu.edu/Media/News/News-Article-

View/Article/2944861/koreas-exemplary-response-to-the-covid-19-pandemic-successes-and-challenges/.

Settelen, Michael. “MADE IN CHINA 2025’ AND CHINA’S EVOLVING INDUSTRIAL POLICY” *Expertise Switzerland Global Enterprise*. January 03, 2023. https://www.s-ge.com/en/article/expertise/2022-e-china-c5-industrial-policy?ct.

Seydl, Joe, Jessica Matthews and Ian Schaeffer. “The opportunity in renewed U.S. industrial policy.” *J.P. Morgan*. June 1, 2023 https://privatebank.jpmorgan.com/nam/en/insights/markets-and-investing/the-opportunity-in-renewed-us-industrial-policy.

Shafaeddin, Mehdi. "What Did Frederick List Actually Say? Some Clarifications On The Infant Industry Argument." *UNCTAD Discussion Papers* 149, United Nations Conference on Trade and Development (July 2000).

Siddiqui, Naveen and Andrew Lautz. “Industrial Policy: Path to U.S. Competitiveness or Pitfall?” *Bipartisan Policy Center*. October 3, 2023. https://bipartisanpolicy.org/blog/industrial-policy-path-to-u-s-competitiveness-or-pitfall/.

Singh, Jewellord T. Nem. “Recentring Industrial Policy Paradigm Within IPE and Development Studies.” *Third World Quarterly* 44, no. 9 (June 9, 2023): 2015–30. https://doi.org/10.1080/01436597.2023.2216140.

Spence, Michael. "In Defense of Industrial Policy," *Project Syndicate*, May 5, 2023, https://www.project-syndicate.org/commentary/industrial-policy-us-chips-and-science-act-debate-by-michael-spence-2023-05?barrier=accesspaylog.

Sperling, Gene. *Remarks, Speech at Conference on the Renaissance of American Manufacturing.* Washington D. March 27, 2012. https://obamawhitehouse.archives.gov/sites/default/files/administration-official/sperling_-_renaissance_of_american_manufacturing_-_03_27_12.pdf

Stiglitz, Joseph E. “Is there a Post-Washington Consensus Consensus?.” In *The Washington Consensus Reconsidered: Towards a New Global Governance, Initiative for Policy Dialogue*, edited by Narcís Serra and Joseph E. Stiglitz. Oxford, April 2008. https://doi.org/10.1093/acprof:oso/9780199534081.003.0004.

Stiglitz, Joseph E, Justin Yifu, and Célestin Monga. *The Rejuvenation of Industrial Policy*. *World Bank Policy Research Working Paper*, 2013. https://doi.org/10.1596/1813-9450-6628.

Swain, Donald C. “The Rise of a Research Empire: NIH, 1930 to 1950.” *Science* 138, no. 3546 (December 14, 1962): 1233–37. https://doi.org/10.1126/science.138.3546.1233.

Szalavetz, Andrea. “Post-crisis Approaches to State Intervention: New Developmentalism or Industrial Policy as Usual?” *Competition & Change* 19, no. 1 (February 1, 2015): 70–83. https://doi.org/10.1177/1024529414563009.

Taleb, Nassim Nicholas. *The Black Swan: The Impact of the Highly Improbable*, Random House, 2007.

Tentori, Davide, and Alessandro Gili. “The Fight for Global Technology Leadership: a Matter of Geopolitics (and Industrial Policy Too).” In *The Comeback of Industrial Policy: The Next Geopolitical Great Game*, edited by Alessandro Gili and Davide Tentori, 15–74. Ledizioni, 2024. https://www.ispionline.it/wp-content/uploads/2023/12/The-Comeback-of-Industrial-Policy-Report-ISPI-2023.pdf.

Tregenna, Fiona. “Deindustrialization and Reindustrialization.” In *Pathways to Industrialization in the Twenty-First Century: New Challenges and Emerging Paradigms*, edited by Adam Szirmai, Wim Naudé, and Ludovico Alcorta. WIDER Studies in Development Economics: Oxford, May 2013. https://doi.org/10.1093/acprof:oso/9780199667857.003.0003.

Tucker, Todd. “Industrial Policy and Planning: What It Is and How to Do It Better.” *Roosevelt Institute*, (July 2019): 1-49. https://ssrn.com/abstract=345698.

Vanden Bosch, Xavier. “Industrial policy in the EU: A guide to an elusive concept.” *Egmont Paper* No. 69, September 2014.

Wade, Robert H. “Return of industrial policy?.” *International Review of Applied Economics*, Vol. 26, Issue 2, (March 2012): 223–239, 10.1080/02692171.2011.640312.

———. “The Paradox of US Industrial Policy: The Developmental State in Disguise” *International Labour Organization* ILO (Geneva: 2014): 379-400. https://labordoc.ilo.org/discovery/fulldisplay/alma994866333402676/41ILO_INST:41ILO_V2

Waldrop, Mitch and Roger Anderson. *DARPA and the Internet Revolution.*2012. https://www.darpa.mil/attachments/(2O15)%20Global%20Nav%20-%20About%20Us%20-%20History%20-%20Resources%20-%2050th%20-%20Internet%20(Approved).pdf

Warwick, Ken. “Beyond Industrial Policy: Emerging Issues and New Trends.” *OECD Science, Technology and Industry Policy Papers*, No. 2. OECD Publishing, Paris, April 2013. http://dx.doi.org/10.1787/5k4869clw0xp-en.

Weiss, John, "Lewis on Industrialisation and Industrial Policy." *Journal of International Development*, John Wiley & Sons, Ltd., Vol. 30, Issue1 (December 2017): 61–79, https://doi.org/10.1002/jid.3338.

Weiss, Linda, “The Myth of the Neoliberal State.” In *Developmental Politics in Transition*, edited by C. Kyung-Sup, B. Fine and L. Weiss: 27–42. International Political Economy Series, Palgrave Macmillan: London, 2012. https://doi.org/10.1057/9781137028303_2.

———. “Re-emergence of Great Power Conflict and US Economic Statecraft.” *World Trade Review* 20, no. 2 (January 7, 2021): 152–68. https://doi.org/10.1017/s1474745620000567.

Weiss, Linda, and Elizabeth Thurbon. “Developmental State or Economic Statecraft? Where, Why and How the Difference Matters.” *New Political Economy* 26, no. 3 (May 20, 2020): 472–89. https://doi.org/10.1080/13563467.2020.1766431.

Whalley, John, and Dana Medianu. “The Deepening China-Brazil Economic Relationship.” *CESifo Economic Studies* 59, no. 4 (August 20, 2012): 707–30. https://doi.org/10.1093/cesifo/ifs031.

Wilentz, Sean. *The Rise of American Democracy: Jefferson to Lincoln*. W. W. Norton & Company, 2005.

Wills, Garry. *James Madison: The American Presidents Series: The 4th President, 1809-1817*. Times Books, 2015.

Zenawi, Meles. “States and Markets: Neoliberal Limitations and the Case for a Developmental State.” In *Good Growth and Governance in Africa: Rethinking Development Strategies*, edited by Akbar Noman, Kwesi Botchwey, Howard Stein, and Joseph E. Stiglitz, 140–74, 2011. https://doi.org/10.1093/acprof:oso/9780199698561.003.0005.

Zhang, Liqing. “China's Policy Responses to the Global Financial Crisis: Efficacy and Risks.” *Yale University Library* (2009) https://perma.cc/K8CJ-ELBT.

UNCTAD. *The relationship between competition and industrial policies in promoting economic development*. Geneva, 2009. https://unctad.org/system/files/official-document/ciclpd3_en.pdf.

White House, *Remarks on Executing a Modern American Industrial Strategy by NEC Director Brian Deese*, (October 13, 2022) https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/10/13/remarks-on-executing-a-modern-american-industrial-strategy-by-nec-director-brian-deese/.

White House. *Remarks by President Biden at Signing of an Executive Order on Supply Chain.* (February 24, 2021) https://www.whitehouse.gov/briefing-room/speeches-remarks/2021/02/24/remarks-by-president-biden-at-signing-of-an-executive-order-on-supply-chains/.

White House. *The Case for Fiscal Stimulus:The Likely Effects of the American Recovery and Reinvestment Act.* Council of Economic Advisers (CEA Chair's Remarks 02272009). https://obamawhitehouse.archives.gov/administration/eop/cea/speeches-testimony/02272009/.

U.S. Department of Defense. *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge*. (2018) https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf.

U.S. Department of the Treasury, *Troubled Asset Relief Program (TARP): Auto Industry*, https://home.treasury.gov/data/troubled-assets-relief-program/automotive-programs

U.S. Senate Committee on Small Business and Entrepreneurship. *Made in China 2025 and the Future of American Industry*. (2019) https://www.rubio.senate.gov/wp-content/uploads/_cache/files/0acec42a-d4a8-43bd-8608-a3482371f494/262B39A37119D9DCFE023B907F54BF03.02.12.19-final-sbc-project-mic-2025-report.pdf.

UK Government, "Government and industry unite behind industrial strategy to help British businesses grow", Department for Business, Innovation & Skills (September 2013): https://www.gov.uk/government/news/government-and-industry-unite-behind-industrial-strategy-to-help-british-businesses-grow.

HM Government, "Industrial Strategy, Building a Britain fit for the future", presented to Parliament by the Secretary of State for Business, Energy and Industrial Strategy Cm 9528 (November 2017): https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/730043/industrial-strategy-white-paper-print-ready-a4-version.pdf, 4.

ABC News, *Investigations of the Year: The Solyndra Scandal*, December 20, 2011. https://abcnews.go.com/Blotter/abc-news-investigations-year-solyndra-scandal/story?id=15199603.

Medius, *US manufacturers plan to increase reshoring to get better value and more security*, https://www.medius.com/news/cid-BCE234516BD3FE66/us-manufacturers-plan-to-increase-reshoring-to-get-better-value-and-more-security/.

New York Times, *The Solyndra Mess*, November 24, 2011. https://www.nytimes.com/2011/11/25/opinion/the-solyndra-mess.html.