



China's Industrial Policy

ROUNDTABLE SUMMARY REPORT

ABOUT THE CENTER FOR CHINA ANALYSIS

With a solution-oriented mandate, the Asia Society Policy Institute (ASPI) tackles major policy challenges confronting the Asia-Pacific in security, prosperity, sustainability, and the development of common norms and values for the region. As part of ASPI, the Center for China Analysis (CCA) serves as a leading global center for policy-relevant, objective analysis of China's politics, economy, and society, and its impact on the region and the world in an era of growing strategic competition.

ABOUT SCCEI

The Stanford Center on China's Economy and Institutions (SCCEI) is Stanford's hub for data-driven, multidisciplinary research on contemporary China. In addition to catalyzing cutting-edge research on China's economy and institutions, SCCEI's aim is to communicate policy-relevant findings from the best quantitative scholarship on China to audiences beyond academia. By doing so, it aims to advance a more empirical basis for important debates about China and U.S.-China relations.

The Stanford Center on China's Economy and Institutions (SCCEI) and Asia Society Policy Institute's Center for China Analysis (CCA) co-organized a closed-door roundtable on the scope, impact, and implications of China's industrial policy.

The roundtable focused on an intensified round of industrial policies in China that gained momentum around 2014. Beijing announced its "Made in China 2025" plan in 2015, quickly followed by its 2016 "Innovation-driven Development Strategy." The strategy specifically focused on the emerging technological revolution, targeting sectors such as next generation information technology, advanced manufacturing, biotechnology, and digital media.

As a result, the roundtable focused on a narrower understanding of "industrial policy": i.e., a proactive set of policies deployed by the government to change the sectoral structure of the economy.

The participants first discussed the current state of China's industrial policy by (a) quantifying the size of China's industrial policy spending; (b) identifying the different phases of China's industrial policymaking; (c) analyzing the volume and effectiveness of China's government industrial guidance funds; and (d) conducting a ground-up assessment of the impact of China's industrial policy on different industries, including the semiconductor sector.

After examining the contours and scope of China's industrial policy, the roundtable coalesced around five main questions:

1. How much is China spending on industrial policy?
2. What are the possible objectives of China's industrial policy?
3. What have been the effects of China's industrial policy?
4. What are the key, open questions still remaining around China's industrial policy?
5. What are the implications for Washington, D.C. and the international community?

The discussions were conducted under Chatham House Rule.

1. QUANTIFYING CHINA'S INDUSTRIAL POLICY SPENDING

Acknowledging that a gap in understanding exists between how Beijing describes its industrial policy and what is actually happening on the ground, one participant first sought to identify a quantifiable scale of China's industrial policy. Very little in the research, this participant suggested, tries to quantify China's industrial spending. Existing research focuses more often on the effectiveness and the impact of Beijing's industrial policy, but not its size.

China—compared to seven other major economies (Germany, the United States, Japan, South Korea, France, Taiwan, and Brazil)—is an outlier in terms of the scope and scale of the government's industrial policy spending. Its total spending, conservatively calculated, amounted to at least 1.7 percent of China's GDP in 2019. Accounting for only quantifiable industrial policy instruments like direct industrial subsidies, tax credits and rebates, government funding of commercial research and development, below-market credit, China's government industrial guidance funds, discounted land sales, and remaining tax incentives, recent research suggests that China's industrial spending amounted to over USD 248 billion. China spends far more than any other economy whether measured as a percentage of its GDP or in dollar amounts. When using a more flexible definition of industrial spending (such as government procurement of goods from China's firms), this participant estimated China's industrial policy spending to total 5 percent of the country's GDP.

To better understand China's policy objectives, roundtable participants then mapped out a thumb-nail sketch of China's industrial policy evolution.

First, all participants agreed that China's industrial policy took a qualitative turn around 2014. Prior to 2005, China did not have an active industrial policy, narrowly defined as a proactive set of government policies implemented to change the sectoral structure of the economy); and between 2006-2014, policymakers conducted the policy in an opportunistic, ad hoc way, in support of "strategic emerging industries."

But around 2014, Beijing's leadership came to believe that the world was on the cusp of a seismic technological re-

volution and coalesced around the view that China needed to seize first-mover advantage. The government began to funnel resources in a patterned way toward frontier technologies like semiconductors, artificial intelligence (AI), robotics, and broadband communications.

One of the key innovations introduced around this time was the introduction of China's government incubator funds, also called government industrial guidance funds. There are now nearly 1,500-2,000 local and central government incubator funds backed up by USD 1-2 trillion of total committed capital. These private-equity, angel, and venture capital funds are government initiated but are relatively market-oriented and professionally managed.

The participants also agreed that the year 2020 marked another significant policy pivot. While Beijing has never veered from its ultimate goal of achieving autonomy in key sectors, they agreed that under Xi Jinping, the leadership became even more aggressive in strengthening China's self-reliance and self-sufficiency in critical technology domains. Aiming to create a fully domestic value chain started to be framed as a matter of national security.

2. POSSIBLE OBJECTIVES OF CHINA'S INDUSTRIAL POLICY

As evidenced by the 2020 policy pivot, many roundtable participants suggested that economic growth is no longer the top priority for policymakers in Beijing. Leaders in China are now willing to sacrifice China's short-term (5-10 year) growth to decrease China's technology dependence on the rest of the world and achieve other goals, such as greater income equality. Wanting to insulate itself against strategic vulnerabilities, China is rapidly decoupling from advanced economies and developing its capabilities around sensitive technologies across the value chain. According to one participant, when one analyzes China's trade activities over the last 15 years, China's exports to the U.S., Europe, and Japan have markedly declined. China is also importing fewer intermediate and capital goods from advanced industrial economies and increasingly importing raw materials and resources from emerging economies. China's economic activities are now concentrated less on Western, OECD countries and occur in greater

volumes with emerging economies. This participant reported seeing a similar decoupling trend with respect to patenting activities.

One participant noted that the state is “hugging the market tighter, pushing harder, and doing more.” Beijing is also securitizing everything—i.e., seeing everything as a national security threat and securing vulnerabilities across a spectrum of value chains. Other participants saw Beijing aiming higher than value chain self-sufficiency and attempting to achieve technological and market supremacy—i.e., eliminating global competitors in what they consider to be priority sectors.

3. SECTOR ANALYSES: THE EFFECTS OF CHINA'S INDUSTRIAL POLICY

Renewable Energy

To assess what the policy outcomes of China's industrial policy might be, one participant compared cases from the solar and wind energy industries over the last 15 years.

Recognizing China's need to enter the renewables industry, leaders in Beijing engaged in vigorous policy debates in the mid-1990s to determine whether the central government should support the solar industry or the wind industry. In the end, based on the belief that the costs of wind power would fall more rapidly and achieve parity with conventional sources more quickly, Beijing decided to back wind renewables. The wind renewables market was dominated by China's state-owned grids. Beijing's protectionist policies sought to restrict multinational firms (MNC) with localization, technology transfer, and joint venture requirements. Beijing also actively tried to push its wind industry onto the frontier, leapfrogging technologically to gain first-mover advantages. The industry scored some technological successes (e.g., bigger wind turbines and offshore turbines), but the sector failed to develop in other, equally valuable ways, such as in design, supply chain adaptability, sectoral dynamism, and depth of capacity.

In contrast, the solar industry scored remarkable successes through incremental innovations in both product development and business processes. Solar firms localized the entire supply chain, scaled up, and lowered costs.

They also achieved first generation technological breakthroughs. Because domestic demand did not exist at the time, they had to export their solar products overseas. In order to succeed, China's solar firms had to meet stringent quality standards imposed by international markets. Impressively, China's solar firms successfully penetrated global markets.

These two comparative case studies illustrate two points. First, there are both successes and failures in government planning and support of new technologies. Second (and, to many participants, probably more important), industrial policy is distortionary for many sectors. Some expressed the idea that it may even be the “kiss of death” for some sectors. Under the heavy hand of the government, industrial policy is often equated with inefficient allocation of capital and resources. The above case studies nicely highlight what elements may be necessary (if not sufficient) for China's success, such as an industry's openness to global competition; the active participation of private-sector firms; and the degree to which the state intervenes. All participants acknowledged the possibility that the “more the government hugs, the more the sector fails.”

The Semiconductor Industry

The roundtable discussion then focused on China's semiconductor industry, a key sector that China's central government has vowed to advance toward domestic self-sufficiency. The participants debated whether China's state-sponsored semiconductor policy was largely succeeding or failing.

One participant with extensive experience in the semiconductor industry noted significant shifts around 2014 in China's policy toward its domestic semiconductor sector. He recalled hundreds of government industrial guidance funds being created to support the sector. But, perhaps even more importantly, as manufacturing of electronics, smart phones, and other goods took off in China, the country became the largest market for semiconductor chips in the world. In 2020, China imported a staggering USD 378 billion in semiconductors and manufactured 36 percent of the world's electronic devices. Domestic demand for semiconductor chips remains enormous.

Beginning in 2017, the Trump administration began a trade war with China. It also hit ZTE Corporation with record fines and later imposed chips sanctions against Huawei. These actions galvanized the whole nation, according to this participant, and the entire technology industry in China began to pull away from foreign-made chips and look for domestic suppliers.

According to this participant, growth of the semiconductor industry in China has been noteworthy. The 2019 opening of Shanghai Stock Exchange's STAR Market, on top of China's other domestic stock exchanges that also provide exit options for profitable startups, he explained, has caused the number of initial public offerings (IPO) to rise noticeably. Domestic IPO is now the primary means of exit for China's startups. Local investments make up the majority of financing for semiconductor firms; and the Shanghai STAR Market already lists 400 companies. Four-to-five hundred companies undertake IPOs in China every year. To him, this is the "golden age of China's technology industry." With 1,500-2,000 privately-managed government industrial guidance funds with the fund-raising scope of USD 1-2 trillion, there is ample liquidity in the domestic market. In the next decade, he predicted, China's semiconductor industry will take off.

Other roundtable participants were less sanguine, however. Because China's domestic stock exchanges are still highly distorted and heavily regulated—and thus less credible to the foreign investment community—the U.S. IPO option, one participant argued, is still the most important generator of investor interest. If the U.S. capital markets are closed to Chinese firms and IPO exit is not possible on the U.S. stock exchanges, he argued, China's industrial policy will suffer. Another participant pointed out that the growth of China's venture capital funds had started to slow even before the outbreak of COVID. China's economic growth rate is also slowing significantly, impacted by both the pandemic and China's self-imposed zero-COVID policies. All participants in the room acknowledged the tremendous innovation potential of China's industrial base and the dynamism of China's private sector, but the leadership's hard ideological turn toward Marxism-Leninism and the increasing call for nationalistic self-reliance and security may portend a challenging environment for

businesses. China's private sector has been the engine of its growth, productivity, and jobs. Many around the table asked: Will China "kill the goose that laid the golden egg"?

In all, every participant expressed hesitation around Beijing's increasing intervention in China's economy. Bigger government presence will lead to irrational policies and distortions, they noted. Industrial policy that floods the sector with easy government subsidies will damage its competitiveness.

The main takeaway on China's industrial policy: Sectoral variation. As one participant recounted, China's industrial policy is notable for the variation in outcomes it has produced. In the aviation industry, for instance, China's efforts to build commercial aircraft (the C919) to compete against Boeing and Airbus has been a dismal failure. China's auto industry has failed to overtake foreign companies. Nevertheless, the government is now devoting vast amounts of resources to the electric vehicle (EV) industry, hoping to leapfrog past internal combustion engines onto EV motors. The result of China's EV "push" is mixed, according to this participant, with enormous waste generated by the government. But domestic EV manufacturers have captured the domestic market; Contemporary Amperex Technology Co., Limited (CATL), China's EV battery maker, has become the world's dominant battery maker. China has ambitious aims to dominate the international EV market, he noted. This participant anticipated that China's EVs will flood the international markets soon and vehicle trade wars may begin.

Metrics of Success

During the roundtable, participants pointed to multiple metrics of industrial policy success, including: (a) whether the policy is delivering efficient allocation of resources; and (b) whether the policy is actually affecting sectoral and technological upgrading. (With respect to the first metric, participants were unanimous in their assessment that there was tremendous resource waste in China's roll-out of its industrial policy.)

As one participant noted, however, what becomes the ultimate metric of success for any innovation program is often determined by who the ultimate supplier of capital

is and who the ultimate evaluator of the industrial policy outcome is. In China, the government is both the supplier of capital and the evaluator of the outcome. When the government serves both functions, the economic consequences, including firm performance, sectoral efficiency, and market demand, can become less important. The emphasis can often turn toward achieving national milestones or winning status points (for the nation or for the official involved) rather than economic development, overall growth, and common welfare. Some participants suggested that this might be what is happening in China.

Thus, for Beijing, the metric of success might revolve around: (a) whether the policy produces outcomes that enhance China's international prestige (e.g., the creation of national champions) or (b) enhances the reputation of the relevant authority (e.g., national accolades; promotions, etc.).

The Political Context

Roundtable participants also discussed the Chinese Communist Party (CCP) leadership's intensifying commitment to Marxism-Leninism, their growing antipathy toward private enterprise, and increasing focus on self-reliance and national security since the 19th Party Congress.

Many agreed that President Xi Jinping's economic decision-making after the 19th Party Congress took a turn antithetical to both the success of the private sector and to Deng's maxim of "getting rich is glorious." According to one participant, Xi and the CCP are increasingly skeptical of the private sector and Jiang Zemin's "Three Represents" for fear that power and prestige have been shifting away from the Party and toward wealthy entrepreneurs like Jack Ma. Thus, reversing Deng Xiaoping's policy of untrammelled market growth and opening, the 19th Party Congress marked the CCP's turn away from capitalists, entrepreneurs and the private sector—the engines of growth that have enabled China's developmental miracle.

Intensified by Trump's trade war with China, Beijing has also given primacy to national self-sufficiency and security above economic growth since the 19th Party Congress. The goal for the leadership is to significantly reduce, if not eliminate, China's dependence on hostile foreign forces,

including supply chain vulnerabilities that could leave China exposed to the U.S. and its allies while developing new sources of external demand and increasing domestic consumption.

These new economic policy settings, many agreed, are fundamentally undermining the historical integrity of the growth model that has served China well for the last 45 years. By "killing the goose" of China's private sector that "laid the golden egg" of China's economic dynamism and growth, many members of the roundtable expressed concern as to whether China may now be facing an economic reckoning of declining productivity and growth. These new political winds have left the private sector in China deeply anxious, which will not serve China's long-term growth very well. And slowing growth in China, some said, could also have unforeseen political and foreign policy consequences.

4. KEY OPEN QUESTIONS AROUND CHINA'S INDUSTRIAL POLICY

Even if industrial policy unleashes market distortions, all participants agreed that it is still important to consider whether China's industrial policy is effective enough and delivers sufficiently positive outcomes for China. Despite state interventions, in other words, perhaps key technology sectors like semiconductors are sufficiently dynamic (and the investments are large enough) and market actors adept enough to work their way around unhelpful state interventions. Many agreed that the answer to this question is not yet knowable, although many participants also expressed doubts that the outcome would be positive. Some even asked if China's industrial policy could be inspiring some of the private sector firms to behave like state-owned enterprises (SOE), as both the funder and the evaluator of these technology incubators is the government.

The roundtable participants also argued that China's economic and technological success over the last 45 years was enabled by both the country's global integration with advanced industrial economies and the liberalization of its market forces. If, under the political logic of China's "dual circulation," China is seeking to decouple from the industrialized West, one participant asked whether China's

economy has already reached technological “escape velocity.” In other words, with far less connectivity to the advanced industrialized nations, can China achieve not only technological breakthroughs but also technological dominance? Does China no longer need other developed, OECD countries to reach its technology goals?

The group agreed that China’s central leadership has pivoted toward securitizing China’s economy and increasingly turning toward statism. The net effect has been to dampen the private sector, which has been the mainstay of China’s economic growth, job creation, and technological innovation. As China faces the possibility of Xi “killing the golden goose” of China’s prosperity over the last 45 years, the larger question is: where is China’s economy really heading? How does China’s recent expansion of its industrial policy fit into the ideological rubric set forth at the 20th Party Congress? What can we say about China’s economic policy trajectory after the 20th Party Congress?

Lastly, roundtable participants noted that Beijing is juggling multiple capital-intensive campaigns, including its industrial policy initiatives, the “poverty elimination” campaign, the “common prosperity” program, and military upgrading initiatives. While some of these expenditures are potentially complementary, others are fiscally incompatible. As China’s economy continues to slow, what fiscal constraints, if any, is Beijing facing over both the short and long term?

5. IMPLICATIONS FOR WASHINGTON, D.C. AND THE INTERNATIONAL COMMUNITY

Washington, D.C. is set to impose even more stringent technology-related export controls on China to “level the playing field” and to penalize China for its industrial

policy. Indeed, weeks after this roundtable, the U.S. government published new sweeping and restrictive export controls on advanced computer chips, supercomputers, and the manufacturing equipment for advanced semiconductors. Beijing views these moves as the United States’ clear attempts to “contain” China and cripple its technological rise. From a political perspective, the era of China’s opening up its domestic economy to the United States is surely behind us.

At the same time, the U.S. Congress is legislating its own industrial policy for the U.S. economy (e.g., CHIPS and Science Act of 2022). For better or for worse (and perhaps in reaction to China’s own massive industrial policymaking), all agreed that the world is moving rapidly away from laissez faire economics.

It is unclear how Beijing and Washington, D.C. can best manage the spiraling interaction between industrial policy and geopolitics, which tend to amplify each other. Rising geopolitical tensions and widening bans on exports of high-end technology could compel Beijing to intervene further and introduce even larger-scale industrial policies. A more muscular and active Chinese industrial policy, in turn, could elicit more draconian responses from the United States. In addition, because China is the world’s second largest economy, its massive industrial policy and its potential outputs (e.g., EV and EV batteries) could also flood and negatively affect global markets. Such outcomes, many agreed, could raise further trade tensions between China, the United States, and the rest of the world. In addition, some participants added, should the response of the United States and the international community be to institute their own industrial policies, the outcome may be even greater economic distortions and public welfare losses.