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Meeting the China Challenge

Responding to China's Managed Economy

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FOREWORD
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Thomas J. Pritzker was named chairman of the CSIS Board of Trustees in November 2015. Former U.S. deputy secretary of defense John J. Hamre has served as the Center's president and chief executive officer since 2000.

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Foreword

U.S. attitudes toward China have changed over the past decade. The Trump administration is preparing to confront what senior officials refer to publicly as "China's predatory economic policies." The U.S. private sector still seeks a presence in China, but is less optimistic than it was a decade ago that it will find an even playing field. Even a majority of the American public—65 percent—views China as either an adversary or serious problem, according to a Pew Research Center survey last year.

The U.S.-China relationship is one that neither country can escape. Both benefit from it in important ways. The question for quite some time, though, has been whether China's economy, international presence, and participation in global institutions would come to look more like our own, or whether it would seek to challenge the order the United States has built and led over the past 70 years.

In 2006, the Center for Strategic and International Studies, together with the Peterson Institute for International Economics, published *The China Balance Sheet: What the World Needs to Know about the Emerging Superpower*. This was a neutral and dispassionate look at China and where it stood at the turn of the twenty-first century. In many respects, China has emerged. It remains the largest country by population—as it was a decade ago—but is the world's second-largest economy, having overtaken Japan. By some estimates, China will overtake the United States as the world's largest economy in the next decade. While China's economic size does not necessarily threaten the United States, China's willingness to use its economic leverage to forge a global economy closer to its image raises complicated questions considering its lack of transparency.

A decade ago, we wrote that China's rise presented a mixture of both opportunities and risks. We also wrote that China is exceedingly complex and sometimes contradictory. Both remain true today. What has changed is the apparent consolidation of power under President Xi Jinping and his vision of exporting a "Chinese solution" as an alternative to Western democracy and Western norms. In economic terms, this approach recognizes the central role of the state, alongside free markets, in determining outcomes and protecting economic interests.

China is changing; are we? The United States did not become the world's largest and most innovative economy by accident. As a country, we historically have made investments in public goods that allow Americans to maximize their economic potential. In general, our system relies on individual economic actors over a central authority to make economic decisions. U.S. economic activity is predicated on the rule of law, where property rights are respected and innovation rewarded. I believe this is still true today, and I am optimistic about America's future. But it is worth asking whether the United States will still be able to do big things as a nation and show the world our model is superior given how polarized, insular, and constipated our politics has become.

The following essays, written by a diverse group of CSIS scholars, address some of the key issues that currently vex the U.S.-China economic relationship. CSIS experts will continue to explore the complex challenges of a rising China over the coming months and years. We hope you find this contribution thought-provoking and useful.

John J. Hamre
President and CEO
CSIS

Introduction: Responding to the Challenge of China's Managed Economy

James Andrew Lewis

China's rise has been long predicted and is often accompanied by a corresponding prediction of American decline. Ascendency and decline are relative terms, but managing China's ascent is the fundamental challenge for American foreign policy in this century. Military tensions are dangerous but the greatest test is economic, and will come from China's industrial policy and its effect on the global economy and American security.

The question for the United States and the world is under what conditions will China exercise its new power? China is now the second-largest economy in the world and continues to grow. A China that observes global norms, including those for business and competition, would be a welcome addition to the international community. This is not, however, the China of today.

Chinese policies are shaped by a degree of pragmatism, by a commitment to preserving party rule and defending Chinese sovereignty, and by underlying expectations of a return to global predominance. The theme of reclaiming China's rightful place appears frequently in public statements by senior officials, often accompanied by revanchism and strongly nationalist expressions.

Reclaiming this leadership role does not mean the kind of global conquest envisioned by twentieth-century dictators, nor is it the law-based system pursued by the United States, but a world shaped by China's preferences (and China's preferences are those of its ruling communist party). A crucial element of China's strategy is overtaking the United States, as it has overtaken other nations. As part of this, China has a well-financed strategy to create domestic industries intended to displace foreign suppliers, dominate standards-making, and reshape global norms.

China's nationalism has reinforced a self-confidence and assertion that stems from decades of economic success and from an assumption of the inevitability of China's rise. Beijing wants to rearrange global rules and institutions to better serve China's interests. China endorses the rule of law, but with Chinese characteristics, which means that the Party is the ultimate arbiter of any decision. For the United States and other nations, the problem for security and foreign policy is how best to engage with China's leaders to reshape China's policies.

A New Kind of Contest

The goal is not to devise ways to block China's growth or impose some kind of Kennan-esque containment. China and the West are too deeply integrated economically for this to work. We

are in a contest with China, but it is a new kind of contest, given the interconnectivity of our economies. When China opened its economy after Mao, it was not accompanied by a parallel political opening. China is in the liberal world order but not of it. The issue is how to change China's nationalist industrial policies to end their disruptive effect on other economies.

This is not a military conflict, but the question of how China interacts with the world has serious implications for American security and for the prospects of an international system based on the rule of law and democratic norms. American laws, policies, and regulations that were adequate in the past, whether for trade, export controls, or foreign investment, must be reconsidered to manage the challenge America faces from China's managed economy.

The international community first needs to redefine the terms by which a managed economy takes full advantage of trade agreements for itself while denying them to foreign competitors. China is a member of the World Trade Organization (WTO), but is lax in observing the requirements for treating foreign companies, arguing that as a developing economy, China should be granted some latitude in meeting its obligations. This may have made sense a decade ago, but it is no longer acceptable, but there is no reason for the Chinese to change absent external pressure.

We should note, and many Chinese would agree, that a China with policies more in accord with international practice would better serve its own economic interest, improving productivity and reducing inefficient investments. China's rulers are not convinced that they should abandon a strategy that has, until recently, worked well and provoked little complaint. A more confident and assertive China will not change course without external pressure, and this external pressure will not materialize without U.S. leadership. Even a comprehensive, U.S.-led response to China's economic policies will face difficulties and it will take years to see change. The alternative, however, is significant harm to Western economies, a point upon which more and more Western governments agree.

Reshaping China's policy requires U.S. leadership, simply because of America's size and wealth and the still powerful expectation in other countries that America will maintain international institutions and norms. No other nation is ready to deal with China. The European Union might be able to pick up this burden, but it faces internal conflicts, including from a few member states that have been influenced by Chinese money. Germany, which plays a leading role in the EU, is hampered in taking up a global role by its own political vicissitudes and by trade concerns. No other G-7 or G-20 country has the wherewithal to counter China. Absent U.S. leadership there may not be an effective response to China's economic encroachments. The choices for other Western nations is to wait for the United States to develop coherent policies, consider their own responses, or reach an accommodation with China. Leading nations are now using a mix of all three. This is not in the U.S. interest.

Many countries have been ambivalent about pushing back on China's nationalistic economic policies. This reflects the reasonable concerns of their exporters, who fear retribution from China in terms of market access or sales, and there is a considerable record of retaliatory acts the Chinese have used to punish nations that displease them, from canceling purchases from Norway over a Nobel Prize award to restricting tourism to Korea in response to THAAD (Terminal High Altitude Area Defense) deployments. China is not afraid to use its economic

power and some nations do not believe the United States will support them against such retribution. China is a huge market that countries are reluctant to risk, and while there is growing concern in Europe and Japan about unfair competition from the Chinese state, so far this has mainly resulted in a tension between fear of Chinese retaliation versus a desire for continued market access. This tension and the ambivalence it creates hamper any Western response.

This ambivalence is changing, however. In the United States, there is consensus about the need to take action against China's industrial policy, using export controls, trade measures, and restrictions on foreign investment. One of the conclusions shared by the essays in this collection is that a purely defensive, nationalist strategy will only slow China's progress on its current nationalist path, not change it, and there is no consensus on how to rebuild the sinews of American economic power, including the research complex that supports American military strength and economic growth.

Steady pressure can persuade China to accommodate Western concerns, but America must plan on managing complex, interrelated negotiations on trade, finance, and security over a period of years. Any administration would find this to be challenging to design and implement. The United States and its allies still have a strong hand to play, since China's economy, despite its size, needs access to Western markets and technology. A good first step, one where the United States might be able to persuade Europe and Japan to join us, is jointly to lay a marker on more equitable treatment of foreign and Chinese companies. These essays by CSIS scholars lay out the elements of a comprehensive strategy. Effective pressure for change in Beijing requires a comprehensive response that uses a blend of diplomatic actions, regulatory measures, and domestic investment in public goods. The United States, in using its domestic policy tools and working with its allies, can lay out a path for change for China and use a blend of carrots and sticks to send China along this path.

Scott Kennedy's essay on the "monumental" challenge of China's industrial policy and the need for a strategic response from the United States and others lays out in detail the nature of industrial policy under Xi Jinping, noting that these policies have grown in scale and sophistication, as Chinese officials and companies have learned to "game" global economic regimes. They seek to redefine globalization to better serve China's policy goals and could potentially result in an "entirely uneven playing field." Kennedy's assessment is that so far, this industrial policy has worked well enough. Like Stephanie Segal, he argues that China needs to alter these policies, but that the chances of China doing so of its own accord are low. Setting the theme for this collection of essays, he calls this a critical turning point for the United States if we are to avoid damage to national security and economic strength.

Stephanie Segal's essay "Economic Policies to Meet the China Challenge" highlights both the economic problems China faces that may hamper its continued growth and the investments the United States needs to make to maintain technological leadership. The drivers of China's economic expansion—an ample supply of cheap labor and massive, state-directed investment—have "largely run their course," and it is not clear that China is willing to make the reforms needed for continued growth. This is only partial consolation for the United States, where years of underinvest in infrastructure, STEM education, and R&D are beginning to catch up. Segal

makes a compelling argument that one of the best ways the United States can respond to the China challenge is to invest in itself.

Matthew Goodman's essay "Going on the Offensive" shows how the United States "can still powerfully shape thinking and policy in other countries when it uses smart economic statecraft." Goodman argues that agreements on trade and investment are a proven counter to the "magnetic pull of China's growing economic might." The elements of economic statecraft require a compelling narrative, leveraging U.S. advantages, and working closely with allies and partners to create a persuasive alternative to China's initiatives and economic clout. Bilaterally, with China, the United States should combine a "judicious use of trade remedies" with a positive agenda to seek improvements in market access and broader economic reform in China.

Scott Miller's essay "Trade Enforcement: Where Bark Meets Bite" begins by noting that the WTO's Dispute Settlement Understanding (DSU) may not be adequate to deal with the growing tensions in the U.S.-China relationship. Miller looks at available trade remedies, including the use of Section 301, restrictions on investment (discussed at length in John Schaus's piece), and, less favorably, unilateral tariffs. Miller notes that China is not Japan, nor is this the trade environment of the 1980s, limiting the value of tools like Section 301. His conclusion is that the United States is better off using the existing WTO dispute settlement system and coordinated actions with like-minded partners to help change China's behavior, rather than unilateral measures where the United States selectively applies its own international obligations.

Andrew Hunter's "A U.S. Investment Strategy for Defense" lays out the success of U.S. investment in technology as a key contributor to national security and describes how a revised strategy remains relevant today, if it is tailored to fit the changing nature of global R&D and innovation. Hunter identifies the elements of a defense investment strategy to compete with China: a more flexible and resilient supply chain, partnerships with other nations, recalibrating federal R&D investment to complement the surge in private-sector spending on research, and investing in people to develop technical talent, which he identifies as perhaps the key element of a new R&D strategy.

Samm Sacks writes on how China's leadership is in the midst of building perhaps the most extensive governance system for cyberspace and information and communications technology (ICT) of any country around the world. A blend of national strategies, laws, regulations, and standards make up China's vision of becoming a "cyber superpower" by building a robust ICT governance system. While China is not closed to U.S. firms, the costs required to operate in China are increasing, particularly in high-tech sectors, and companies are reassessing the tradeoffs required to be in the market. Calibrating the right response must begin with an accurate view of this complex system. U.S. and Chinese technology development, supply chains, and commercial markets are tightly intertwined in such a way that a sweeping approach will hurt U.S. economic prosperity and our ability to maintain our edge in technology innovation, and Sacks concludes that without a targeted approach, U.S. businesses are likely to become collateral damage in a trade war between the United States and China that benefits neither side.

John Schaus's essay "Ensuring CFIUS remains a robust protector of National Security" details how Chinese investment has become a central focus for the work of the Committee on Foreign

Investment in the United States (CFIUS), how it could be improved, and reviews a number of legislative proposals to strengthen the committee and, perhaps, broaden its scope. CFIUS is an essential tool for dealing with national security risk form Chinese economic activities, and Schaus makes four recommendations: to preserve CFIUS's sole focus on national security and not add new concerns like employment or food security; to provide CFIUS with the flexibility to respond to evolving security and technology challenges; to enhance CFIUS's alignment with export control mechanisms; and to ensure that CFIUS is adequately resourced, including funding to ensure monitoring and evaluation of the mitigation agreements that CFIUS often requires before approving a transaction.

There are common themes in each of the essays on the need for investment in infrastructure, research, and STEM education; on the essential requirement for cooperation with allies and partners in using the existing international rules and processes to our advantage, for strengthening that international system. A U.S. effort to get China to follow global norms on technology, trade, and investment is long overdue, but it will not work without moving ahead domestically in growth and innovation.

If there is a temptation to dismiss these recommendations as the usual mainstream internationalist ideas, note that the authors have extensive experience in these areas—more experience, in fact, than many in Washington. It is this experience, usually associated with successful outcomes for the United States, that guides our thinking in identifying a pragmatic set of policies that are more likely to work in changing China's behavior than policies that are either supine or provoke confrontation for its own sake. Best practices derived from previous U.S. engagements with China provide a useful guide on how to respond to the complexity and sophistication of the China challenge.

A key difference between the two countries may determine the outcome. China's leaders are willing to invest in research and infrastructure, particularly transportation to win competitive advantage. America's leaders have not matched them. Strengthening innovation and growth is necessary to retain sufficient influence to compel changes in Chinese behavior. If the Chinese calculate that the United States is in political and economic decline, they may choose to simply outwait any effort to induce change.

A successful strategy requires ways to bring national resources to bear on public problems. America has innate advantages, with a strong scientific base, leading technology companies, and an innovative culture that others find difficult to match. Where we lag is spending on public investments. In the last 15 years, the United States has spent at least $850 billion in Afghanistan. In contrast, China has invested billions of dollars in science and technology in the same period. We consume, whereas China saves and will spend to attain its strategic goal of displacing the United States. Strengthening and revitalizing American technological innovation will require a willingness to invest in growth. Hunter and Segal make especially clear that policies to increase investment research and STEM education are crucial.

For "mature" economies, innovation is the best path for growth, as people find better ways to use existing resources to produce goods and services. If we use traditional metrics—such as the number of patents issued, published research, the percent of national income spent on basic research, the number of graduates with science degrees—the innovation trend-lines for the

United States are flat or in decline. More complex measures would look at income and productivity growth, and data for the United States shows declines in both areas. This suggests that the nation is coasting on the public investments of the Cold War. Changing this will be crucial in determining America's ability to influence China.

Nor can a response to China recreate a Cold War-style bifurcation between America and China (if only because our allies are unwilling to support this). Our economies are integrated to a degree that was inconceivable for the United States and Soviet Union. This is not a bipolar world when it comes to technology and trade. The interrelations between the U.S. and Chinese economies are complicated (and both are also intertwined with Europe, Israel, and other Asian nations). China still takes more than it gives when it comes to innovation, but its ample capital and supplies of talent can make it an attractive partner for foreign companies.

These essays make clear that the optimal strategy in the current political environment has three elements. The United States should make targeted investments in infrastructure, research and new technology, perhaps linked to defense goals to make spending more palatable to Congress. It should combine these investments with an increased use of regulatory tools, to manage risk from American exports and Chinese investment and acquisition. Finally, it should develop a multilateral and cooperative strategy of engagement with China accompanied by concerted pressure on China to change its behavior. This is a minimalist strategy, but politically achievable.

What this means for Congress and the administration is steady application of existing policy and regulatory tools, including a modernization of CFIUS to close loopholes currently exploited by China and a reenergizing of export controls. The United States will need careful diplomacy to gain allied support and to persuade China to change.

As much as anything, this is a competition over governance. This is not an endorsement of the Chinese model of governance or another iteration of the dictators-more-efficient-than-democracy argument. As essays by Kennedy and Segal make clear, China is not efficient. There is still widespread corruption and wastefulness. China faces immense problems, but the United States cannot expect to maintain its power vis-à-vis China unless it can resolve its own political disputes over the role of government and the need for public investment.

We do not need to mirror China's state-directed industrial policies to protect our economy, but neither a laissez-faire approach better suited to the nineteenth century nor the directive and intrusive economic policies often found in Europe are adequate to the economic and technological requirements of this century. Finding a new middle ground between state and market that maximizes America's strengths may be difficult, given the political constraints we face, but is essential for continued American power and, we believe, for a safer and more prosperous world.

The goal is not to punish China, but to build an equitable partnership. China has its own problems and we have time to strengthen our own economy and the framework of international agreements we want China to observe. The United States will always be one of the most important nations in the world, simply because of the size of its population and territory and its inherited wealth, but this does not mean it will necessarily set the international agenda or

the rules for state behavior. The alternatives are either a world of disorder or a world that operates in the arbitrary way that China's Communist Party rules China. Neither is desirable, but these outcomes cannot be ruled out unless we change course. The root of the word governance is "to steer" and the fighting over the rudder has left America steering an erratic course in a challenging race.

01

The Beijing Playbook: Chinese Industrial Policy and Its Implications for the United States

Scott Kennedy

There is a growing consensus in Washington that Beijing operates a highly discriminatory economic system that has produced an increasingly unbalanced relationship detrimental to the interests of the United States and China's other trading partners. As a result, there are calls for America and others to take steps to tame China's industrial policy. This concern with the People's Republic of China (PRC) is sensible, but in order for the United States to adopt effective economic policies vis-à-vis China and the global economy, and also serve American interests (the topic of other contributions to this volume), we need a clear understanding of Chinese industrial policy, its evolution, and the likelihood that China would liberalize its economy in a direction more mutually beneficial to it and others. This analysis shows that the China challenge is indeed monumental and can only be met effectively by a strategic response from the United States and other countries.

The Reform Era: Market *and* Plan

2018 marks the 40th anniversary of China's launching of the Era of Reform and Opening Up. Compared to the autarkic state socialist system found itself at the end of the Cultural Revolution, China's economy is far more marketized and open four decades later. Private companies account for almost 90 percent of all firms and over 60 percent of all registered capital.[1] Private firms also account for the large majority of the country's employment, profitability, and economic growth. The prices for over 97 percent of final goods and services are fully liberalized and determined by market actors.[2] Financially, China has diversified banking to have a large number of private banks, massive securities markets, and new forms of financing mechanisms such as Internet finance and peer-to-peer lending. According to the World Bank, the weighted average of China's tariffs has fallen from 14.1 percent in 2001 to 4.3 percent in 2016, and China has opened many sectors to foreign investment.[3] As a result, China has become the world's largest international trader, the largest recipient of foreign direct investment

[1] China State Administration of Industry and Commerce, "Analysis of National Enterprise Development since the 18th Party Congress," October 26, 2017, http://www.saic.gov.cn/sj/tjsj/201710/t20171026_269949.html.
[2] Sina Finance, "Shi Zihai: Proportion of Commodity and Service Prices Set by Market Already Reached 97 Percent," December 1, 2017, http://finance.sina.com.cn/china/2017-12-01/doc-ifypikwt1204707.shtml.
[3] World Bank, "Tariff rate, most favored nation, weighted mean, all products (%)," https://data.worldbank.org/indicator/TM.TAX.MRCH.WM.FN.ZS.

(with over 520,000 foreign-invested companies in operation), and the fastest growing source of outward direct and portfolio investment.

But even these drastic changes from 1978 do not mean China has a free-market economy. China pursued a gradualist approach to economic reforms instead of the shock therapy alternative adopted by many of its post-Communist cousins in central Europe and the former Soviet Union. Gradualism was not just about the choice of pace but about a desire to maintain some elements of the traditional system, including state-owned enterprises (SOEs), the planning apparatus, and state dominance of the financial system. Some have characterized China's effort as "growing out of the plan," in which the marketized portion of the economy would increasingly overtake and make irrelevant the state sector and planning components of the economy.[4] But what appeared to be a path of gradual reform has instead become a hybrid economic system.

The Chinese state is far from a neutral referee of a competitive marketplace. Rather, its consistent goal has been to use state authority not only to further the overall growth of the economy but to promote specific companies, sectors, and regions. Differentiated treatment and micromanagement are core principles of this system. As China has permitted market transactions, planning shifted from precise mandates to indicative guidelines with detailed targets for economic performance and societal outcomes.

The planning system is still enormously complex. In addition to the national five-year plan, there are dozens of national-level specialized plans covering every sector of the economy, from agriculture to the Internet to finance. And every local government (all 34,971 of them), from the largest province to lowliest township, replicates this planning process, as do most SOEs and industry associations. This formal planning system is complemented by thousands of targeted policies and regulations, which are backed up by extensive government financing, state guidance of banks and securities markets, and the use of a rich assortment of other policy instruments, including parceling out market access, government procurement, controlled prices for raw materials and other inputs (water, electricity, etc.), limits on land use, fiscal policy, competition policy, control of population movements, labor, intellectual property rights, quality and technical standards, environmental regulation, and nontariff barriers to imports and foreign investment.[5]

Selecting and supporting priority industries, technologies, and companies is the result of a complex policy process. Although expert analysis matters, decisions are also shaped by the struggle among bureaucracies to obtain and expand their authority, by officials' desire to nurture clients with privileged access to resources and markets, by intensive lobbying of commercial and regional actors, and by the Communist party-state's broader goal of protecting its monopoly on political power.[6] The result is an admixture of policies that just as often serve

[4] Barry Naughton, *Growing Out of the Plan: Chinese Economic Reform, 1978–1993* (New York: Cambridge University Press, 1995).
[5] Scott Kennedy and Christopher K. Johnson, *Perfecting China, Inc.: The 13th Five-Year Plan* (Washington, DC: CSIS, May 2016).
[6] Matthew P. Goodman and David A. Parker, *Navigating Choppy Waters: China's Economic Decisionmaking at a Time of Transition* (Washington, DC: CSIS, March 2015).

political as much as economic goals, generating impressive successes and mindboggling failures.

The Strengthening of Industrial Policy under Xi Jinping

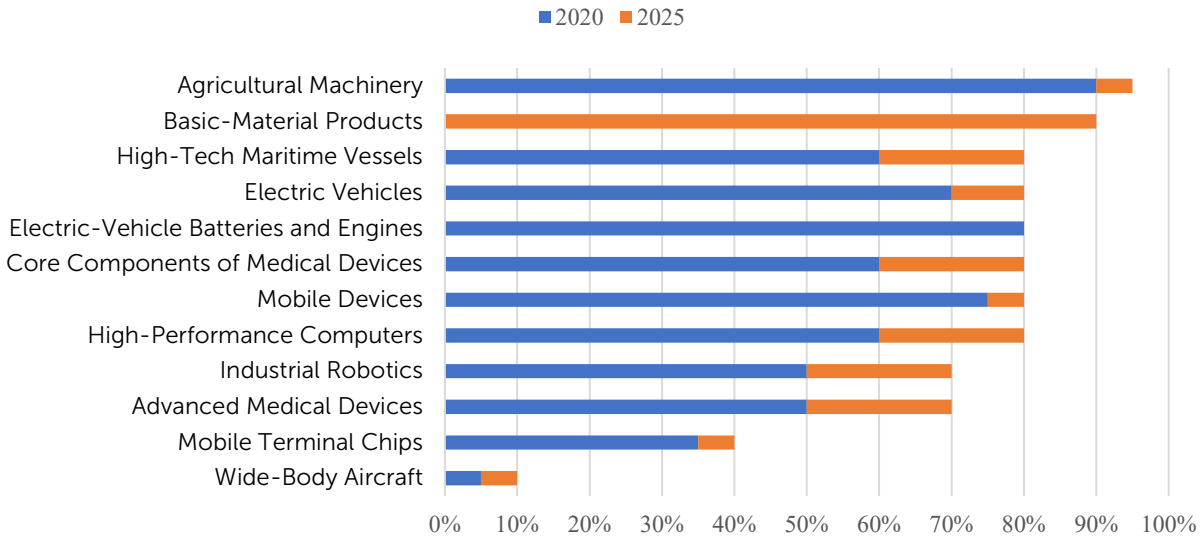
China's top leaders in the 1990s, Jiang Zemin and Zhu Rongji, made a genuine effort to marketize the economy, including reducing the role of planning and SOEs. They intentionally pursued China's entry into the WTO as a way to force domestic liberalization. And in many respects, as noted above, China's economy is more marketized and open than in 2001. Yet China has not maintained this same commitment to liberalization. Under the leadership of Hu Jintao and Wen Jiabao (2002–2012), in addition to making regulatory changes to technically comply with China's WTO commitments, China reinvigorated the industrial policy apparatus and ramped up state-directed investment in priority sectors and projects. Under Hu and Wen, China set forth the goal of "indigenous innovation," which still holds today, of making industrial policy's chief aim the development and acquisition of advanced technology by domestic actors in order to raise productivity and make China more competitive internationally. The most important step under Hu and Wen to implement this vision was the identification and support for almost three dozen technologies in seven "strategic emerging industries" (SEI), including environmental protection, information and communications technologies (ICT), biotech, energy, materials, vehicles, and large-scale equipment.

Since Xi Jinping assumed power in 2012, China has only intensified its industrial policy efforts. This shift is the product of the confluence of several factors: a decline in the appeal of the liberal market model in the wake of the global financial crisis, greater concerns about avoiding economic stagnation, the growing relevance of national security concerns for industrial policy (in part animated by the Snowden revelations), and Xi Jinping's amassing of political power that has facilitated implementation of a more coherent vision. As a result, industrial policy under Xi has shifted in five ways.

First, China's goals are far more ambitious, as it aims to have Chinese firms become dominant in almost every area of advanced technology. The 13th Five-Year Plan calls for a rapid growth in R&D spending, the number of patents, and the contribution of science and technology to the economy, and identifies over 200 technologies deserving support. *Made in China 2025*, a strategy document issued in 2015 and a high-priority component of the 13th Five-Year Plan, sets forth high targets for the local firms' market share in China of technologies and supply chains by 2025, such as 80 percent for electric vehicles, 70 percent for industrial robotics, and 70 percent for advanced medical devices (see Figure 1).[7]

[7] Jost Wubbeke et al., *Made in China 2025: The Making of a High-Tech Superpower and Consequences for Industrial Countries* (Berlin: Mercator Institute for China Studies, December 2016); EU Chamber of Commerce in China, *China Manufacturing 2025: Putting Industrial Policy ahead of Market Forces* (Beijing: EU Chamber of Commerce in China, March 2017); and U.S. Chamber of Commerce, *Made in China 2025: Global Ambitions Built on Local Protections* (Washington, DC: U.S. Chamber of Commerce, September 2016).

Figure 1: Selected Domestic Market Share Targets of *Made in China 2025*



Source: China Ministry of Industry and Information Technology.
Note: The government set targets for 2020 and 2025 for most technologies, but not all. Hence, some denote only a single target.

Second, the scale of Chinese initiatives and investment has grown enormously, with total spending on research and development (R&D) in 2016 reaching over $232 billion. Direct government funding is still growing in absolute terms, but more important is how the state increasingly utilizes policy levers to induce banks, other financial institutions, companies, and research institutes to target their own spending in priority sectors established by policymakers.[8]

Third, industrial policy is far more strategically coordinated than ever before. Local experimentation, once a hallmark of China's strategy, has almost disappeared in favor of centrally established and implemented plans. Xi Jinping has created a series of "leading small groups" to coordinate and carry out policy in consultation with the standard bureaucracy on key economic priorities and sectors such as integrated circuits. Moreover, the Communist Party itself is playing a more direct role in policymaking, and in the coming years Party organizations are set to play a larger role in all companies, state-owned, private, and foreign. The greater strategic control of industrial policy has reduced the space for pro-market interests, domestic and foreign, to lobby for more liberal policies.

Fourth, China has expanded efforts to have globalization serve the country's industrial goals. In addition to sending millions of students abroad over the last few decades to obtain advanced degrees in engineering and science, Chinese financial institutions and companies have ramped up outward investment and acquisition of overseas companies. Chinese investment in the United States was at least $46 billion in 2016; although it declined somewhat in 2017 (due to China's efforts to limit capital outflows and reign in corruption), a growing proportion of

[8] Scott Kennedy, *The Fat Tech Dragon: Benchmarking China's Innovation Drive* (Washington, DC: CSIS, August 2017), 19.

Chinese investment is going toward knowledge-intensive, high-tech sectors.[9] Chinese companies are opening R&D centers in Silicon Valley and other high-tech hubs around the world. Domestically, China has increased efforts to attract foreign talent to work for Chinese industry and uses the leverage of its large domestic market to persuade foreign companies to share their technology with local partners. As a consequence, China has been able to ameliorate the weaknesses of its own top-down innovation system by utilizing innovation nurtured in more hospitable environments. And finally, China has stepped up its efforts to shape global rules to legitimate its current system of economic governance and make decisions consistent with its own interests. China is deeply active in the G20, WTO, International Monetary Fund (IMF), standards-setting bodies, and other existing institutions. It is also building alternative or parallel institutions, such as the Asian Infrastructure Investment Bank (AIIB), and advocating competing norms, such as Internet sovereignty, that better fit with its less liberal worldview.

And fifth, although China certainly has regulations and policies that contravene its commitments to the WTO and the United States, it makes greater use of discriminatory policies and behaviors that less obviously violate international rules. Chinese officials and companies have learned (in part from Western practice) how to "game" the system. The WTO covers many areas, but is far from comprehensive, and the global standards for finance, currency, antitrust, the digital economy, and elsewhere are either too vague or lack "teeth" to ensure compliance. Moreover, even in areas covered by the WTO, China can mask industrial policy as private commercial activity. For example, the state can decisively shape the decisions of creditors, investors, and borrowers in ways that fit its interests and create an entirely uneven playing field. Masking industrial policy makes it much harder to identify and constrain.

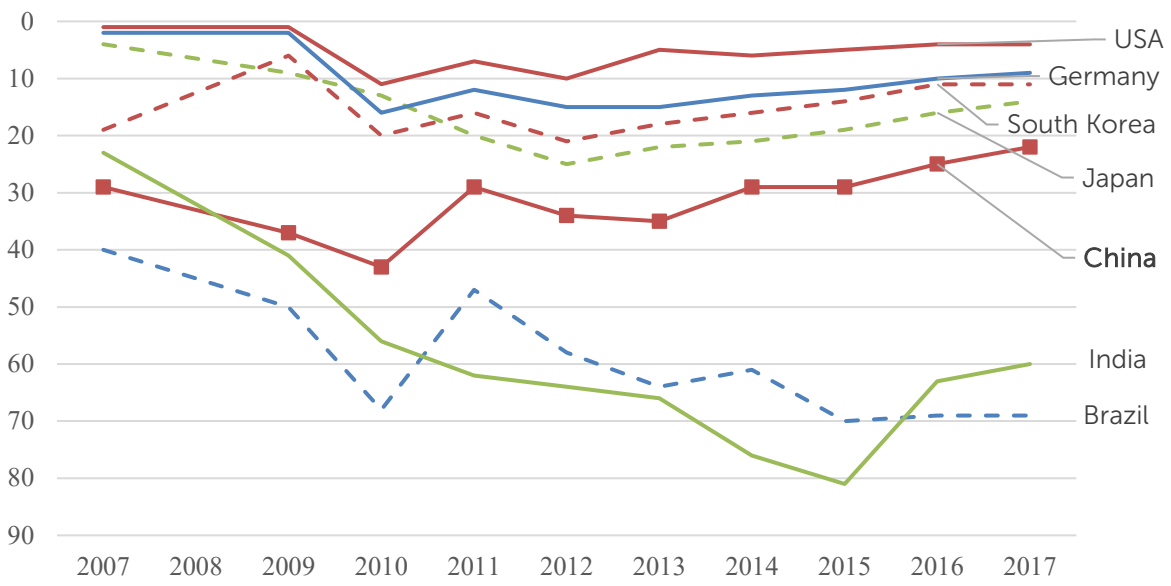
Does Chinese Industrial Policy Work?

The short answer is: yes, so far, it has been good enough. Over the last four decades China's economy has grown faster longer than any other country in history. Hundreds of millions have been lifted out of poverty, and at least 400 million Chinese are avid consumers. The skyline of cities has been transfigured. China can now brag about having famous companies, the world's fastest supercomputer and largest radio telescope, being the largest producer of green technologies, having over 700 million Internet users, and developing a national network of highways and high-speed trains. China's global innovation ranking has risen quickly, as it has separated itself from other emerging economies, and is approaching the lofty heights of other advanced industrialized economies (see Figure 2).

At the same time, China's economy has massive problems. Since the mid-2000s, and from 2009 in particular, investment has spiked. The result has been indiscriminant, high-calorie stimulus that has provided a short-term boost to growth, but has been accompanied by a drop in productivity and a concomitant increase in debt and overcapacity in multiple industries. There are not only ghost cities with empty apartment buildings, but piles of materials and products with no customers, and R&D that has gone down blind alleys. At the same time, inequality has

[9] See the Rhodium Group, *China Investment Monitor*, http://rhg.com/interactive/china-investment-monitor.

Figure 2: China Moves Up the Innovation Rankings (Innovation Ranking of Selected Countries)



Source: Soumitra Dutta, Bruno Lanvin, and Sacha Wunsch-Vincent, *Global Innovation Index 2017: Innovation Feeding the World*, 10th ed. (Geneva: World Intellectual Property Organization, 2017), http://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2017.pdf.
Note: The Global Innovation Index is based on an annual review of over 125 countries and is based on over 100 separate measures of innovation inputs and outputs. The figures here refer to countries' overall rankings relative to one another, not their absolute innovation score.

risen sharply, with large swaths of the population in China's rustbelt and countryside falling further behind their coastal urban cousins. China's greying population and gender imbalance raises the urgency of addressing productivity and building a comprehensive social safety net. And although green technologies are exploding, China's overall environment is still in dire straits and its carbon emissions are still growing more rapidly than is sustainable for the planet.

Some would prefer to give all of the credit of China's successes to marketization and blame all of the problems on government intervention and industrial policy. But that is too simplistic and inaccurate. It is impossible in practice to fully disentangle the two, and China's overall success cannot just be in spite of industrial policy. At the same time, the industrial policy machine has generated a greater misallocation of resources and caused more ailments than if China had a more market-oriented economy that was more open internationally. And as China moves toward the technology frontier, the chances of industrial policy running amok and leading to larger mistakes, bad bets, and missed opportunities only grows. China's original conditions at the start of the Reform Era (initial development and young, educated workforce) and its massive size (extensive resources and an attractive market) have provided it with unique advantages that have made this approach possible, even if far from ideal.[10]

[10] Arthur R. Kroeber, *China's Economy: What Everyone Needs to Know* (New York: Oxford University Press, 2016).

The Dangers to the United States and Others

China needs to alter the place of industrial policy in its overall governance of the economy for its own sake. Chinese leaders themselves seem to appreciate this fact even if they haven't acted on it. The CCP issued a major policy document at the 3rd plenum of the 18th Party Congress in 2013 calling on the market to play a decisive role in the allocation of resources. Xi Jinping's political report to the 19th Party Congress in October 2017 repeated this call, and it made strengthening market institutions a key priority for the next five years.

While the consequences of turbocharged Chinese industrial policy are mixed for China, the implications for the United States and others are decidedly more troubling. Yes, some American companies do benefit from Chinese industrial policies, for example, when partnering with favored SOEs or providing technologies unavailable from domestic sources. But generally, Chinese industrial policy hurts American interests in both the short and long term. There are at least four concerns if China does not change course.

First, China's gaming of the system will erode the confidence of the United States, Europe, and others in the WTO and other global governance institutions, and it will make addressing disputes through dialogue and neutral dispute resolution mechanisms much more difficult.

Second, American companies will continue to lose commercial opportunities in China and will face greater challenges in third markets. Existing market opportunities may shrink as China is increasingly able to meet demand from domestic suppliers.

Third, to the extent Chinese successes are the product of subsidies and government intervention and other distortions—given China's size and contribution to global trade—this could put pressure on global supply chains and business models built on the premise of competition. The consequence could be a drop in profitability, which could lead to business failures and less R&D spending by surviving companies, all of which would reduce productivity and welfare gains for societies around the world, particularly in advanced economies.

And fourth, the weakening of supply chains and business models in advanced-technology sectors such as semiconductors, robotics, advanced materials, and aviation could hurt American companies' ability to develop technologies and services central to American national security. China probably goes too far in adopting this goal in its policy rationale, but the United States cannot discount this effort. And given that Chinese industrial policy also feeds into China's national security priorities, insufficient protection of certain American-based technologies would put the United States and its allies at greater risk.

Changing China's Course

The chances of China fundamentally changing course of its own accord are low. Some observers hypothesized that during his first term (2012–2017) Xi Jinping would focus on consolidating political power and then in his second term (2017–2022) turn his attention to economic liberalization, the "go left, then go right" theory. The reality does not match this hope. Xi Jinping has set forth an ambitious economic policy agenda for the next two decades. The

dominant view among the leadership is that what China needs most is not freer markets but a more effective party. Hence, greater emphasis is being placed on top-down administrative solutions: strengthening Party discipline of bureaucrats; improving supervision over SOEs; using mandatory environmental and quality standards to reduce capacity; shuttering firms and encouraging more high-tech investment; gaining greater control of the Internet and expanding ideological controls in educational institutions; using big data analytics for commercial and domestic security priorities; and utilizing globalization to acquire technology and expand commercial opportunities.

Another potential source of change would be an economic crisis that would compel the leadership to accept marketization in order to move to a more sustainable path. But despite China's sizable debt and a potential asset bubble in real estate that could pop, the chances of a full-blown crisis are not high. The vast majority of debt is domestic, government public debt is still relatively low, and banks hold a mountain of savings deposits as a cushion against defaults. China also still sits on $3 trillion in foreign exchange reserves and has no qualms in tightening capital controls to slow outflows when required. Equally important, China is still growing at a moderately fast pace and could continue to grow sustainably at a moderate rate by making only modest improvements in its business environment. Even if China were to suffer a major crisis, the leadership would more likely respond by tightening further rather than liberalizing. That is the step China took in the summer of 2015 when the stock market dropped and foreign exchange headed for the exits. And it is consistent with the pattern elsewhere, in which those with a record of interventionism typically choose to double down rather than relax controls.

The final source of change would be external. The United States and others have a range of options, multilateral and regional arrangements, bilateral negotiations, unilateral measures, and coordinated actions among like-minded countries. The challenge is finding an effective approach. Although there is general agreement in Washington (and other Western capitals) that Chinese policies are unfair, there is no consensus about how to respond. Determining how to act is affected in part by differing judgments about how beneficial the relationship has been for the United States. Yet another is that while economic ties have yielded a mix of benefits and problems for the American economy, in the security realm the United States and China view each other as rivals. The policy tensions in the United States between the economic and security elements of the relationship are only growing. Previous U.S. administrations focused primarily on integrating China into a rules-based order, but that approach has come under intense criticism by the current administration and others frustrated by insufficient progress in China's commercial behavior and growing anxieties about the national security risks. As a result, the United States appears to be moving toward a more unilateralist approach that will likely involve raising barriers to trade and investment. Yet there is no guarantee taking these steps will yield progress on the commercial front or resolve the underlying tensions between the economic and security aspects of the relationship.

We are at a critical turning point in our—and the world's—relationship with China. As my colleagues discuss in the chapters that follow, the United States needs a playbook as strategic as Beijing's. Should Washington choose the wrong approach, it could make a set of difficult problems even worse, leaving the United States isolated and China even more free to use industrial policy without constraint. Such an outcome would not only harm America's

commercial opportunities with China, but also weaken the global economy's potential productivity, upend global governance institutions that have largely served American interests, and potentially damage the economic foundations of America's national security. In short, the stakes could not be higher.

02

Going on the Offensive

Matthew P. Goodman

The large basement conference room in the old CSIS headquarters was at standing-room-only capacity when Prime Minister Shinzo Abe of Japan strode to the podium in late February 2013. Newly returned to office after several years in the wilderness, Abe confidently declared, "Japan is back!" A few blocks away in the offices of the U.S. trade representative, Japanese and American negotiators were finalizing the terms of Japan's entry to the Trans-Pacific Partnership (TPP) trade talks.

On a visit to Beijing a few weeks later, I was surprised to hear a scholar at a government think tank offer his opinion that China should consider joining TPP. This was the first time a Chinese counterpart had expressed anything but disdain for TPP; most experts there viewed the U.S.-led trade negotiations as either trivial ("a pact between a whale and a school of minnows") or a sinister effort to "contain" China. But under the new leadership of Xi Jinping, a significant shift of opinion was taking place in Beijing. Japan's entry into TPP meant that economies representing 40 percent of global output were working to create new rules for trade and investment; China could not afford to stand on the sidelines. Indeed, TPP was now seen by many in Beijing as a useful tool to reinforce the Xi administration's own drive for economic reform, encapsulated later that year in the Third Plenum outcomes.

The lesson of these events is that the United States can still powerfully shape thinking and policy in other countries when it uses smart economic statecraft. By putting high-standard trade agreements at the center of their respective Asia-Pacific economic strategies, and incentivizing allies like South Korea and Japan to join, both the George W. Bush and Obama administrations kept the United States in the driver's seat of regional economic rulemaking and offered an alternative to the magnetic pull of China's growing economic might.

If it wants to meet the China challenge today, the United States needs to adopt a similar strategy: not retreating into a protectionist shell, or only pushing back against bad behavior by Beijing, but also playing offense with initiatives that create the kind of incentives that TPP did. In this way Washington can continue to champion a rules-based economic order that operates on terms favorable to its interests. It may even be able to shape China's behavior, encouraging pro-market economic reform and discouraging actions that undermine the global order.

To be sure, today's China poses a formidable set of challenges for the United States. Under Xi Jinping, Beijing has set out on a more mercantilist path. In its "Made in China 2025" plan, released in 2015, Beijing staked a claim to dominate the industries of the future—from artificial intelligence to civil aviation—by any means necessary, including subsidies to state-owned champions, forced technology transfer, and constraints on foreign competitors in the Chinese

market. A draconian new cybersecurity law has added to longstanding concerns among U.S. companies about market-access restrictions and other policies that have chilled the investment climate in China. Despite the Third Plenum promise of giving the market "a decisive role," the state is an ever-more-powerful actor in the Chinese economy.

Beijing has also shown itself more able and willing to leverage its economic strength beyond its borders in ways harmful to the global order. This includes efforts to coerce smaller states in support of China's foreign-policy objectives. Beijing's retaliation against South Korea over the deployment of a U.S. missile-defense system is just the latest in a string of examples that include earlier embargoes on Philippine bananas and Norwegian salmon.

Clearly the United States should push back when China engages in economic coercion, or when it violates the letter or spirit of the rules-based order. Washington also needs to consider more robust responses to Chinese efforts to acquire strategic technology in ways that threaten U.S. national security or unfairly undermine American economic competitiveness. Other contributions in this volume speak to those concerns.

But there are aspects of China's new economic statecraft that appear more benign and require a more sophisticated response. As exemplified by Xi Jinping's pro-globalization speech at the World Economic Forum in Davos in early 2017, Beijing has portrayed itself as a champion of the existing international economic order. In establishing the Asian Infrastructure Investment Bank (AIIB) in 2015, Beijing said it was aiming to create a "lean, clean, and green" approach to development finance that would improve upon the work of existing institutions like the World Bank and Asian Development Bank (ADB). And of course, most famously, Beijing has offered to create a "community of common destiny" through massive infrastructure investments under Xi's signature Belt and Road Initiative (BRI).

Cynical as many U.S. observers may be about some of these pronouncements, they have resonance with other countries drawn to China's growing economic clout—particularly when the United States fails to offer a compelling alternative. Moreover, not all of what Beijing is selling is inimical to U.S. interests; if China builds better roads and ports across Eurasia in a way that conforms to global standards and produces broad economic benefits for the region, Washington should have no objection.

But when Xi Jinping says in a major party address—as he did in October 2017—that China intends to offer "a new choice for other countries," alarm bells should go off in Washington. For Beijing's positions on issues such as regulation of the digital economy and the role of the state in the economy are starkly at odds with U.S. interests. And China's track record on infrastructure investment in Africa and elsewhere shows that it has not in fact always conformed to high international standards.

If the United States believes in an open Internet, in essentially free flows of data across borders, in state-owned enterprises (SOE) not receiving preferential treatment vis-à-vis private companies, then it needs to make the case for these things. In fact, these were among the principles the previous two administrations successfully established in the high-standard trade deals with South Korea and 11 TPP partners, respectively. If the United States believes that infrastructure should be built with due regard to social and environmental impact, debt

sustainability, and open procurement processes, then it needs to offer a compelling answer to China's BRI.

In sum, to respond fully to the China challenge, the United States needs not only to play good defense, but also to adopt smart, comprehensive, and forward-leaning economic statecraft that updates and upholds the global rules-based order.

This is not something Washington has a consistent track record of doing well. As a tool of foreign policy, economics has tended to be viewed by most administrations in tactical terms: as a matter of winning more deals for U.S. exporters or remedying "unfair" trade and investment practices by other countries. These are valid parts of economic diplomacy but not its strategic core. It is only when Washington effectively puts U.S. economic might to use in support of broader foreign policy objectives—for example, in the Marshall Plan or TPP—that economic statecraft can be called "smart."

What made efforts like the Marshall Plan and TPP potent? First, they were packaged in a compelling narrative. This starts with a headline like "rebuilding strong allies in Europe" or the "Asia rebalance"—or, in the case of the Trump administration, a "free and open Indo-Pacific." But beneath this is needed something of substance that appeals to target countries. In the case of TPP, the promise that the United States would deepen its engagement in Asia-Pacific affairs and champion the regional rules-based order was enough to persuade 11 countries to join TPP, and several others from South Korea to Indonesia to express interest in participating.

Second, successful economic statecraft requires effective use of U.S. leverage. This was not difficult in the postwar period when the U.S. economy accounted for half the world's total output. It is trickier today when the United States is no longer the unchallenged economic hegemon. But we still have the world's largest consumer market, as well as capital and technology that partner countries want, all married to unrivaled military power and a substantial (if recently diminished) reservoir of soft power. All of these were effectively deployed in TPP, for example in persuading Vietnam to sign onto new disciplines on labor rights and SOEs in exchange for greater access to the U.S. market for textiles and footwear.

Third, critical to smart economic statecraft is close coordination with like-minded allies and partners. TPP was born as a "coalition of the willing" after global trade liberalization via the Doha Development Round stalled. The pact gradually added partners like Japan, Canada, and Mexico that shared an interest (more or less) in market opening and high-standard rules. In the face of alternative approaches to issues like regulation of the digital economy and SOEs offered by China, Russia, and others, and with U.S. preeminence on global rulemaking no longer absolute, Washington must find creative ways to work with like-minded partners to advance its economic interests.

The need for smart economic statecraft is especially vital in the Asia-Pacific region. No part of the world will do more to shape U.S. economic prospects over the next several decades. By 2030, Asia alone will be home to more than half of the world's middle-class consumers. Asia-Pacific markets are already the destination for some 28 percent of U.S. exports and support almost 3.5 million American jobs. Yet in no other region is U.S. leadership more under challenge from China.

Since 1989, when it worked with Australia and others to create the Asia-Pacific Economic Cooperation (APEC) forum, the United States has been a champion of trans-Pacific economic integration. TPP was born from the rib of APEC as an effort to extend regional market opening and establish high-standard rules. As mentioned earlier, progress in TPP had a useful effect on Chinese calculations about its approach to regional economic integration, and even about its own domestic reform.

President Trump's early decision to withdraw the United States from TPP and his unilateralist, protectionist rhetoric left a large hole in U.S. economic engagement in the Asia Pacific. Indeed, it played into China's hands by allowing Beijing to position itself as champion of economic integration in the region. Nor is the Trump administration's emphasis on bilateral free trade agreements a realistic alternative, since few partners are likely to agree to the kind of one-sided deals the administration is suggesting. Even if balanced agreements could be struck, it is unlikely they would deliver as powerful outcomes as TPP. And negotiating and winning congressional approval of a series of bilateral accords would expend a huge amount of political capital, of which any administration has only a limited supply.

Beyond Asia-Pacific trade, broader efforts to update and uphold the rules-based economic order are also needed. This includes efforts to strengthen the global trading system by championing multilateral agreements on trade in services, information technology, and other areas of U.S. comparative advantage. Again, if Washington is not driving rulemaking in these areas, lower standards—or ones skewed against U.S. interests—are likely to emerge.

Meanwhile, Washington needs to take up the gauntlet thrown down by Beijing in its ambitious BRI infrastructure plans. Ahead of the president's first trip to Asia in October 2017, the Trump administration rightly placed this issue at the heart of its "free and open Indo-Pacific" framework. The suggestion of using U.S. financing tools like the Overseas Private Investment Corporation (OPIC) and working to promote high-quality infrastructure investment through the World Bank and Asian Development Bank (ADB) was constructive. What is needed now is to flesh out these ideas into specific policies that offer a real alternative for countries receiving this investment and ensure that China's efforts conform to high international standards.

Finally, there is the question of bilateral strategy toward China itself. While judicious use of trade remedies to address problematic Chinese practices—an issue tackled elsewhere in this volume—is part of the answer, Washington also needs a positive agenda to seek improvements in market access for U.S. firms in China and broader economic reform there. The Trump administration has shown little appetite for formal negotiations on a bilateral investment treaty (BIT)—or even for its own Comprehensive Economic Dialogue (CED)—but the fact remains that Washington needs some kind of mechanism for raising structural economic concerns in China.

Indeed, there is an argument for drawing lessons from initiatives taken by earlier administrations to promote reform in Japan, including the Structural Impediments Initiative (SII) of the George H.W. Bush administration and the Yen-Dollar and Framework talks on financial reform pursued by the Reagan and Clinton administrations, respectively. Just as those efforts helped to promote structural reform, liberalize interest rates, and deepen capital markets in Japan, so improving resource allocation in China today is critical to Beijing's own objective of promoting consumption-led growth.

Smart economic statecraft does not require large amounts of money or government resources. It does require a coherent strategy and coordinated use of the many tools we have available. If Washington provides "air cover" in terms of sound legal and policy frameworks, the private sector can do most of the groundwork, from taking advantage of market opportunities to providing long-term finance for infrastructure.

Moreover, while its economic clout—and willingness to use it—continues to grow, China is in many respects not as formidable a competitor as meets the eye. As highlighted in another contribution to this volume, the Chinese economy has many weaknesses, from massive debt to serious demographic and environmental challenges. And China's soft-power appeal remains limited and will remain so as long as it continues to intimidate its neighbors.

Negotiating high-standard trade deals, championing a rules-based order, and other elements of a positive economic agenda are not enough for the United States to meet today's China challenge. Washington needs a comprehensive approach that includes at least three other strands: protecting key technologies and capabilities critical to U.S. national security; holding Beijing to account for following global rules in letter and spirit; and investing in the foundations of U.S. economic strength, from education to infrastructure to research and development. But we cannot fight something with nothing.

Recommendations

- Develop and release a presidential policy directive that lays out a comprehensive strategy toward China that includes both defensive and offensive elements of a smart economic policy.

- Work with allies and like-minded partner countries—through multilateral and bilateral forums such as the WTO, G7, and APEC—to update and uphold the rules of international trade and investment, including those governing the digital economy and state-owned enterprises.

- Develop a strategy for promoting U.S.-preferred standards and norms for global infrastructure investment that draws on U.S. leadership in international financial institutions such as the World Bank and ADB and mobilizes private companies and investors.

- Establish a regular, high-level channel between the White House and Zhongnanhai to define the contours of a mutually beneficial U.S.-China relationship and address areas of contention and cooperation.

03

Economic Policies to Meet the China Challenge

Stephanie Segal

As the world's two largest economies, the United States and China enjoy advantages conveyed by sheer economic size, but our future economic trajectories are far from assured. This essay argues that the domestic policies China will have to change if it is to achieve sustainable economic growth over the medium term will result in greater competition and economic opportunity; and that regardless of China's policy choices, the outlook for the U.S. economy is largely in our own hands. Only by investing in ourselves can the United States meet the range of challenges on the horizon, "the China Challenge" being just one of many.

China Has Its Own "China Challenge"

Much has been written about China's remarkable economic rise and unprecedented accomplishment of raising hundreds of millions of its citizens out of poverty in the span of two generations. At around $11 trillion (market exchange rates), China's economy overtook Japan as the second largest in the world in 2009, and by some estimates, is forecast to overtake the United States economy in size before 2030.[11] A comparison of Chinese and U.S. economies under "purchasing power parity"—which assesses economic size by equalizing price levels between countries—already measures China's economy as larger than the U.S. economy.

But the drivers of China's past economic success have largely run their course. From the start of China's opening-up in the 1970s, economic growth benefited from a growing supply of labor (and labor productivity gains as workers migrated from rural to urban areas) that made large, positive contributions to overall growth. However, China's one-child policy, in place since the 1970s, has resulted in rapid population aging, with China's labor force peaking in 2011. As a result, labor's contribution to economic growth in China will likely turn negative in the decades ahead.[12] China's response has been to loosen its one-child policy, replacing it in October 2015 with a universal two-child policy. However, most analysts believe the revised policy will have only a limited impact on fertility rates and will be insufficient on its own to reverse China's aging population.

[11] John Hawksworth, Hannah Audino, and Rob Clarry, *The World in 2050: The Long View: How will the global economic order change by 2050?* (London: PwC, February 2017), https://www.pwc.com/gx/en/issues/economy/the-world-in-2050.html#downloads.
[12] United Nations, *World Population Aging Report, 2015* (New York: United Nations, 2015), http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2015_Report.pdf.

Investment has been another driver of China's economic growth, with state-directed investment often deployed to meet growth targets. Any visitor to China in the last 10 years has seen the result in the form of state-of-the-art airports, high-speed rail, and a construction boom that has transformed the skylines of China's cities. But investing to support economic growth only makes sense when returns on that investment are positive. And the downside comes in the form of over-investment and misallocation of resources to unproductive sectors of the economy. Most economists agree this is precisely what has happened in China, with estimates of over-investment as high as 20 percent of GDP.[13] One by-product of over-investment is excess capacity in certain sectors of China's economy that remain viable only with government support. For instance, relative to 2008, capacity utilization rates in coal, steel, nonferrous metals, cement, flat glass, and chemicals have all declined to below 80 percent.

Excessive reliance on investment to support growth has left the Chinese economy heavily indebted. The International Monetary Fund (IMF) estimates China's nonfinancial sector debt increased by more than 60 percent of GDP over the past five years and now stands around 250 percent of GDP. Even more striking, the IMF forecasts debt will increase by another 50 percent of GDP over the next five years under current policies, raising the likelihood of a "sharp adjustment" absent an acceleration of reform.

These factors—a spent labor dividend, over-investment, and a massive debt burden—have increased the urgency of economic reforms that can boost productivity and drive sustainable growth. High on China's list of priority reforms should be service sector liberalization. The World Bank reports that services are underrepresented in China's economy, accounting for just 52 percent of value-added, 6 percentage points below the average for middle-income countries, and more than 20 percentage points below the average for high-income economies. Services—a category that covers finance, healthcare, logistics, and software, among other economic sectors—are critical to efficiency in a modern economy; their reform should support productivity gains in China, such that the economy can continue to grow despite declining contributions to growth from labor and capital investment. Service sector reforms should also allow the private sector, including foreign companies, to increase their participation in the Chinese economy.

However, according to the World Economic Forum (WEF), little progress has been made over the past year in areas that are critical for accelerating China's transition to a new growth model. Their analysis identifies high barriers to entry for foreign firms and new businesses as impeding competition and efficiency, weighing on growth. WEF also cites a lack of competition, high nonperforming loans, and sub-optimal allocation of capital as creating inefficiencies and instability in the financial sector. Financial sector reform is essential if China is to transform into a modern economy, but it also entails the greatest risk. China's level of indebtedness as a middle-income country exceeds that of many advanced economies with more mature financial systems. Losses are already in China's financial system; who absorbs those losses—the banks, the government, and/or China's household and corporate savers—will greatly impact China's

[13] Il Houng Lee, Murtaza Syed, and Liu Xueyan, *Is China Over-Investing, and Does It Matter?*, IMF Working Paper (Washington, DC: IMF, November 2012).

growth outlook. The priority for China over the next few years should be to accept slower growth as it deleverages and rights its financial system.

China's willingness to undertake these reforms remains an open question, and the West's initial enthusiasm for market-oriented reforms as articulated in the Third Plenum in 2013 has been replaced by skepticism that China is prepared to cede control of the economy. At the 19th Party Congress in October, President Xi repeated the promise to give market forces a "decisive role" in allocating resources. At the same time, he affirmed the Party's intention to build up state industry with Communist Party presence in state-owned enterprises. There is less ambiguity regarding specific initiatives to bolster China's capacity to be a global innovation leader. President Xi has called for building a "science and technology superpower," an objective that is advanced through its Made in China 2025 initiative and associated programs, such as the creation of national data labs. China's ability to articulate a vision for the future, backed by specific policies and the full power of the state, presents a competitive challenge to the United States. But China will need to get its macroeconomic house in order if it aspires to be a global leader. In the meantime, the relative positions of China and the United States in the global economy depend not just on China's policies but also on how the United States responds.

U.S. Leadership Depends on U.S. Policies

The United States and China may be the world's two largest economies, but the ranking oversimplifies and distorts their relative positioning. In terms of per capita GDP, China ($8,100) is a fraction of the size of the United States ($57,000). While China still has considerable scope to "catch-up," the United States is already at the technology frontier, which means future productivity gains and overall economic growth will depend on continued investment in ourselves, including in human capital. In late 2017 testimony before the Joint Economic Committee of the U.S. Congress, Federal Reserve Chair Janet Yellen underscored the need to boost sluggish productivity growth in the United States, and called for policies that encourage business investment and capital formation; improve the nation's infrastructure; raise the quality of our educational system; and support innovation and the adoption of new technologies.[14]

The WEF ranks the United States as the second most competitive economy in the world, behind only Switzerland. The ranking, which has steadily improved over the past five years, is driven by innovation (#2), business sophistication (#2), financial market development (#2), market size (#2), and higher education and training (#3). Despite the overall positive assessment, the United States receives its lowest rankings in macroeconomic environment (#89); health and primary education (#29); and institutions (#20). And in contrast to most pillars evaluated by the WEF, infrastructure (#9) stands out as lacking improvement in recent years.

Poor infrastructure quality in the United States stems from decades of underinvestment, weighing on economic growth and job creation. Based on data collected by the Organization for Economic Cooperation and Development (OECD), China on average has invested 3.8 percent of its GDP annually on inland infrastructure over the last 15 years, whereas U.S.

[14] Statement by Janet Yellen, chair, Board of Governors of the Federal Reserve System, Joint Economic Committee of the U.S. Congress, November 29, 2017.

investment over that same period averaged less than 1 percent of GDP.[15] Not coincidentally, the American Society of Civil Engineers (ASCE) gives the United States an overall grade of "D+" in its 2017 Infrastructure Report Card, unchanged from 2013 when the last report was issued. ASCE estimates U.S. infrastructure investment needs at more than $4.5 trillion over the next 10 years and an infrastructure funding gap of $2 trillion.[16] It also estimates that failure to close the infrastructure investment gap will cost the U.S. economy nearly $4 trillion in lost growth and 2.5 million in lost jobs over the next decade. To illustrate how infrastructure underinvestment impacts productivity, consider the 2015 Urban Mobility Report from the Texas Transportation Institute, which reported a 36 percent increase in the total number of hours of highway congestion delay in the top 50 metropolitan areas of the United States since 2010,[17] and a total of 6.9 billion vehicle-hours of delay on roads across 470 urban areas due to congestion in 2014.

Fortunately, there is broad agreement across the political spectrum that infrastructure in the United States should be rebuilt and modernized. The current administration has targeted $1 trillion in infrastructure investment over the next 10 years.[18] This is a good start, but falls well short of the estimated need, while only a portion of this amount would come from new federal funding. The administration has also proposed budget reforms to better reflect the multiyear nature of infrastructure investment and maintenance and more streamlined regulatory approval processes that could speed up project completion. Such reforms have the potential to boost low project efficiency, another factor that likely contributes to poor infrastructure in the United States, and would be beneficial provided environmental and safety standards are not compromised. However, success will ultimately depend on whether or not adequate financial resources—both public and private—can be mobilized to meet investment needs.

In contrast to infrastructure, where for decades funding has fallen short of investment needs, weak educational outcomes in the United States appear to be the result of imbalanced and possibly low-quality spending rather than underinvestment in the aggregate. Government expenditure on education in the United States totaled 5.4 percent of GDP in 2014 (last available), broadly in line with an average of 5.2 percent of GDP for high-income countries.[19] As a percent of total government expenditure, public spending on education in the United States actually exceeds the average for high-income countries; and U.S. government spending on tertiary education has been 3 percentage points higher on average over the last decade relative to other high-income countries.

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[15] Inland infrastructure includes road, rail, inland waterways, maritime ports, and airports. OECD, "Infrastructure investment (indicator)," 2017.
[16] American Society of Civil Engineers, "2017 Infrastructure Report Card," https://www.infrastructurereportcard.org.
[17] American Society of Civil Engineers, "Failure to Act: Closing the Infrastructure Investment Gap for America's Future," 2016, Economic Development Research Group, https://www.infrastructurereportcard.org/wp-content/uploads/2016/05/ASCE-Failure-to-Act-Report-for-Web-5.23.16.pdf.
[18] Office of Management and Budget, "Budget of the U.S. Government: A New Foundation for American Greatness: Fiscal Year 2018," 19, May 23, 2017, https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/budget/fy2018/budget.pdf; Adie Tomer, Joseph Kane, and Robert Puentes, "How historic would a $1 trillion infrastructure program be?" (Washington, DC: Brookings Institution, May 13, 2017), https://www.brookings.edu/blog/the-avenue/2017/05/12/how-historic-would-a-1-trillion-infrastructure-program-be/.
[19] United Nations Education, Scientific, and Cultural Organization Institute for Statistics as sourced from https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS.

Despite comparable aggregate spending levels, however, results from the 2015 Programme for International Student Assessment (PISA) show the United States ranked 30th in math, and 19th in science among OECD countries. Similarly, the nationwide National Assessment of Education Progress, also from 2015, shows a decline in average math scores. In addition, there is wide disparity in educational outcomes, which in turn is correlated to income levels. Recent research shows that the success rate of low-income students in science, technology, engineering, and mathematics disciplines is much lower than that of students who come from more prosperous backgrounds.[20]

Given aggregate spending levels for education that are broadly in line with high-income country peers, the focus of policy should be on addressing disparities to improve overall outcomes. Such disparities depress nationwide educational results as well as the economy's growth potential given the established link between human capital development and productivity.[21] One specific proposal is to reduce funding differences across districts and provide more resources to schools with high concentrations of students from low-income households.[22] The Bureau of Labor Statistics forecast that future job growth in the United States will be highest in "computer and mathematical occupations" among non-health care and personal care professions—combined with the fact that these occupations offer the second-highest median wages after "management"—means that improving educational outcomes, particularly in math, is critical to ensuring a labor force where skills match demands.

Excellence in higher education, along with the highest absolute levels of spending on R&D globally, supports U.S. leadership in innovation. In 2015, the United States spent 2.8 percent of GDP—more than $460 billion—on R&D, the highest level on record in absolute terms and the second highest on record as a percent of GDP (spending in 2009 was slightly higher as a percent of GDP due to the sharp drop in GDP).[23] The level of spending compares with an average of 2.4 percent of GDP among OECD countries, and is slightly lower than Finland, Germany, Denmark, Austria, and Sweden (2.9 to 3.3 percent of GDP); Taiwan, Japan, and Korea (3.0 to 4.2 percent); and Israel, which spends the most on R&D among countries tracked by the OECD (4.3 percent of GDP).

While U.S. spending on R&D exceeds that of China both in absolute terms and as a percent of GDP, China has been increasing its expenditure each recorded year dating back to 2000 (earliest available). As a result, China now spends the equivalent of 2.1 percent of its GDP on R&D (roughly $240 billion), up from less than 1 percent of GDP in 2000. China's announced plans for national science and technology talent development as well as ambitions outlined by President Xi at the 19th Party Congress suggest that Chinese spending on R&D will continue to

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[20] P. Doerschuk, C. Bahrim, J. Daniel, J. Kruger, J. Mann, and C. Martin, C., "Closing the gaps and filling the STEM pipeline: A multidisciplinary approach," *Journal of Science Education and Technology* 25 (2016): 682–95, http://www.apa.org/pi/ses/resources/publications/education.aspx.
[21] Roberto Cardarelli and Lusine Lusiyan, *U.S. Total Factor Productivity Slowdown: Evidence from the U.S. States* (Washington, DC: International Monetary Fund, May 2015), https://www.imf.org/external/pubs/ft/wp/2015/wp15116.pdf.
[22] International Monetary Fund, *United States Staff Report for the 2017 Article IV Consultation*, July 7, 2017, http://www.imf.org/en/Publications/CR/Issues/2017/07/27/United-States-2017-Article-IV-Consultation-Press-Release-Staff-Report-45142.
[23] OECD, "OECD Science, Technology and Industry Outlook: Revealed technology advantage in selected fields," 2017, OECD Science, Technology and R&D Statistics (database), http://dx.doi.org/10.1787/data-00673-en.

increase. According to the OECD's Science, Technology and Industry Outlook 2014, China will surpass the United States in dollars spent on R&D by 2020.[24]

In light of other countries' efforts to compete in innovation, the challenge for the United States will be maintaining its technological lead. While the United States has actually increased its technological lead as measured by the percent of economic activity derived from knowledge-intensive services or high-technology manufacturing relative to other advanced economies, there are key areas where we risk losing our competitive edge.[25] The United States has an investment and business climate that fosters innovation and the successful commercial exploitation of that innovation. Other countries seek to emulate our success, and we must take care not to undermine our future. U.S. immigration policy should encourage the best and brightest from around the world to seek an education in U.S. universities and stay in the United States as researchers, entrepreneurs, and employees. We should continue to welcome foreign investment that can finance innovation in the United States, rather than adopt policies that might divert it to third countries, to their economic and strategic advantage. And we should continue to support government spending in basic research, which has high spillover benefits to the wider economy, but lower chances of attracting private capital due to lower commercial viability.

The outlook for the U.S. economy is favorable provided we take steps to address known vulnerabilities and foster those aspects that have allowed the United States to be the global economic leader for the last 70 years. As a market economy, the United States does not dictate the activities of economic actors; nor does it suffer from the same magnitude of distortions as the Chinese economy. The key question is whether we are investing in ways that will add to our economic potential and support our outlook. There is work to be done, but I would not bet against the United States.

Recommendations

- Boost public investment in infrastructure and basic research.
- Prioritize educational policies and expenditures that address disparities in educational outcomes.
- Maintain the openness of the United States to attract human and investment capital from around the world.

[24] OECD, *OECD Science, Technology, and Industry Outlook 2014*, November 12, 2014, http://www.oecd-ilibrary.org/science-and-technology/oecd-science-technology-and-industry-outlook_19991428.
[25] Edward Alden and Rebecca Strauss, "Keeping the Edge, U.S. Innovation," Council on Foreign Relations, February 1, 2016, 15, https://www.cfr.org/report/keeping-edge-us-innovation.

04

Trade Enforcement: Where Bark Meets Bite

Scott Miller

> *Today, American prosperity and security are challenged by an economic competition playing out in a broader strategic context. The United States helped expand the liberal economic trading system to countries that did not share our values, in the hopes that these states would liberalize their economic and political practices and provide commensurate benefits to the United States. Experience shows that these countries distorted and undermined key economic institutions without undertaking significant reform of their economies or policies. They espouse free trade rhetoric and exploit its benefits, but only adhere selectively to the rules and agreements.*
> —National Security Strategy, December 2017

The principal focus of U.S. trade laws is to regulate access to the U.S. market for foreign-supplied goods and services, and to offer remedies to U.S. firms facing import competition. But they also provide the authority to enforce trade agreements, resolve trade disputes, and open foreign markets to U.S. goods and services. For the last 20 years, most enforcement efforts have centered on the World Trade Organization's Dispute Settlement Understanding (DSU). While the DSU has been reasonably effective in many instances, it may not be adequate for the growing tension in U.S.-China commercial relations.

China poses a distinctive set of challenges for U.S. policymakers. While China's leaders in the 1990s and early 2000s used the economy's accession to the WTO to drive domestic reform and open its markets, for the past decade leaders have pursued a more mercantilist path rather than continuing reform. Further, for many U.S. firms, China's domestic regulation has become the key impediment to success. Many businesses competing in China acknowledge that trade agreements do not cover many of the factors that make markets contestable and rules transparent. State intervention in the domestic market, whether through programs like "indigenous innovation," or the "Made in China 2025" plan, or other practices, can have little to do with whether or not Beijing is complying with its obligations under the General Agreement on Tariffs and Trade (GATT) 1994.

The Trump administration has looked to counter what it considers unfair practices on a variety of fronts, and is willing to consider tools that precede the WTO's DSU—specifically, Section 301 of the Trade Act of 1974, as amended. As a matter of law, Section 301 covers not just violations of trade agreements, but also a wide range of "unreasonable or discriminatory" actions that harm U.S. exporters, service providers, or intellectual property rights-holders.

The Rise and Fall of Section 301

Congress enacted Section 301 as part of the landmark Trade Act of 1974[26] as a tool for American export industries seeking access to foreign markets. Firms and industry groups could petition the government to investigate whether trading partners were using unfair practices to restrict American exports.[27] Many of the early cases were launched by agricultural exporters, such as a 1975 investigation on egg exports to Canada, or one in 1976 brought by the Florida Citrus Commission into European orange juice tariffs.

Section 301 differed in concept from the older "trade remedy" statutes designed to restrict imports of foreign goods due to dumping or subsidy. For a time, Section 301 was viewed as the main approach to opening foreign markets. Since its creation, there have been 123 Section 301 investigations, including 49 during the Reagan administration—a small number in comparison to the thousands of antidumping/countervailing duty cases, but nonetheless important to export-focused firms and industries.

During the 1980s, the United States began to use the law's option to "self-initiate" investigation, essentially triggering the statute without first receiving a complaint from the affected industry. In this era (during which Trump administration U.S. Trade Representative Robert Lighthizer served as Senate Finance Committee trade counsel and deputy U.S. trade representative), U.S. policymakers assumed that trading partners were acting unfairly whether or not their actions were covered by the GATT or other agreements. Importantly, the GATT only covered trade in goods, and many practices regarding trade in services, government procurement, intellectual property protection (to name a few) were not subject to international norms.

The unilateral structure of Section 301 became a major irritant to trading partners, which helped motivate multilateral negotiations from 1986 until the completion of the Uruguay Round in 1994. The result was a radical remake of the trading system that added new obligations covering services and IP and replaced the toothless GATT dispute procedures with a binding dispute settlement arrangement. Overall, the United States had led key partners to adopt a set of international norms that improved circumstances for U.S. exporters while obviating the need for Section 301. With improved rules and a better dispute resolution process, Section 301 fell into disuse—except for a brief revival in 2013 for an intellectual property rights matter with Ukraine, the last formal Section 301 investigation occurred in 2001.

2017 Is Not 1986, and China Is Not Japan

While the record of success for past Section 301 investigations was uneven, there are reasons to believe the tool will be less effective in the present day. First, the United States represented a larger share of the world economy in the 1970s and 1980s than it does today, diminishing the leverage inherent in unilateral action. Second, the most frequent targets of investigations were treaty allies like Japan or other NATO members, which allowed trade frictions to be managed in the context of the broader security relationship. Self-initiated investigations of Japan's practices

[26] 19 U.S.C. ch.12—Trade Act of 1974.
[27] Bruce Hirsh, "Taking Matters into Your Own Hands—Section 301 of the Trade Act of 1974," TradeVistas. August 3, 2017, https://tradevistas.csis.org/taking-matters-hands-section-301-trade-act-1974/.

led to negotiated agreements in several sectors, and similar results were achieved with other industrial democracies. Finally, GATT 1994 represented a fundamental change in the utility of unilateral dispute resolution due to the commitments members made to implement the DSU.

Effectively resolving U.S. trade frictions with China will need to account for the changed circumstances in the global economy and the rules-based order.

On August 18, 2017, the U.S. trade representative initiated a Section 301 investigation to determine whether "the acts, policies, and practices of the Government of China related to technology transfer, intellectual property, and innovation are actionable under the Trade Act."[28] This investigation will try to determine whether the government of China's actions are "unreasonable or discriminatory and burden or restrict U.S. commerce." As the investigation proceeds, the administration will have to decide which of China's actions are covered by disciplines in GATT 1994 and presumably ripe for a challenge under WTO DSU rules, and which meet the test of U.S. law but are not subject to GATT rules. The decision to pursue remedies either within multilateral rules or unilaterally is likely to signal the "real" Trump trade policy.

While the president and U.S. Trade Representative Lighthizer have both expressed skepticism regarding the WTO, the dispute settlement system has proven effective and beneficial with regard to disputes with China. The United States has filed 21 cases challenging China's practices, while China has filed 10 cases in which the United States is a respondent. For the most part, the party that files the complaint prevails. Using the DSU where possible is most likely to engender support from other trading partners, ultimately increasing U.S. leverage in convincing China to modify its practices.

However, for reasons discussed earlier, it is likely that the investigation will identify practices that can be characterized as a violation of the Trade Act yet either not covered by international agreement or cases where the obligations are ambiguous or difficult to enforce (for instance, intellectual property rights). The president has extremely wide latitude to act, considering both powers under the Trade Act and the International Emergency Economic Powers Act (Title II of P.L. 95-223, also known as the International Emergency Economic Powers Act, or IEEPA)[29] should the president declare an emergency in response to a foreign threat.

One area in which unilateral remedies could be pursued would be restrictions on Chinese investment in the United States. While the United States has an open investment policy, there is policy space for China-specific actions, for instance requiring CFIUS reviews on all Chinese direct investment, or applying a screening mechanism similar to Canada's "economic interest" test. There would, of course, be "room" for Beijing to restrict U.S. investment, but China already maintains a much more restrictive, state-directed policy toward all foreign investment.

What about raising tariffs unilaterally? The downside risks are large. First, if the United States acts in a way that appears to be a selective application of its own obligations, the administration

[28] Initiation of Section 301 Investigation; Hearing; and Request for Public Comments: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation, 82 Fed. Reg. 163 (August 24, 2017). *Federal Register: The Daily Journal of the United States,* https://www.gpo.gov/fdsys/pkg/FR-2017-08-24/pdf/2017-17931.pdf.
[29] 50 U.S.C. §1701.

should expect to lose political support from other trading partners as the focus shifts from discriminatory Chinese practices to rogue U.S. behavior. Second, China may be well-positioned to apply GATT rules and "suspend concessions," meaning they could legitimately raise tariffs on U.S. goods. This would begin the process of action and reaction, which would quickly disrupt supply arrangements and could spiral out of control.

U.S. obligations under GATT 1994 make today's decisions about Section 301 remedies vastly more subtle and constrained. Further, and more important, this dispute is not with an ally or partner. China is a geopolitical rival that faces fewer political constraints in its use of economic leverage, which it often exerts without regard to collateral damage. If the United States takes the path of economic confrontation outside of the global order, it will likely find an opponent that has demonstrated great efficiency at inflicting commercial "pain" in return. As Mao observed, "a revolution is not a dinner party."

05

A U.S. Investment Strategy for Defense

Andrew P. Hunter

A key element in responding to China is to invest in the development of critical technologies in the United States. And while investing in research and development (R&D) is likely to be an obvious and relatively noncontroversial response, it is important to understand why and how this investment will pay off if we are to make the most of the resources dedicated to it. A strategy of investment worked for the United States in the last century and although the circumstances then were decidedly different, it remains relevant today. However, today's strategy must be tailored to reflect China's rise and to complement the increasingly commercial and global nature of R&D.

A Successful Defense Investment Strategy

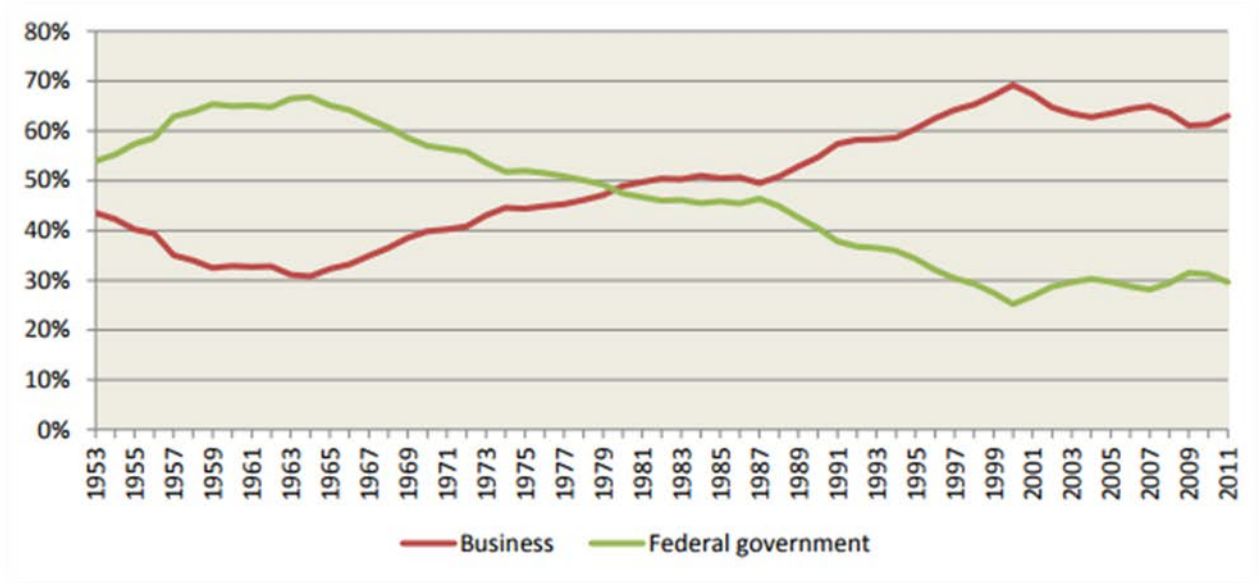
After World War II, the United States decided to make a massive investment in technology a key part of its strategy for global superpower competition. While the United States was not known for its investments in military technology prior to World War II, with the success of the Manhattan Project and the onset of the Cold War, the United States emphasized investing in technology as a linchpin of its strategy. Investment was central in the newly dawned nuclear age where it was believed that "strategic" systems, that is, nuclear weapons, would dominate the global security landscape. And while it became clear quickly that nuclear weapons were not going to end all nonnuclear competition, the United States remained committed to investing in technology to offset the numerical advantage in conventional forces that the Soviet Union and its allied Warsaw Pact countries had compared to the United States and its NATO allies.

The Department of Defense, along with NASA and the Atomic Energy Commission, invested heavily in R&D throughout the second half of the twentieth century resulting in the procurement of successive generations of technologically cutting-edge systems. The U.S. commitment to an investment strategy was so firm that in the mid-1960s, the U.S. government share of R&D investment represented two-thirds of total U.S. R&D, as shown in Figure 3. Total investment by the private sector was only a third of the U.S. total. A key feature of the U.S. investment strategy was scope and scale.

The Soviet Union was also investing in R&D throughout this period, and it had a cadre of talented researchers as well. The United States out-competed them, however, by ensuring that its investment in R&D was substantially larger, and by making investments across a huge range of technologies in a wide variety of fields. The Soviets proved unable to match, and increasingly fell farther behind. President Reagan's decision to invest heavily in missile defense in the 1980s is sometimes cited as a major reason the Soviet Union fell. In truth, the U.S. strategy of out-

investing the Soviet Union started much earlier and was much broader than this reading of history suggests. But the investment in missile defense does provide an illustration of the larger story of the success of the U.S. investment strategy. The U.S. investment strategy led to decades of technological superiority for U.S. military forces. It also had a wide variety of nonmilitary benefits, laying the foundation for technological advances such as GPS and the internet, which have delivered huge economic benefits.

Figure 3: Share of Funds for R&D in the United States, 1953–2011



Source: Ryan Crotty and Andrew Hunter, *Keeping the Technological Edge: Leveraging Outside Innovation to Sustain the Department of Defense's Technological Advantage* (Washington, DC: CSIS, June 2015), 9. Data derived from National Science Foundation, *Science and Engineering Indicators 2014*, National Center for Science and Engineering Statistics, National Patterns of R&D Resources (annual series).

The Changing Structure of Global R&D

A new U.S. investment strategy to compete with China can't simply be a copy of the approach taken in the second half of the twentieth century. The game has been fundamentally changed by the enormous increase in private-sector R&D, which completely reversed the ratio of government-to-private-sector R&D in the United States by the 1990s to favor the private sector. Equally important is the increasing globalization of R&D, driven in no small part by the rise of China, but also reflecting the R&D occurring in a variety of other nations. The dominance of private-sector funding for R&D means that key technologies such as artificial intelligence, robotics, additive manufacturing, space, and biotech will be fundamentally driven in most of the world by private-sector rather than government investment. The increasingly globalized nature of R&D means that most commercially driven technologies will be available to systems developers around the world. Most technologies are unlikely to remain the sole purview of any nation for more than a handful of years. These factors must lead the United States to develop a different investment strategy. There simply isn't much reason for the United States to use government resources to duplicate the work that the private sector will perform on its own.

Care must also be taken in developing military applications of commercial technologies that are also available to both allies and adversaries alike.

The Role for Government Investment

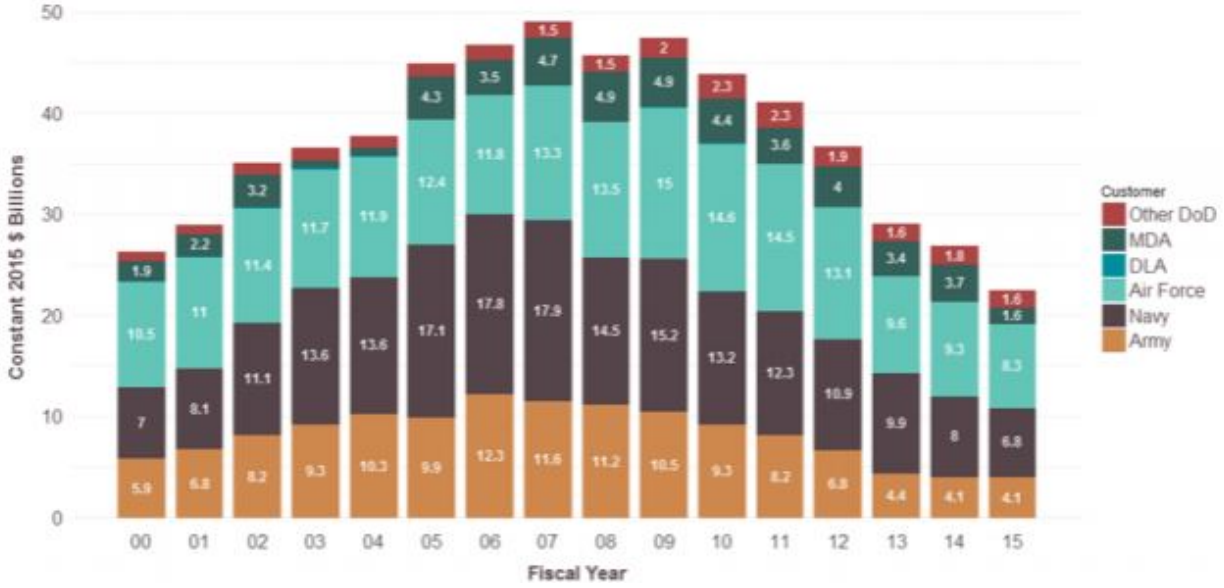
Government investment retains a critical role in a U.S. investment strategy, however, in making the kinds of investment that the private sector won't. The private sector primarily invests where it sees an attractive return on investment (ROI) in a time frame of five years or less. Only a relatively small number of companies have the resources and secure market position to make investments that need a decade or more to pay off. A related group of firms work in industries where the scope and scale of the work necessitates longer ROI time horizons, for example in designing and building large airframes or disrupting large entrenched industries, but even so they mostly focus on those investments with clear potential commercial ROI in the billions. Government investment must continue to fill the gap in funding early-stage R&D that hasn't yet demonstrated compelling commercial ROI.

Look deeply into the source of private sector R&D and you will usually find a history of defense research that pioneered the early stages of the technology. Frequently the Defense Advanced Research Projects Agency was a significant player in the early days of development of new technologies. Before the 1980s, NASA played a similar role for many space and aviation technologies though it has much reduced that role in recent decades. In addition to early-stage R&D, government investment is frequently necessary to apply cutting-edge commercial technologies to specific military problems. Commercial electronics may need to be adapted to operate in austere or extreme environments in military applications and additional features added. More extensive development may be required to convert commercially developed industrial capabilities to produce advanced military systems in the necessary performance regimes, such as fighter planes and the highly specialized engines that power them. In addition, government investment is often necessary to sustain the unique industrial capabilities that support these advanced military systems. The United States needs a strategy that supports these critical government roles.

A Defense Investment Strategy to Compete with China

The U.S. investment strategy that helped defeat the Soviet Union will not perform nearly as well if it is used as the strategy for competition with China. The changes in the structure of global R&D already discussed implicitly call into question the likelihood that a strategy of overwhelming scope and scale in R&D can be meaningfully executed. The growth of China's economy and the regime's clear commitment to R&D suggest, in fact, that the United States may soon be challenged to match the scope and scale of China's investment. While there will likely be a residual U.S. advantage in many military-related fields for several years, that advantage should be expected to erode without action. One clearly needed step is to recommit the United States to investment in defense R&D. The years since 2009 have seen an unprecedented decline in the defense R&D funding going to industry in constant dollar terms as shown in Figure 4.

Figure 4: DoD R&D Contract Obligations by Component, 2000–2015



Source: Jesse Ellman et al., *Defense Acquisition Trends, 2016: The End of the Contracting Drawdown* (Washington, DC: CSIS, March 2017), 19.

In fact, R&D is the only area of defense contract spending that did not increase in 2016, the year in which overall defense contract spending began to recover, and it is unlikely to recover significantly in 2017 or 2018. A concerted effort is needed to reverse this R&D contract decline and it must begin in earnest in the budget for fiscal year 2019. Other major sources of U.S. government R&D funding come from the National Institutes for Health, the Department of Energy, and NASA. While the R&D investment of these agencies didn't fall nearly as much as DoD's in the last several years, increasing their investment is also warranted. The key technology areas for investment are increasingly matters of consensus, and include the predominately commercial technology areas mentioned earlier as well as more military-specific technologies such as hypersonics, electronic warfare, energetic materials, and cyber-attack. The U.S. investment strategy should seek to complement and leverage the massive investments being made by the private sector (which typically builds on and exploits government-funded basic research) even as it focuses on the more military specific investments that the private sector is unlikely to pursue.

Invest in a More Flexible and Resilient Supply Chain

An increase in government-sponsored R&D as part of a U.S. investment strategy is necessary, but not sufficient, however. China is explicitly seeking to achieve market dominance in several key technologies, and China's past behavior suggests that it may seek this position in part to have the leverage to cut off access to critical resources to other countries. An example of this came in 2010 when China established strict export quotas on rare earth metals, effectively limiting access to nearly all of then-active world production to manufacturers in China. Rare earth metals are used in a wide variety of national security applications including missile guidance systems and power generation in addition to many important civilian applications. This

effort, if intended to force the on-shoring of upstream component production, largely failed because suppliers of rare earth metals elsewhere in the world were able to increase production as world prices of this resource increased. However, if China had been able to establish itself as the sole reliable provider of rare earth materials, it is very likely it could have leveraged that market power to establish dominance in making a series of critical components higher up the defense value chain.

The possibility that China will use whatever dominant market positions it achieves—and it will inevitably succeed in establishing significant market power in at least some technology areas as they have with solar photovoltaic panels—means that the U.S. investment strategy should focus, in part, on developing flexibility and resilience in the defense supply chain. China couldn't force rapid on-shoring of the production of components using rare earth metals in 2010, but it is not inconceivable that it could try again and succeed in the future. It is also entirely possible that China could achieve such an outcome over time by working with, rather than against, market forces. However, there are substitutes for rare earth metals in most applications as there are for many other materials and technologies that China may seek to dominate. The U.S. investment strategy should include research into developing and making practical alternatives in key areas of the supply chain where U.S. access could be threatened, enabling the United States to reconstitute supply chains more quickly. This suggests a commitment to developing second sources of key components and materials wherever U.S. access could be cut off.

Leverage Partnerships with Other Nations

The U.S. investment strategy must also leverage the increasingly global structure of R&D. In the twentieth century, the overwhelming scope and scale of U.S. investment in R&D was coupled with a strict technology control system designed to keep the fruits of all that investment in the United States, with some limited access also provided to allies on a case-by-case basis. But R&D today is already far more diffuse and egalitarian than it was during the Cold War. Many U.S. partners and allies are also making key R&D investments and cutting-edge technologies are increasingly being developed outside the United States. The U.S. investment strategy should capitalize on, leverage, and enable complementary investments by partners and allies. We can do so by coordinating with key partners and allies to research critical technologies together or in complementary fashion. We can also increase our utilization of foreign designs (but with production in most cases in the United States) especially in areas where the United States has under-invested in the last decade, such as advanced protection capabilities for ground vehicles. A U.S. investment strategy that leverages the enormous investments being made by our partners will be more powerful and successful than one that attempts to utilize U.S. resources alone. This approach requires that the United States continue to modernize its technology control system to enable more cooperation with allies and partners, and to actively seek partners in the key technologies of the future through defense trade. Working with our allies can also make the response to aggressive efforts by China (or Russia) to use market power much more effective.

Develop, Attract, and Retain the Best People

The last key element of the U.S. investment strategy is people. The United States must invest in science, technology, engineering, and mathematics (STEM) education for any U.S. investment

strategy to succeed, and must create a cultural environment conducive to the development and success of technical talent. The United States is in a high-stakes competition for technical talent with every other nation in the world. A key factor in the success of the U.S. investment strategy of the twentieth century was the influx of technical talent from Europe and Asia that resulted from the World Wars. The United States has been a favored destination for innovators and the scientifically minded for decades. Nothing can be more critical than that it remain so. Happily, the fostering of domestic technical talent and the ability to attract foreign talent are highly complementary. The same conditions tend to lead to success in both cases. People are perhaps the most vulnerable aspect of this proposed U.S. investment strategy because China has an abundance of technical talent to draw upon. If the United States neglects this element of the strategy, or adopts policies that discourage technical talent from developing or coming to the United States, the rest of the strategy will likely have no meaningful effect.

Recommendations

- Increase U.S. investment in defense R&D focusing on basic research, leveraging commercial R&D for military applications, pursuing design and development of critical military technologies, and developing greater resilience in the U.S. supply chain.

- Leverage the R&D of partners and allies by cooperating in R&D of critical technologies and by purchasing and domestically producing foreign designs where they are best in world.

- Establish a research environment that fosters the development of U.S. technical talent and that attracts the best technical minds from other countries to the United States.

06

Beijing's Cyber Governance System

Samm Sacks

China is in the midst of building perhaps the most extensive governance system for cyberspace and information and communications technology (ICT) of any country around the world. Recognizing that technology has advanced more quickly than the government's ability to control it, Beijing has moved to rapidly to construct a policy framework spanning cybersecurity, the digital economy, and online media content—all under one mantel.

A matrix of national strategies, laws, measures, regulations, and standards together make up China's vision to become a "cyber superpower" and build a robust ICT governance system. These elements are mutually reinforcing, and lay out requirements that cover data transfer, data privacy, critical information infrastructure, internet content, and ICT industrial development.

The build-out of China's ICT governance system has implications both for U.S. companies operating in China, as well as for Chinese investment flowing into the United States and globally. For U.S. companies, regulatory uncertainties and costs for operating in China are rising, compelling many to reassess the tradeoffs required to be in China. At the same time, there are major national security and trade implications for the global expansion of Chinese firms and capital in ICT sectors. As this system takes shape, understanding the overall framework as well as its individual elements will be key for U.S. policymakers. Some parts are final, but many are still pending as stakeholders within the Chinese bureaucracy continue to debate their scope and implementation.

Understanding China's emerging cyber regulatory system will be critical in order to craft a precise and targeted U.S. policy response as U.S.-China trade risks grow. Calibrating the right approach to the challenges posed by China must begin with an accurate view of this complex system, one that is often misunderstood by outside observers.

What Beijing Requires of ICT Companies in China

China's Cybersecurity Law (which took effect in June 2017) is the centerpiece of a much broader ICT regulatory system made up of dozens of interlocking parts. There are three main ICT regulatory concerns for foreign companies operating in China: "black box" cybersecurity reviews, restrictions on cross-border data transfer, and an overall trend toward localization under the guise of security.

ICT Security Reviews

Foreign companies now face at least six different security reviews that can be used for political purposes to delay or block market access. These reviews will be conducted by different Chinese government agencies with unclear jurisdictions. There is even conflicting jurisdiction within individual reviews. Moreover, the specific criteria, metrics, and, in some cases, those conducting the evaluations are not known. As several U.S. industry representatives put it, the reviews are essentially a "black box" because we do not know what they entail and what is required to pass them. Some have lobbied the Chinese government to accept international security certifications (such as through ISO) as a basis for compliance, but so far it is not clear if Chinese authorities will recognize these certifications or still require their own reviews.

Coming actions to expand the scope of the Committee on Foreign Investment in the United States (CFIUS) could lead Beijing to likewise use these security reviews as channels to retaliate against U.S. companies operating in China. Since there is no transparency into the process, these reviews can easily become political tools, with U.S. companies on the frontlines as bilateral tensions increase.

The different cybersecurity reviews, and their practical implications, are discussed below:

1. *The Multi-level Protection Scheme (MLPS):* MLPS is managed by the Ministry of Public Security (MPS) and has existed since 2006. MLPS will likely undergo revisions as part of the new ICT legal regime, but coming changes, as well as how it will be coordinated with other similar security reviews, remain unknown. MLPS involves ranking networks by level of sensitivity, and then assigning certain compliance obligations.

2. *Cybersecurity Review Regime:* A key question is how MLPS will work in relation to a new review known as the Cybersecurity Review Regime (CRR) or Cybersecurity Review Measures of Network Products and Services. Issued in "interim" form in June, the measures require network products and services used in critical information infrastructure (CII) to undergo a cybersecurity review administered by the Cyberspace Administration of China (CAC) and other sector-specific regulators. Some industry experts believe that the CRR will involve inspections of the backgrounds and supply chains of network and service providers. The final definition of CII is still pending, and the full criteria for assessments and list of those conducting them are unknown. Yet, without these pieces of the puzzle, the practical implications of this system remain murky.

   The government has begun to issue several other documents meant to provide more clarity on the scope of the new review regime. These include the "Public Announcement on Issuing Network Key Equipment and Cybersecurity Special Product List (First Batch)," which outlines a list of products and services subject to the review and certification. There are also at least three relevant standards that have not yet been officially published. Yet, the follow-on product list and standards do little to narrow the far-reaching scope of the CRR. That is because the "interim" document establishing the CRR states that the review will focus on "other risks that could harm national security"—essentially preserving government authority to interpret the scope of reviews however it

wants. Again, this is a channel that opens the door for political whim to determine market access.

3. *Reviews of Cross-border Data Transfer:* In addition, there will also be separate security review of data that companies seek to transfer outside of mainland China. The government is in the process of refining the process and conditions under which data would undergo a security assessment under two draft regulations: Personal Information and Important Data Cross Border Transfer Security Evaluation Measures and Guidelines for Data Cross-Border Transfer Security Assessment. Again, the specific scope is not yet clear, but according to industry sources inside China, it is likely that Chinese authorities will take a broad and ambiguous approach to enforcement of this particular review. (See following section on "Data Localization.")

4. *Cross-border Communications:* Although not a security review per se, companies operating in China must have authorization from the Ministry of Industry and Information Technology (MIIT) for using internal company VPN (virtual private network) services. In practical terms, this means that the government reviews and approves the channels that companies use for all of their international connectivity. Requirements issued by MIIT in 2017 mandate that companies only use internal VPN services from licensed providers, which are the three state-owned telecommunications carriers. Cloud service platforms must route communications with their overseas facilities through channels approved by MIIT.

5. *Internet Technologies and Apps:* New technologies and apps used in internet news/information services also have a new security review process. Service providers must conduct security evaluations before the introduction of new technologies or applications on their platforms, but details are also murky.

6. *A Possible Chinese Version of CFIUS:* Much less is known about another possible kind of security review of foreign investment that has yet to emerge. China's National Security Law (released in 2015) suggested in broad language there could be a new body perhaps akin to CFIUS. There has yet to been further clarification. New legislation expanding the scope of CFIUS could trigger Beijing to move forward setting up this new mechanism.

Data Localization

Many U.S. firms in China already assume that data localization requirements will become the de facto reality for their China operations. The specific scope of data localization requirements is still in flux; yet, some Chinese companies have even stopped sending their data to foreign companies that had the ability to store and process data within mainland China, despite there being no set requirement for them to do so.

There are provisions still in draft form that would require certain kinds of data to be stored within mainland China and require approvals for cross-border data transfer. Below are the relevant laws, measures, and standards on the issue:

According to article 37 of China's cybersecurity law: "Personal information and other important data gathered or produced by critical information infrastructure operators during operations within the mainland territory of the People's Republic of China, shall store it within mainland China." The government is still defining "personal information and other important data" or what sectors fall under "critical information infrastructure" under separate measures and guidelines, but early indications suggest even follow-on directives will be vast and ambiguous. This also underscores the fact that China's ICT legal framework is best understood as a matrix of overlapping parts. Recently, Chinese officials have been asking U.S. government and business leaders for advice on how to define critical information infrastructure, suggesting the parameters are still in flux and open to interpretation.

Following on the Cybersecurity Law, the Chinese government issued a measure and standard meant to clarify the scope of how restrictions on cross-border data transfers will be implemented. The problem is that these follow-on directives are equally vague and leave issues unresolved as different stakeholders within the Chinese system debate their meaning. First is the "Measures on Security Assessment of Cross-border Transfer of Personal Information & Important Data (Draft for comment)." Companies have until December 2018 to comply. Several internal versions of the draft have been quietly circulated in the past few months. According to the latest publicly available draft, all "network operators" will be subject to assessments before exporting data out of China. In practice, this could mean anyone who owns and operates an IT network. Industry sources report the government may have walked this back recently to focus just on CII operators, but there is still tremendous regulatory uncertainty given that the definition of CII itself is up in the air.

In addition, the National Information Security Standardization Committee (TC260)—China's cybersecurity standards body—issued a standard to flesh out technical guidelines assessing cross-border data transfers. Yet, the language even of this technical standard is extremely vague and far-reaching. The May 27 version gives a sweeping definition of "important data" that echoes the National Security Law, spanning that which can "influence or harm the government, state, military, economy, culture, society, technology, information . . . and other national security matters." Again, "network operators" could mean anyone who owns and manages an IT network, raising the possibility that e-commerce could be deemed CII given all the personal data held by companies like Alibaba and Tencent. Depending on how CII is ultimately defined, many companies that are not in ICT sectors could potentially fall in scope. Chinese regulators are now studying how countries like the United States define CII through numerous Track 1.5 dialogues. While regulators are showing a willingness to engage and dialogue, it is not clear how these exchanges will ultimately impact Beijing's policy trajectory, particularly since Beijing views this as primarily a national security rather than trade issue.

China vs. EU and APEC on data restrictions

These reviews are not comparable with requirements under international regimes such as the voluntary Asia-Pacific Economic Cooperation (APEC) Cross-Border Privacy Rules (CBPR) or the EU's General Data Protection Regulation (GDPR). The EU views data protection primarily through the lens of user privacy. In contrast, passing one of the Chinese reviews for outbound data transfer is linked not merely to personal privacy or raw data security, but also to "national

security" and broader, more ambiguous concerns like "the people's livelihood" (Cybersecurity Law Article 31) or "economic development and social and public interests," according to the guidelines. Some industry groups are hoping that China might accept CBPR in place of their own data review system, but this looks unlikely given that China appears to want its own system.

Internal Debate within China over Data Flows

While China's regulatory regime for data flows looks bleak, there are also competing voices in China advocating for more alignment with international practices. These voices should not be disregarded by U.S. policymakers. Key players in China think that cutting off cross-border data flows will hurt the country's global economic goals. From national tech champions like Alibaba seeking global markets, to Chinese financial institutions facilitating global transactions, cross-border data flows are a core operational reality. These voices also exist within the Chinese government. For example, Hong Yanqing, who leads the personal data protection project for TC260, writes: "A fundamental consensus has emerged today that data naturally flows across national borders, that data flows produce value, and that data flows can lead to flows of technology, capital, and talent." These players could be important allies for the United States.

Localization Push under "Secure and Controllable"

Foreign companies face de facto localization pressures in China even in the absence of specific regulation. The Xi Jinping administration has emphasized through multiple channels that it seeks to bolster China's domestic ICT industry to reduce reliance on foreign core technologies. The most recent is a report by the National People's Congress in December underscoring the need for China to develop "indigenous and controllable core cybersecurity technology by 2020."

For several years, the government has used the phrase "secure and controllable" or "indigenous and controllable" in national strategies and directives as a way to link localization with security. Chinese companies have a competitive advantage when it comes to meeting these new security standards. This puts foreign ICT companies in a weaker negotiating position, and adds to pressure that they cooperate with local partners, rather than attempting to go it alone in the market.

The phrase has appeared in separate rules and strategies for cyberspace and the ICT industry. The phrase appears in sector-specific insurance, medical devices, and the Internet Plus sectors (i.e., smart technology, cloud computing, mobile technology, and e-commerce). A requirement for banking-sector IT to be "secure and controllable" was technically suspended, but many report that it still has negatively impacted market share. The phrase is also sprinkled throughout national-level blueprints for ICT development. For example, the 13th Five Year Plan for Informatization calls for "building a secure and controllable IT industry ecosystem."

Because this standard has no single definition, the government and Chinese industry have broad discretionary authority to launch intrusive security audits or reject foreign suppliers altogether as not secure. And while many of these regulations are still pending, Chinese government and industry are already moving forward with informal implementation of the standard, by asking foreign vendors to certify that they are "secure and controllable."

Beijing's Vision for Making China a Global ICT Superpower

What makes China's cyber governance system so vast is that it does not just cover cybersecurity, but also establishes a top-down plan for advancing China's domestic ICT industry. Multiple overlapping strategy and planning directives all stress the need for China to be a global leader in advanced ICT, with Chinese companies at the forefront. These are not just empty slogans, but supported by detailed policy blueprints laying out the government's goals to reduce reliance on foreign technology to boost self-sufficiency in key fields, while increasing the global influence of China's national tech giants.

The "Made in China 2025" has received the most attention outside of China, but when it comes to ICT sectors there are other, more detailed policy directives spelling out what Beijing hopes to achieve. Three recent examples, summarized below, stand out as especially clear articulations of Beijing's objectives (there are many more):

- During President Xi Jinping's opening speech at the 19th Party Congress in October 2017, he called for the "deep integration of the Internet, big data, and artificial intelligence with the real economy" and for building a "science and technology superpower, quality superpower, aerospace superpower, cyber superpower . . . advancing the development of big data, cloud computing, and smart cities so as to turn them into a digital silk road of the 21st century." The speech marked the first time that an opening speech identified specific terms such as artificial intelligence (AI) and "digital China," suggesting these sectors will be priorities for Xi's second term.

- China's 13th Five Year Plan for Informatization (2016–2020) states that China strives to "no longer [be] restrained by others for core technologies in strategically competitive fields," and identifies major projects slated for increased state support in "core electronic equipment, high-end universal chip, basic software, large-scale IC, next-gen wireless broadband mobile communication, quantum communication and quantum computing."

- Another example is language from an article published in September (just ahead of the 19th Party Congress) in a leading Party Journal by the Theoretical Studies Center Group under the Cyberspace Administration of China. The essay explains how to put into action President Xi's call for making China into a "cyber superpower." Among the many points in the essay, the authors write: "The global influence of Internet companies like Alibaba, Tencent, Baidu, Huawei, etc., is on the rise. . . . In 2016 on a global list of top 20 companies by market value, Chinese companies occupied seven slots."

Recommendations

China is certainly not closed to all U.S. ICT firms or those with a digital footprint in the market. But the costs required to operate in China are increasing, particularly in high-tech sectors. Issues include ICT infrastructure—from trouble using corporate VPNs to the need to build local data centers—and lack of transparency around new licensing and security certifications that can be used to delay or block market access. Taken together, these new regulatory risks are now leading companies to reassess the tradeoffs required to be in the market.

There are real national security and commercial risks to the United States posed by China's ICT policies. In this context, it is understandable that U.S. policymakers are seeking a more confrontational policy stance, using a package of actions beyond just high-tech sectors, including: coming announcements about the 301 investigation, CFIUS reform, and a broader Trump administration China strategy.

The problem is that without a targeted approach, U.S. businesses are likely to become collateral damage in a trade war between the United States and China that does not benefit either side. U.S. companies in high-tech sectors are likely to bear the brunt of the damage. Here is what is likely to play out in 2018 depending on how both sides manage coming risks to the relationship:

First, in anticipation of coming announcements on the 301 investigation, the Chinese government is already drawing up retaliation lists of U.S. companies in China. U.S. companies with viable domestic competitors in China will be particularly vulnerable to retaliation. In the ICT sector specifically, U.S. companies with domestic Chinese counterparts may see licenses canceled or denied under the umbrella of various cybersecurity reviews and certifications. The various cybersecurity reviews (discussed in section one) could become political channels for the government to delay or block market access in sectors where network products and services are subject to black box reviews.

Second, if backed into a corner, Beijing is not likely to engage further in exchanges that have become an important channel for sorting out implementation of cyber policies and laws. There are informal and Track 1.5 or Track 2 channels that could come to a halt, leading to more hardline positions on still-unresolved ICT regulatory issues. To be sure, some have found the Chinese side to be less responsive in these channels, but there are in fact notable exceptions.

For example, in April 2017 the Chinese government faced significant backlash from foreign and domestic industry when it released the first draft of measures that all "important data" remain inside mainland China. In response, and after extensive back and forth with industry, Chinese authorities revised the scope to only require that data from critical information infrastructure (CII) operators be stored locally. They also moved back the date for compliance. Since the definition of CII is still unresolved, the issue remains problematic, but it shows that Beijing is willing to take a more nuanced position under certain circumstances. There are other examples in which Chinese domestic industry have been important allies to U.S. companies on pending regulatory issues, despite being competitors. These local champions will become less helpful to U.S. partners as trade tensions spill over to affect the broader bilateral relationship.

Looking ahead in 2018, Beijing has a draft encryption law in the legislative process. If enacted and enforced, the law could require only pre-approved domestic encryption products—a red line for many foreign companies in China. There are numerous other examples in which the U.S. tech sector stands the most to lose in a possible trade war between the United States and China.

U.S. and Chinese technology development, supply chains, and commercial markets are tightly intertwined in such a way that a sweeping approach to China's ICT policies will hurt U.S. economic prosperity and our ability to maintain our edge in technology innovation. U.S. policymakers need to tailor their reviews of Chinese commercial investments and punitive

damages in a way that does not further hinder U.S. companies operating in an already difficult Chinese market. The best approach is one that takes a more nuanced view of the U.S.-China trade and investment relationship to mitigate these downside risks.

07

Ensuring CFIUS Remains a Robust Protector of National Security

John Schaus

The Committee on Foreign Investment in the United States (CFIUS) was once a quiet procedural element of the executive branch. It reviewed a relatively small number of foreign acquisitions of U.S. firms to ensure they did not pose a threat to U.S. national security. The vast majority of cases have been approved. In the last several years, this quiet regulatory area has been thrust into prominence as three acquisitions have been denied by the president since 2012, using his authority under CFIUS. All three of those denied cases involved China-linked firms attempting to acquire U.S. assets.

It is not surprising, then, that some observers see a CFIUS bogeyman hiding in every acquisition. U.S. concerns about China's increasing state involvement in its businesses activity are based on real events and raise concerns from American policymakers that China's state-directed capitalist model will use the power of the state to tilt market transactions to pursue objectives that threaten U.S. national security—just the type of transactions CFIUS was established to monitor and prevent. Concerns about China's approach and its objectives are spurring calls to adjust the scope and scale of CFIUS to enable it to better respond.

Getting CFIUS reform right is important. Prudent steps to impede foreign actors from using the dynamism and openness of the U.S. economy in ways that could harm U.S. national security are the right thing to do. And, done right, such steps will signal both national security resolve and continued openness to global commerce. As Congress begins considering proposed legislation to provide the first major adjustments to CFIUS since 2008, now is an important time to take stock of current and emerging trends, and to examine a range of options for adjusting CFIUS from its current role.

What Is CFIUS?

CFIUS is made up of cabinet-level agencies from across the federal government.[30] Its charter is to preserve U.S. national security while maintaining an open investment climate. Since its establishment in the 1970s, CFIUS's task has been to review foreign investments in, or

[30] CFIUS is chaired by the secretary of the treasury, and includes the heads of the Departments of Commerce, Defense, Energy, Justice, Homeland Security, State, the Office of the U.S. Trade Representative, and the Office of Science and Technology Policy. The director of national intelligence and the secretary of labor serve as nonvoting members of the committee. The Office of Management and Budget, Council of Economic Advisors, National Security Council, National Economic Council, and Homeland Security Council also observe CFIUS activities, participating as appropriate.

acquisitions of, U.S. firms to ensure the proposed transactions do not pose national security risks to the United States through foreign ownership, influence, or control.[31] Following a three-phase process with rigid timelines, CFIUS reviews cases—most submitted voluntarily, though CFIUS has latitude to initiate its own investigations—and the vast majority of cases are approved. Only four cases have been denied since 1990, out of thousands of reviewed transactions. CFIUS manages this effort with relatively small staffs distributed across member agencies, with support from a small intelligence community team.

CFIUS and China

Chinese investors are leveraging newfound wealth to seek opportunities abroad. China has gone from almost no CFIUS-reviewed cases a decade ago, to 24 percent in the most recently reported calendar year. Chinese firms' review under CFIUS coincides with a commensurate growth in China's overall investments in the United States.

While many Chinese investments in the United States are undoubtedly made only for economic reasons, Chinese government involvement with managerial decisions in Chinese firms raises concerns that some investments may be undertaken with a goal of undermining U.S. advantage in fields with national security implications. The increased relevance of commercial technology to military applications (as discussed in Hunter's essay) complicates the assessments that CFIUS must make, with responsibility to limit the ability of a foreign country with divergent interests from using the openness of the U.S. economy to damage our national security. Instances such as China's closing of a major South Korean retail operator in retaliation for South Korea's deployment of protective missile-defense capabilities against North Korea serve to underscore this concern that China will use its economic power in coercive ways.

Why Does CFIUS Matter?

National security has long been linked to a country's economic strength: the wealthier a country, the greater likelihood that it will be militarily strong. It has been many decades since the United States faced an adversary (or potential adversary) that could generate the same economic output as the United States. Over the next decade, China could indeed become such a country—with an economy equal in size to the United States and interested in a new global power arrangement.

When CFIUS was established, most national security technologies were materiel- and engineering- intensive, and the output was a manufactured product. National security today depends as much on cutting-edge software applications as it does high-end hardware platforms. Much of today's advanced science and technology is developed in the private sector for use in consumer goods. The government's ability to constrain the spread of a specific technology is more limited now, and even more limited in constraining the diffusion of the knowledge on which the technology is based since most scientific discoveries are published in open-source, peer-reviewed journals. The time it takes to copy and exploit existing technology—through theft or mimicry—has compressed from decades to years, making it more

[31] CFIUS was established by executive order in 1975, and made permanent in law in 1988.

difficult to preserve generational advantage over potential adversaries, even as it provides fewer benefits.

What Role for Export Controls?

Export controls and the risk of transferring U.S. technology to China were a staple of the larger U.S. debate over China policy in the 1990s. The United States has not sold weapons to China since the massacre in Tiananmen Square. Over the intervening 26 years, China has built its defense industrial capabilities using foreign sources—largely Russian—augmented by an energetic program of military-industrial espionage. But what of "dual-use" exports, industrial equipment that could have some military use? This has long been the purview of export controls.

China has made technology transfer from the West a goal of its economic polices since Deng, and in some areas—such as space or high-performance computing—China has made sufficient progress that it no longer needs foreign technology as much as it once did. In a few key areas, however, such as aviation, advanced sensors, and semiconductors, China still requires foreign technology and these are sectors with national security implications where regulatory measures require strengthening.

What China needs more than specific products is “know-how,” the knowledge required to make advanced technologies. Know-how is often intangible and is difficult both to acquire and to control. One Chinese strategy was simply to buy Western companies to gain access to know-how. This has been largely blocked by investment controls such as CFIUS. Another strategy is to require joint ventures with Western companies. Joint ventures, coproduction, and codevelopment have been one of the most successful ways for China to acquire foreign technology (the progress in China’s aviation industry is largely the result of coproduction arrangements with Western aircraft companies). Joint ventures and “greenfield” investments in the United States create technology transfer risk that requires changes to both CFIUS and existing U.S. export control regimes.

This is a difficult issue because many entrepreneurs, researchers, and companies welcome Chinese investment and involvement in advanced technologies. Many American companies maintain research facilities in China—which is unlikely to retaliate by closing these institutions, a sign of their value to China—and cooperation between Chinese and American companies can be beneficial to both, but the potential for harmful transfers is substantial. Finding a way to better manage potential risks would require ensuring that export control regulations are widely understood, are being observed, ensuring that control lists (whether unilateral lists or multilateral lists) are updated as rapidly as possible to capture new technologies that may not fit in existing categories, that licensing decisions take the larger strategic picture into account (and this is an area for improvement) and giving CFIUS the scope to intervene when considered necessary for national security.

Elements of CFIUS Reform

A growing range of voices have begun to call for changes to CFIUS in response to the growth in Chinese investments in the United States. Based on the focus of the legislation, the diagnosis of what needs fixing within CFIUS varies widely. Some legislation is focused narrowly on specific areas, such as food and agriculture, or on rare earth elements. Others would use CFIUS as a means to push for trade reciprocity. Yet another would provide wide-ranging updates to CFIUS and its resourcing levels. Highlighted below are several proposed changes that could have the greatest impact on the U.S. ability to respond to China's economic statecraft and its impact on U.S. national security:

The Definition of Control

Possibly the most impactful proposed change to CFIUS would be a change in the definition of control. A current Senate bill would expand the definition of control from the present definition to include the "power to determine, direct, or decide important matters affecting an entity." The change would also eliminate a minimum investment threshold for CFIUS review, instead focusing on what type of access or influence an investor or acquirer may receive as a result of the investment. Additionally, the scope of covered transactions would be broadened to capture a wider range of transactions involving "critical technology" and "critical infrastructure" independent of ultimate "control" of the acquired firm.

Covered Transactions

Several current bills would change what is considered a covered transaction. In one, CFIUS reviews would expand to include transactions in agriculture or food systems. Another would prohibit the sale of rare earth metal mines to Chinese or Russian purchasers. A third would mandate CFIUS review for a firm from any country deemed to have high barriers for U.S. commerce. A fourth would expand the remit of CFIUS to include reviews of real property transactions—buying or leasing land or structures—in areas that might be sensitive to national security. Each of these bills provides a greater degree of prioritization for the committee when undertaking its reviews than exists in the current law, but in some of the legislation raises the question of whether to expand CFIUS's remit beyond its current national security focus.

Mandatory Filings with CFIUS

Under the current system, filings with CFIUS are voluntary—though incentivized by offering "safe harbor" protections from future examination for firms that are cleared under a CFIUS review. Under possible changes, firms would be required to submit "declarations" based on a number of possible criteria, including: if a foreign government owns at least a 25 percent voting share in a firm engaged in acquiring a U.S. company; transactions in specific high-interest sectors (to be defined by the committee in regulation); or, the opacity of the transaction. This language would expand the number of cases CFIUS needed to review each year, creating resource issues for an already stretched committee.

Cooperation with Other Countries

To reduce the overall burden likely created by a mandatory filing system, the same legislation would enable CFIUS to exempt from review transactions where each party involved met certain criteria, such as whether they were subject to the laws of a country that is a U.S. treaty ally, or if a country that had an agreement on how foreign investments would be reviewed for security. By establishing a means to reduce the review burden for the least worrisome cases, CFIUS would be able to focus on cases that are the most difficult to understand or pose the greatest risk.

Resourcing CFIUS

One bill offers changes to how CFIUS is resourced, and it does so in two ways. First, it would enable a unified budget submission for all aspects of CFIUS activities across the various federal agencies involved in the process. Though likely complicated to compile, it would be the first time that CFIUS funding was explicit for all participating agencies. The second adjustment, which has more support, would establish a fee for CFIUS review, where the revenue would be used to defray taxpayer costs for CFIUS activities. Taken together, these could provide much-needed resources for the agencies involved in various elements of CFIUS review and monitoring as well as provide greater insights to the Congress about the level of effort applied to CFIUS reviews and ongoing monitoring.

Recommendations

As Congress considers whether—and if so, how—to adjust CFIUS, several concepts seem likely to provide the greatest impact in dealing with potential efforts to use the U.S. economy as a way to erode U.S. national security.

- First, preserve the sole focus on national security. Since its establishment, CFIUS has been focused on national security. The enables the committee to examine a large, and growing, number of cases without being concerned of being missed or subordinated to other competing examination criteria.

- Second, maintain CFIUS's flexibility to respond to evolving challenges with a strong role for oversight by the legislative branch.

- Third, ensure CFIUS is aligned with other tools such as export controls. Mechanisms that provide the committee greater resourcing, such as a filing fee, would provide a greater ability to deal with the increasing workload of cases.

- Fourth, ensure CFIUS is adequately resourced for ongoing monitoring of mitigation agreements as well as initial investigations.

Conclusion

CFIUS is an important tool for protecting U.S. national security without sacrificing U.S. economic competitiveness. Should Congress take up CFIUS reform, its task will be to bolster the already strong CFIUS system, while enhancing its flexibility to respond to what will likely be increasingly creative—and complex—efforts by some foreign governments to pursue strategies of economic statecraft that could damage U.S. national security.

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