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Level Up America

The Case for Industrial Policy and How to Do it Right

Steven K. Vogel

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About the Author

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Vogel is also the author of Japan Remodeled: How Government and Industry Are Reforming Japanese Capitalism (Cornell, 2006) and co-editor (with Naazneen Barma) of The Political Economy Reader: Markets as Institutions (Routledge, 2008). His first book, Freer Markets, More Rules: Regulatory Reform in Advanced Industrial Countries (Cornell, 1996), won the Masayoshi Ohira Memorial Prize. He edited his mother's book, Suzanne Hall Vogel, The Japanese Family in Transition: From the Professional Housewife Ideal to the Dilemmas of Choice (Rowman & Littlefield, 2013), and a volume on U.S.-Japan Relations in a Changing World (Brookings, 2002). He won the Northern California Association of Phi Beta Kappa Teaching Excellence Award in 2002, and the UC Berkeley Faculty Award for Outstanding Mentorship of Graduate Student Instructors in 2005. He was awarded a Commendation from the Japanese Minister of Foreign Affairs for his contribution to Japanese studies in 2018. He has been a columnist for Newsweek-Japan and the Asahi Shimbun, and he has written extensively for the popular press. He has worked as a reporter for the Japan Times in Tokyo and as a freelance journalist in France. He has taught previously at the University of California, Irvine and Harvard University. He has a B.A. from Princeton University and a Ph.D. in Political Science from the University of California, Berkeley.

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Introduction

In recent years, politicians and thought leaders of the left and right have surprisingly converged on an idea that was left for dead decades ago: ***industrial policy***. President Joe Biden has made it a centerpiece of his economic plan, and Republican senator Marco Rubio has positioned it as a signature initiative.[1] Think tanks of the left, such as the Roosevelt Institute, and those on the right, such as American Compass, have issued bold proposals for a new American industrial policy.[2] And while mainstream economists have sneered at the idea for years, some prominent voices such as Joseph Stiglitz and Dani Rodrik now openly advocate it.[3]

This report contends that industrial policy is both imperative and inevitable – so we should make sure to get it right. That requires at least three things:

1. Setting clear priorities;
2. Deploying the appropriate policy tools; and
3. Structuring government institutions to limit political capture and maximize policy effectiveness.

This report addresses the first two but will focus particularly on the third challenge. By examining one of the most successful cases of industrial policy, that of postwar Japan, we can identify general principles for successful industrial policy governance that apply to the United States today.

Industrial policy is not just trade protection or subsidies for domestic manufacturers. It entails active government efforts to promote technological leadership and to transform, or *level up*, industrial structure.[4] It is defined more by its goals than by its means. In fact, it encompasses a remarkably wide range of tools.

1 "The Biden Plan to Ensure the Future is 'Made in America' By All of America's Workers," presidential election platform, 2020, https://joebiden.com/made-in-america/; Project for Strong Labor Markets and National Development (Chairman Marco Rubio), "Made in China 2025 and the Future of American Industry," 2019, https://www.rubio.senate.gov/public/_cache/files/0acec42a-d4a8-43bd-8608-a3482371f494/262B39A37119D9DCFE023B907F54BF03.02.12.19-final-sbc-project-mic-2025-report.pdf.

2 Todd Tucker, "Industrial Policy and Planning: What It Is and How to Do it Better," Roosevelt Institute, July 2019, https://rooseveltinstitute.org/publications/industrial-policy-and-planning/; American Compass, "Moving the Chains," June 8, 2020, https://americancompass.org/in-focus/moving-the-chains/.

3 Joseph Stiglitz, "Industrial Policy, Learning, and Development," in John Page and Finn Tarp, eds., The Practice of Industrial Policy: Government-Business Coordination in Africa and East Asia (Oxford: Oxford University Press, 2017), 23-39; Dani Rodrik, One Economics, Many Recipes: Globalization, Institutions, and Economic Growth (Princeton: Princeton University Press, 2007), 99-152.

4 See Karl Aiginger and Dani Rodrik, "Rebirth of Industrial Policy and an Agenda for the Twenty-First Century," Journal of Industry, Competition and Trade 20 (2020), 204-5, for a list of definitions in the scholarly literature.

Industrial policy is *imperative* because the United States cannot achieve some its most critical goals without it. These include:

- the shift from fossil fuels to renewable energy sources;
- reorganizing production and consumption patterns to reduce carbon emissions;
- developing technology to mitigate climate change, per se;
- restructuring the economy to provide good jobs and opportunities equitably, across geographic and demographic divides;
- strengthening supply chain resilience in the face of emergencies, from natural disasters to pandemics;
- discovering new drugs, therapies, and vaccines to promote public health;
- enhancing the domestic military technology base;
- and bolstering U.S. competitiveness in global markets.

All of these missions require proactive policies to direct industrial transformation.[5]

Industrial policy is *inevitable* because most policies have ramifications for industrial structure, even those not normally considered part of the industrial policy arsenal. Tax policy shapes industrial structure by encouraging certain activities over others, e.g. by taxing capital gains less than income. Intellectual property (IP) protection affects industrial structure by setting the terms of exchange between IP owners and users, and by protecting certain types of IP (such as software) and not others (such as recipes). Thus all countries have industrial policies, whether they acknowledge it or not. Yet if government leaders pretend that these policies do not have ramifications for industrial structure, and thus do not thoughtfully incorporate them into a broader industrial strategy, they will leave those policies more vulnerable to capture by powerful industry groups. They will struggle to prevent capture without a coherent administrative structure for industrial policy and clear criteria against which to evaluate that policy.

Fortunately, political capture is a variable and not a constant in American politics. Consider the greatest economic success story of recent decades, the internet revolution, and the greatest failure, the global financial crisis.[6] Both are the products of U.S. industrial policy (as defined above), in practice if not necessarily by design. In the internet case, the government invested in critical R&D, supported early-stage ventures, and leveraged antitrust enforcement to prevent dominant firms (such as AT&T and IBM) from controlling the emerging information technology sector. The key government agencies exhibited administrative capacity, a long-term perspective,

5 Niskanen Center reports on these policy goals include Brink Lindsey and Samuel Hammond, "Faster Growth, Fairer Growth: Policies for a High Road, High Performance Economy," October 5, 2020, https://www.niskanencenter.org/faster-growth-fairer-growth-policies-for-a-high-road-high-performance-economy/.

6 The COVID-19 pandemic is excluded for current purposes, categorized as a public health crisis that became an economic crisis.

and relative insulation from interest group pressures. In the finance case, the government allowed financial institutions to consolidate across states lines and to merge banking, brokerage, and insurance operations, and permitted them to take bigger risks in pursuit of higher rewards without stronger safeguards. And the agencies involved were plagued by administrative fragmentation and regulatory capture (see table below). These two contrasting cases nicely illustrate the stakes involved in getting industrial policy right.[7]

Before confronting our primary question – how to get industrial policy right – let us briefly review the case for industrial policy in theory and in practice, and address the thorny question of how to marshal evidence to show that it works, or not.

	Japanese Industrial Policy 1945-1980	U.S. Information Technology Policy 1945-1990	U.S. Financial Regulation 1980-2008	A New U.S. Industrial Policy 2021 –
Goals	National consensus on goal of catching up with the West	Multiple discrete goals, such as military technology leadership and promoting market competition	Market efficiency, financial innovation, support the financial sector, boost stock markets	Multiple national missions, including sustainability, resilience, opportunity, and competitiveness
Key Government Agencies	MITI, MOF	DOD, Department of Justice/Federal Trade Commission	Many regulators, including Treasury, the Fed, the SEC, state regulators	Industrial Strategy Council and/or Department
Government-Industry Relations	Embedded autonomy	Relatively autonomous	Industry capture	Deliberative policy process
Key Policies	Import and diffuse technology, protect infant industries, selectively allocate credit	Finance R&D, early-stage ventures, foster innovation networks	Allow banks to take greater risks without stronger safeguards	Finance R&D, coordinate innovation networks, enhance market governance
Balance of Coordination and Competition	Weaken antitrust policy to allow industry coordination	Constrain dominant firms (AT&T, IBM) to break up the value chain, foster competition	Allow banks to operate across state lines and business lines (banking, brokerage, insurance)	Foster collaborative networks, strengthen antitrust enforcement, reduce IP protection
Corporate Governance	Japanese stakeholder model: insider boards, "lifetime" employment	U.S. stakeholder model: large firms with public missions and cooperative labor-management relations	U.S. shareholder model: banks and non-bank firms maximize returns for shareholders	New U.S. stakeholder model: firms incorporate labor, internalize public goals while pursuing profits
Outcome	The Japanese economic miracle	The internet revolution	The global financial crisis	Missions accomplished?

7 These cases are covered at greater length in Steven K. Vogel, Marketcraft: How Governments Make Markets Work (New York: Oxford University Press, 2018), 65-76.

The Case for Industrial Policy

The case for industrial policy *in theory* is compelling. First, only the government can formulate and implement national missions, from putting a man on the moon or creating a missile defense shield to eliminating net carbon emissions or developing supply chains that can survive unexpected shocks.[8]

Second, the private sector is bound to underinvest in socially productive research and development (R&D) precisely because it benefits society as a whole. Private firms cannot capture all of the returns from those investments, so it makes sense for the government to fill the gap.[9] And even if they could garner substantial returns, they may not be able or willing to invest due to the sheer scale of investment required, long time horizons, and/or high risks.

Third, the government can resolve coordination or network failures. Innovation and production require sustained collaboration among assembly firms, suppliers, universities, R&D labs, and training institutes. And firms by themselves may not have the information, expertise, networks, administrative capacity, or other resources to form these complex chains of collaboration.[10]

Critics of industrial policy typically dismiss it with two words: "picking winners." The government has no ability to pick the winners in industrial competition, they charge, so it should leave that to the free market.[11] Yet this line of criticism is misplaced. A proper industrial policy does not aim to pick winners in the sense of favoring specific companies or particular technical standards. Rather, it is designed to shift the industrial structure in a broad direction, to place lots of small bets rather than one big one, and to foster early-stage R&D rather than final product development.

Likewise, the critics contend that government "intervention" distorts market signals and undermines the efficiency of the market.[12] The government cannot allocate capital better than the private sector, they claim, because it lacks the consumer feedback provided through the price mechanism. It lacks the appropriate incentives because it does not have skin in the game. And it lacks the market imperative to withdraw investments that do not pay off.[13] Yet industrial policy is not meant to replace the market but to supplement it. If anything, it should accelerate

8 Mariana Mazzucato, The Entrepreneurial State: Debunking Public vs. Private Sector Myths (London: Anthem Press, 2014).

9 Giovanni Dosi, Laura D'Andrea Tyson, and John Zysman, "Trade, Technologies, and Development: A Framework for Discussing Japan," in Chalmers Johnson, Laura D'Andrea Tyson, and John Zysman, eds., Politics and Productivity: The Real Story of Why Japan Works (Cambridge, MA: Ballinger, 1989), 3-38.

10 Antonio Andreoni and Ha-Joon Chang describe this in terms of "structural interdependencies" among industrial sectors and sub-sectors: "The Political Economy of Industrial Policy: Structural Interdependencies, Policy Alignment and Conflict Management," Structural Change and Economic Dynamics 48 (March 2019): 136-50.

11 Charles L. Schultze, "Industrial Policy: A Dissent," The Brookings Review 2 no. 1 (Fall 1983), 3-12; Veronique de Rugy, "Why Are Republicans Embracing Economic State Planning?" *The New York Times* (March 5, 2019); Samuel Gregg, "How Economic Nationalism Hurts Nations," *Law & Liberty,* January 6, 2020, https://lawliberty.org/forum/how-economic-nationalism-hurts-nations/.

12 Yet the alternative to government "intervention" is not the free market, but rather real-world markets thoroughly contaminated by fraud, collusion, and imbalances of power: Steven K. Vogel, "Government Regulation is the Pro-Market Solution," ProMarket (October 12, 2020), https://promarket.org/2020/10/12/government-regulation-promarket-solution/.

13 Deirdre McCloskey and Alberto Mingardi, The Myth of the Entrepreneurial State (Great Barrington, MA: The American Institute for Economic Research, 2020).

the market discovery process, propelling both the entry of more innovative firms and the exit of less productive ones.

Moreover, this line of critique conceives of efficiency in static terms. That is, private actors acting rationally in the marketplace may maximize efficiency at a fixed moment in time, yet fail to raise productivity over the long term. A successful industrial policy can *create* competitive advantage (*dynamic* efficiency) over time by developing new technological capabilities.[14] And the government can enhance a country's "comparative institutional advantage," the distinctive market infrastructure that makes companies productive, such as the financial system, the labor relations regime, and corporate networks.[15]

Finally, the industrial policy skeptics charge that government industrial policy can fail – and they are right about that. Yet that is a feature of industrial policy, not a bug. Some investments will pay off, and some will not. The goal is to promote broad public welfare, and to make public investments that garner more benefits than costs over the long run.

The Evidence

That raises a critical question: How can we tell whether industrial policy works *in practice*? The debate has been so intractable because it is difficult to prove or disprove industrial policy's efficacy. It hinges on a counterfactual: How would things have fared in the absence of the policy? Let us briefly review the evidence – imperfect as it may be – beginning with the United States, then moving to comparative cases and econometric studies.

The United States is commonly referred to as a bastion of free-market capitalism, yet the U.S. government protected and promoted domestic industry from the outset. Alexander Hamilton proclaimed: "Manufacturing pursuits are susceptible in a greater degree of the application of machinery, than those of Agriculture. If so, all the difference is lost to a community which, instead of manufacturing for itself, procures the fabrics requisite to its supply from other Countries."[16] Hamilton advocated "energetic" government: the government should build the transport infrastructure, create a national banking system, protect manufacturers with tariffs, and support them with subsidies.[17]

In the postwar era, the U.S. government pursued an active industrial policy focused primarily on military technology, which contributed to American leadership in nuclear energy, aircraft, computers, and the Internet. Mariana Mazzucato illustrates the government's role via a case study

14 Dosi, Tyson, and Zysman, "Trade, Technologies, and Development."

15 On comparative institutional advantage, see Peter Hall and David Soskice, "An Introduction to Varieties of Capitalism," in Hall and Soskice, eds., Varieties of Capitalism: The Institutional Foundations of Comparative Advantage (New York: Oxford University Press, 2001), 1-68.

16 Alexander Hamilton, Report on the Subject of Manufactures (Washington: U.S. Treasury, 1791), https://founders.archives.gov/documents/Hamilton/01-10-02-0001-0007.

17 Stephen S. Cohen and J. Bradford DeLong, Concrete Economics: The Hamiltonian Approach to Economic Growth and Policy (Boston: Harvard Business Review Press, 2016), 33-52.

of Apple, typically viewed as the quintessential entrepreneurial firm. The government supplied early-stage finance that allowed Apple to launch; it conducted and supported the research for much of the core technology embedded in Apple products; and it provided tax and trade policies that helped Apple to grow.[18] Of course, entrepreneurial individuals and firms played the central role in the U.S. information technology revolution, but the government supported them at an early stage and fostered an ecosystem in which they could flourish.

Fred Block documents how the U.S. government has increased industrial policy activity since the 1980s, all the while its leaders claimed to eschew such interventionism. It deployed a more decentralized "network" model of industrial policy that financed research and promoted collaboration among universities and firms up and down the supply chain. The Defense Advanced Research Projects Agency (DARPA), founded in 1958, cultivated an innovation system designed to foster diverse research communities that span government, universities, and corporations. Then new initiatives in the 1980s greatly extended and expanded this network model, including the Small Business Innovation Research Program (1982); the Strategic Computing Initiative (1983); the semiconductor manufacturing research consortium, SEMATECH (1987); the Manufacturing Extension Partnership Program (1988), and the Human Genome Project (1990).[19]

Looking cross-nationally, those countries that succeeded most with industrial upgrading – including Japan, South Korea, Taiwan, and China – have deployed effective industrial policies. Moreover, the timing and the sectoral priorities of their industrial policy initiatives roughly align with the timing and sectoral composition of industrial upgrading and export growth, lending support to the thesis that the policies contributed to this success.[20]

It is hard to prove or disprove the efficacy of industrial policy via quantitative analysis because the case for industrial policy hinges on spillover effects: benefits to the broader skill and technology base and institutional capacities that transcend the more specific program targets.[21] Karlson, Sandström and Wennberg present the skeptical position, contending that most studies of the effectiveness of active industrial and innovation policies are inconclusive.[22] But they focus on more narrowly targeted loan and grant programs rather than the broad-based industrial structure or mission-driven research programs highlighted by Mazzucato. Nathaniel Lane provides a more comprehensive survey of econometric studies on the topic, some of which find that industrial policies have broad benefits, while others do not. Some of these studies also manage to differ-

18 Mazzucato, The Entrepreneurial State, 87-112.

19 Fred Block, "Swimming Against the Current: The Rise of a Hidden Developmental State in the United States," Politics & Society 36, no. 2 (June 2008): 169-206; Robert H. Wade, "The Paradox of US Industrial Policy: The Developmental State in Disguise," in José M. Salazar-Xirinachs, Irmgard Nübler, and Richard Kozul-Wright, eds., Transforming Economies: Making Industrial Policy Work for Growth, Jobs, and Development (Geneva: International Labor Organization, 2014), 379-400.

20 Alice H. Amsden, Asia's Next Giant: South Korea and Late Industrialization (Oxford: Oxford University Press, 1989); Robert Wade, Governing the Market: Economic Theory and the Role of Government in East Asian Industrialization (Princeton: Princeton University Press, 1990).

21 Stiglitz, "Industrial Policy, Learning, and Development," 24.

22 Nils Karlson, Christian Sandström, and Karl Wennberg, "Bureaucrats or Markets in Innovation Policy? – A Critique of the Entrepreneurial State," The Review of Austrian Economics (2020).

entiate among these benefits, such as growth, employment, and productivity.[23]

The bottom line from the extensive research on the topic is that industrial policy *can* work, and sometimes it does. But this leaves open the most potent argument on the side of the skeptics: Can the government really pull this off? And aren't such selective policies especially vulnerable to political capture?

The critics stress that governments are more likely to favor specific industries, companies, or geographical regions than to allocate resources strategically based on economic or public welfare grounds. Moreover, the U.S. government may be particularly vulnerable to business lobbying and "cultural capture" (the ideological influence of business interests).[24] The decentralized federal structure of U.S. government gives industry more access points into the political system, and allows industry to play one jurisdiction off another in the pursuit of policy favors.[25] The United States does not have a tradition of a powerful and independent career civil service, and the economic agencies lack the strong ties with industry critical to the implementation of an industrial policy.

These are all legitimate concerns, however the answer is not to abandon industrial policy but to do it right. As one way to examine the government institutions and policy tools for a successful industrial policy, let us take a look at postwar Japan. This is not to suggest that Japan did everything right, or that industrial policy alone produced Japan's postwar economic "miracle," but to provide a more textured portrait of industrial policy in one context that we can leverage for insights for the United States of today.

The Japanese Example

Japan's postwar industrial policy was successful in the sense that the government set clear goals; it deployed a coherent strategy; and it employed a relative autonomous and highly capable bureaucracy to implement that strategy. Chalmers Johnson famously presented the case for Japan's industrial policy in *MITI and the Japanese Miracle*.[26] The Ministry of International Trade and Industry (MITI) was the lead agency in industrial policy, with the Ministry of Finance (MOF) as a key partner. These elite ministries were staffed by career bureaucrats, largely from the most prestigious departments (law and economics) at the nation's top university, Tokyo University. The ministries had a cohesive ethos, which combined allegiance to the ministry with commitment to

23 Nathaniel Lane, "The New Empirics of Industrial Policy," Journal of Industry, Competition and Trade 20 (2020): 209-34.

24 Lee Drutman, The Business of America is Lobbying: How Corporations Became Politicized and Politics Became More Corporate (Oxford: Oxford University Press, 2015); James Kwak, "Cultural Capture and the Financial Crisis," in Daniel Carpenter and David A. Moss, eds., Preventing Regulatory Capture: Special Interest Influence and How to Limit It (New York: Cambridge University Press), 71-98.

25 On how administrative fragmentation facilitates regulatory arbitrage, see Kathryn C. Lavelle, Money and Banks in the American Political System (New York: Cambridge University Press, 2013), 7.

26 Chalmers Johnson, MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975 (Stanford: Stanford University Press, 1982). On industrial policy's contribution to economic growth, see James Vestal, Industrial Policy and Japanese Economic Development 1945-1990 (New York: Oxford University Press, 1993).

a national mission of catching up with the West as quickly as possible.[27] The long-term rule of the Liberal Democratic Party (LDP) ensured political stability and facilitated collaboration between politicians and bureaucrats. MITI and MOF provided pro-growth fiscal and industrial policies that favored the big business and financial sectors, while the LDP compensated its core constituents of farmers and small businesses with trade protection, domestic regulation, infrastructure spending, and subsidies.[28]

Japan's central government ministries had clearly defined jurisdictions to the point where officials could specify exactly which sectors, industry associations, and even products fell under their supervision. MITI and MOF both enjoyed broad jurisdictions, with MITI overseeing most manufacturing sectors and MOF supervising most financial institutions. This enabled them to play a distinctively political role of "bureaucratic-led bargaining" in which they arranged compromises among their constituent industries, selectively incorporated broader public interest groups, and inserted their own policy preferences at the same time.[29]

This structure allowed them to achieve the elusive combination of what Peter Evans refers to as "embedded autonomy."[30] That is, they were not beholden to industry, yet they had strong collaborative relationships with industry associations and individual firms. They occupied a strategic position as the central nodes in networks of collaboration among industrial sectors and firms.[31] Ministry officials drafted industry laws to retain leeway at the implementation stage, and they used this discretion as leverage – in addition to the authority inherent in their status within Japanese society – to encourage industry compliance with "administrative guidance" (informal directives). They issued administrative guidance to enlist industry cooperation in the pursuit of national policy goals.[32] This model contrasts sharply with the idealized model of the U.S. regulatory state in which agencies preserve an "arms-length" relationship with the industries they oversee, and strictly separate industry regulation from broader policy goals.

In the early postwar years, MITI's most critical regulatory lever was the power to approve technology transfers from abroad. This allowed the ministry to promote such transfers while also ensuring that technology would diffuse to Japanese industry broadly. The government also protected nascent manufacturing industries with trade barriers, and restricted foreign direct investment via a combination of government regulation and private sector practices.[33] Japan had inherited U.S. antitrust laws during the U.S. Occupation (1945-52), but MITI systematically

27 Steven K. Vogel, "The Rise and Fall of the Japanese Bureaucracy," in Robert J. Pekkanen and Saadia M. Pekkanen, eds., The Oxford Handbook of Japanese Politics (Oxford: Oxford University Press, 2021).

28 Johnson, MITI and the Japanese Miracle; Brian Woodall, Japan Under Construction: Corruption, Politics, and Public Works (Berkeley and Los Angeles: University of California Press, 1996).

29 Steven K. Vogel, "The Bureaucratic Approach to the Financial Revolution: Japan's Ministry of Finance and Financial System Reform," Governance 7 (1994): 219-43.

30 Peter Evans, Embedded Autonomy: States & Industrial Transformation (Princeton: Princeton University Press, 1995).

31 Michael A. Witt, Changing Japanese Capitalism: Societal Coordination and Institutional Adjustment (New York: Cambridge University Press, 2006).

32 Johnson, MITI and the Japanese Miracle, 265-74.

33 Dennis J. Encarnation and Mark Mason, "Neither MITI nor America: The Political Economy of Capital Liberalization in Japan," International Organization 44, no. 1 (Winter 1990): 25-54

undercut them via a series of exemptions, thereby enabling the private sector collaboration that was critical to the postwar model.

The government funded infrastructure via the Fiscal Investment and Loan Program (FILP), channeling consumer postal savings deposits through public financial institutions such as the Japan Development Bank.[34] And MITI worked with MOF, which issued administrative guidance to the big banks to selectively allocate lending to priority sectors, thereby shifting the industrial structure from light industry (textiles) and cheap consumer products (toys) toward higher value-added sectors (autos and electronics).[35] The Economic Planning Agency (EPA) engaged in indicative planning, which differed fundamentally from Soviet-style planning in that it was not binding. But the plans helped to coordinate private sector investments up and down supply chains because investments by one firm relied so heavily on investments by others. MITI issued policy "visions" and worked with industry associations to organize R&D consortia, including programs in key sectors such as semiconductors and computers.

Beason and Weinstein claim that Japan's industrial policy was actually geared more toward losers than winners: the government actually incurred greater costs – including trade protection, subsidies, tax breaks, and government loans – supporting declining industries rather than rising industries.[36] Yet this critique misses the point. The proactive side of industrial policy (as opposed to the protective side) did not cost much because it was not aimed at forcing private sector activity in directions that would not pay off commercially. Rather, it was designed to coordinate industrial activity and to nudge private firms toward commercially viable strategies that complemented policy goals of greater investment, technological advance, and export orientation.

The Japanese government accomplished two key goals of industrial catch-up remarkably well: it increased the overall level of savings and investment, and it allocated investments toward productive uses.[37] This success actually set the stage for an economic crisis decades later, because higher investment when it was critically needed in the 1950s and 1960s eventually transformed into overinvestment (excess supply) when it was no longer needed in the 1980s. As the Japanese economy faltered in the 1990s, the elite economic bureaucrats lost some of their public prestige and their own confidence in their ability to steer the economy.[38] They partially abandoned industrial policy, focusing more on cultivating the regulatory infrastructure for a U.S.-style liberal market economy.[39]

34 Gene Park, Spending Without Taxation: FILP and the Politics of Public Finance in Japan (Stanford: Stanford University Press, 2011).

35 John Zysman, Governments, Markets, and Growth: Finance and the Politics of Industrial Change (Ithaca: Cornell University Press, 1983), 234-51.

36 Richard Beason and David E. Weinstein, "Growth, Economies of Scale, and Targeting in Japan (1955-1990), The Review of Economics and Statistics 78, no. 2 (May 1996), 286-95. This would be tantamount to arguing that the Margaret Thatcher administration was not serious about deregulation because it spent more taxpayer funds on industrial bailouts than on deregulation. Of course it spent more on bailouts, because they are inherently more expensive than deregulation.

37 Paul Krugman stresses that Japan differs from the other successful East Asian economies because it achieved both high rates of input growth (increases in labor and capital) and high rates of efficiency growth (increases in the efficient use of those inputs): "The Myth of Asia's Miracle," Foreign Affairs 73, no. 6 (November/December 1994): 62-78.

38 Vogel, "The Rise and Fall of the Japanese Bureaucracy."

39 Steven K. Vogel, Japan Remodeled: How Government and Industry Are Reforming Japanese Capitalism (Ithaca: Cornell University

How to Do It Right – American-Style

The Japanese case offers some basic principles that can be applied to the United States today. The critical foundations for Japan's postwar industrial policy included a national consensus on goals, a stable political regime, a consensual policy process, lead agencies with considerable autonomy and a coherent esprit de corps, highly trained career civil servants with a powerful sense of mission, and dense networks of relationships between government and industry. The United States can usefully adapt its own versions of these features, even though it is not trying to catch up but rather to advance on the technological frontier. Japan's postwar experience also offers important hints about features of that model that do not apply to the United States of today. The United States does not need one-party rule, for example, or bureaucrats with wide discretion, or administrative guidance to execute an industrial policy.

The United States can chart its own path to do industrial policy right with a three-step strategy:

1) Public missions, not hidden policies.

The United States has successfully implemented industrial policy for decades, but this has been largely hidden from view. Yet an industrial policy driven by bold public missions accompanied with deliberate communication strategies would be less vulnerable to capture and more amenable to effective implementation.[40] For example, if the government publicly declared a goal of increasing support for renewable energy and decreasing support for fossil fuels, that would make it harder for the fossil fuel industry to subvert the policy.[41] In fact, one element of a good (public interest) industrial policy is the demolition of bad (special interest) ones. That means dismantling industrial policies that favor the fossil fuel industry, the financial sector, or the pharmaceutical industry at the expense of broader public-interest goals.

2) Political inclusion, not insulation.

The United States should not aspire to one-party dominance or runaway bureaucrats on the Japanese model, but rather strong leadership from the president and the cabinet, bipartisan cooperation, and an inclusive policy process. That may seem like a lot to ask, but some progress is well within the realm of the possible under the Biden administration. Industrial policy is in fact one of the most promising areas for bipartisanship given that it has strong supporters on both sides of the aisle. And a bipartisan approach would moderate political capture by offsetting special interests tied to one party or the other.

Press, 2006), 34-5, 78-114.

40 Scott Hempling stresses that government agencies can combat capture by proactively articulating public interest policy visions and framing debates rather than passively responding to interests: "'Regulatory Capture': Sources and Solutions," Emory Corporate Governance and Accountability Review 1 (2014): 23-35.

41 The International Monetary Fund estimates that the United States subsidized the fossil fuel industry by $5.2 trillion in 2017, or 6.4% of GDP. This estimate includes the hidden advantages from not having to pay for externalities such as greenhouse gas emissions as well as direct subsidies: Umair Irfan, "Fossil Fuels Are Underpriced by a Whopping $5.2 Trillion," Vox (May 17, 2019), https://www.vox.com/2019/5/17/18624740/fossil-fuel-subsidies-climate-imf.

In the U.S. context, the better route to a productive politics of industrial policy would come through the proactive incorporation of public interests rather than the defensive insulation of the administration from politics.[42] The government should set up deliberative bodies for the major industrial policy programs that include neutral experts, consumer representatives, and other public interest representatives as well as industry executives. This would force industry representatives to justify their demands in terms of public goals and it would empower actors more removed from special-interest concerns.[43] And the process should be designed to be more democratic – not less – by making policy formation and implementation as transparent as possible, with public hearings and public comment procedures.

The government should also combat political capture by designing strict lines of accountability. The deliberative bodies should set clear guidelines for the allocation of resources, and the civil servants should implement those guidelines. And review boards should evaluate program outcomes on a regular basis. Investment programs should be designed with a scheduled exit plan or a fixed review date after which they will be phased out if they are not achieving their stated goals. And the government should favor policy tools that are less vulnerable to capture, such as open competitions for research grants, subsidized loans (as opposed to outright grants), or public investments that require matching funds from the private sector.

3) Central coordination with decentralized networks.

With regard to administrative organization, U.S. industrial policy would benefit from stronger central coordination and a more empowered civil service combined with regional and sectoral networks. This would entail reorganizing the executive branch, allocating dedicated budget lines to the priority areas, and cultivating more stable and rewarding civil service career paths. At a minimum, the government should create an Industrial Strategy Council in the White House, complemented by an interagency process, to ensure that the various agencies involved in implementing industrial policy work together effectively.

The more fundamental solution would be to create a new cabinet-level Department of Industrial Strategy that would take the lead on industrial transformation, economic resilience, technological innovation, and green industrial policy. It would incorporate the Commerce Department, the Small Business Administration, and the U.S. Trade Representative. The breadth of jurisdiction would give the agency greater political power, more ability to coordinate policies, and less vulnerability to industry groups that try to play one jurisdiction off another. As a new agency, it would less vulnerable to legacy lobbying channels and revolving door networks. And as an agency that embodies publicly announced national priorities, it would have greater prestige that would allow it to attract talent.[44] This department could create a national investment authority to channel

42 Samuel Hammond, "The Limits of Regulatory Capture," American Compass, June 15, 2020; https://americancompass.org/articles/the-limits-of-regulatory-capture/.

43 For additional anti-capture strategies, see Brink Lindsey and Steven M. Teles, The Captured Economy: How the Powerful Enrich Themselves, Slow Down Growth, and Increase Inequality (Oxford: Oxford University Press, 2017), 153-80.

44 Ganesh Sitamaran, "On Agency Structure: A New Task for Government Demands a New Structure for Its Agencies," American Compass, June 10, 2020. https://americancompass.org/essays/on-agency-structure/.

investments and share profits, thereby allowing the public sector to reap some of the rewards from its investments and decreasing reliance on taxpayer funds over time.[45]

Industrial Policy in the Digital Age

To apply lessons from postwar Japan to the United States today, we have to recognize the differences not only between the two countries, but also between the two eras. The digital economy of the 21st century – unlike the postwar industrial economy – requires an industrial policy that supports decentralized networks of innovation and incorporates market governance (such as antitrust enforcement and intellectual property protection) as a core tool. The digital economy has broken down the old value chains controlled by large conglomerates like IBM and AT&T, diffusing technological leadership to software firms (like Microsoft), component makers (like Intel), and large information technology users (like banks and telecoms companies).[46] It relies less on top-down R&D and more on user-driven innovation, and it enables more open and collaborative modes of innovation.[47]

These developments play to the strengths of the U.S. "developmental network state." In this model, government officials work closely with firms to identify and support the most promising avenues for innovation, and to design innovation ecosystems that translate research into commercial products. According to Fred Block, it combines four elements: targeted resourcing (funding for specific technological challenges), opening windows (fostering multiple settings for innovation), brokering (connecting laboratories and businesses), and facilitation (building infrastructure and setting standards).[48] Government officials focus on specific technologies and specific regions, and cultivate webs of collaboration that transcend the public-private divide.

In the digital age, market governance broadly defined ("marketcraft") – including antitrust, intellectual property rights, corporate law, and labor and financial regulation – emerges as a critical tool of industrial policy.[49] Specifically, a U.S. industrial policy for the 2020s should include both *tougher* antitrust enforcement and *lighter* IP protection. In the digital platform economy, the dominant big tech firms – such as Google, Amazon, Facebook and Apple – both drive and impede innovation. Yet they increasingly threaten innovation with a combination of market dominance, management of the market infrastructure, control over data, and anti-competitive practices. Hence the U.S. government will have to curb the market power of the big tech firms to

45 Robert C. Hockett and Saule T. Omarova, "Private Wealth and Public Goods: A Case for a National Investment Authority," Journal of Corporation Law 43, no. 3 (2018): 437-91.

46 Abraham Newman and John Zysman, "Transforming Politics in the Digital Era," in Zysman and Newman, eds., How Revolutionary Was the Digital Revolution? National Responses, Market Transitions and Global Technology (Stanford: Stanford University Press, 2006), 391-411.

47 Yochai Benkler, "Law, Innovation, and Collaboration in Networked Economy and Society," Annual Review of Law and Social Science 13 (2017): 231-50.

48 Block, "Swimming Against the Current," 171-4.

49 In fact, home-grown American marketcraft played a central role in driving the digital revolution in the first place: Vogel, Marketcraft, 65-9.

preserve the bottom-up innovation ecosystem that drives the digital economy.[50]

Meanwhile, the costs of IP protection have increased while the benefits have diminished because IP protection impedes the diffusion of knowledge and the collaborative models of production enabled by digital technology. The expansion of IP protection to new areas, such as software and business practices, undermined IP's core goal of promoting innovation and generated opportunities for rent-seeking.[51] As patents proliferated, they began to produce a "patent thicket": a dense web of patent rights that companies must hack through to commercialize new technology.[52] And patent "trolls" bought up huge numbers of patents (largely for software), searched for possible infringements, and demanded financial settlements or pursued judgments through litigation. In the process, they impeded the development of new products, increased costs for businesses and consumers, and clogged the judicial system.[53] So the U.S. government should moderate some IP protection – by raising the threshold for coverage, narrowing its scope, cutting its duration, and expanding "fair use" provisions – to foster more innovation in the digital age.

In addition, the government should incorporate corporate governance, labor regulation, and financial regulation into its industrial strategy to shift the economy away from a low-road strategy of cutting labor costs, outsourcing, and offshoring and toward a higher-road strategy of investing in skills and upgrading technology.[54] The core features of the U.S. shareholder model of corporate governance – such as stock options and share buybacks – have not improved long-term corporate performance and have undermined economic dynamism.[55] So reforms designed to promote more stakeholder governance, such as greater representation of labor in management, could promote management-labor collaboration, enhance productivity, and encourage firms to internalize public goals while they pursue profits. The marketcraft policy agenda is itself a powerful mechanism to combat political capture because it seeks to unwind regulations and practices that systematically favor special interests, and thereby to rebalance market and political power in the United States.[56]

The United States has deployed industrial policy successfully in the past, and it can do so in the future. To meet the enormous challenges of the current moment, however, it will have to reform the institutions of industrial policy to limit political capture and facilitate implementation, and incorporate an even wider range of policy tools. ●

50 Martin Kenney and John Zysman, "The Rise of the Platform Economy," Issues in Science and Technology 61 (Spring 2016); Lina M. Khan 2017. "Amazon's Antitrust Paradox," Yale Law Journal 126 (2017): 710.

51 Lindsey and Teles, The Captured Economy, 64-89.

52 Carl Shapiro, "Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting." Innovation Policy and the Economy 1 (2000): 119.

53 Randall Rader, Colleen Chien, and David Hricik, "Make Patent Trolls Pay in Court." New York Times, June 5, 2013, A21.

54 Harold L. Wilensky describes the features of the U.S. low-road model in American Political Economy in Global Perspective (New York: Cambridge University Press, 2012), 155-90.

55 William Lazonick, "The Fragility of the U.S. Economy: The Financialized Corporation and the Disappearing Middle Class," in Daniel Breznitz and John Zysman, eds., The Third Globalization: Can Wealthy Nations Stay Rich in the Twenty-First Century? (New York: Oxford University Press, 2013), 232-276.

56 Steven K. Vogel, "The Marketcraft Solution," policy paper for the conference on A New Deal for this New Century: Making Our Economy Work for All, New York University Global Academic Center, Washington DC, October 3 and 4, 2019.

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