Testimony Before the U.S.-China Economic and Security Review Commission
Hearing on U.S. Companies in China

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I. Introduction

Thank you to the Commission for the opportunity to provide views of the policies impacting U.S. companies in China.

At the onset, I note that as a legal scholar, my research focuses on laws, regulations, policies, and other measures that impact trade and investment decisions. As my focus is not on analyzing firm-specific finances or operations, I will leave it to the other distinguished experts on the two panels to answer your questions about U.S. firms' operational structure, profitability, etc.

Much of my testimony will focus on the problems and challenges confronting U.S. companies in the Chinese market. This is because these are the issues that require the most urgent action from Congress. However, while the Chinese market poses enormous challenges for some U.S. companies, at the same time, China has represented an opportunity and boon for others. While I will not dwell on that side of the equation in this testimony, some statistics are worth noting.

In 2018, China was the largest destination market for U.S. exports outside of North America, a position that it has held since 2007. Two decades ago, in 1999, the U.S. exported only $13.1 billion worth of goods to China, amounting to less than 2% of total U.S. exports (placing China outside of the top 10 U.S. export markets.) Barriers were so great that the U.S. exported more goods to Singapore than it did to China, even though the Chinese economy was already more than twelve times bigger than Singapore's in 1999.

Nor is it just agricultural producers and consumer goods companies that have benefited as the Chinese middle class emerges. So too have high-tech companies. Sales revenue in China already account for more than *half* of total global revenues for several S&P 500 U.S. technology companies including Broadcom, Micron Technology, Qualcomm, and Skyworks Solutions.[2] While I will dwell on the problems today, we ought not lose sight of the fact that some U.S. companies have made tremendous gains in the Chinese market, as positive Chinese economic policies and market reforms reap their dividends.

Nevertheless, despite some commercial gains, overall, U.S. companies continue to express dissatisfaction.[3] Many feel disadvantaged or aggrieved by Chinese trade and industrial policies. All is not well in the bilateral relationship. The first part of this testimony will focus on these problems. I contend that these can be divided into three main types. First, there are a set of "classic" issues that have been at the heart of the Sino-U.S. trade negotiations and strategic economic dialogues since China's WTO accession: market access, investment restrictions, subsidies, regulatory delays, weak / inconsistent IP protection, forced/coerced technology transfer, etc. Second, there are a set of structural issues that arise out of what I and others have termed "China, Inc.," meaning a unique economic structure that was not

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[2] Philip van Dorn, "Apple, Nike, and 18 Other Companies Have $158 Billion at Stake in China Trade War," *MarketWatch*, April 4, 2018. Note, however, that a sizeable proportion of those sales is likely for assembly into products destined for export, rather than for the Chinese market.
[3] Trends over time can be seen in the annual survey of U.S. companies operating in China conducted by the American Chamber of Commerce.

readily anticipated when China joined the WTO. Finally, there is a category of newly emerging issues related to the digital economy. These too arise out of a unique Chinese governance structure, as applied to cyber and digital domains.

The second part of my testimony examines the efficacy of a series of traditional tools that have been used to address trade distortions in the Chinese market. These include: (a) WTO litigation; (b) working with like-minded countries to develop new rules through preferential trade agreements; and (c) working with allies to update WTO rules. While each of these tools has some utility, I explain why they also cannot be expected to solve fully the problems outlined in the first section. It is absolutely imperative that we understand the limits of these strategies – so that we have realistic expectations about what can be achieved through these approaches.

The final part of my testimony offers a series of additional recommendations for actions that the Commission ought to consider. Much as the U.S. should strive to work collaboratively with its allies to find amenable solutions, I conclude that an equally, if not more, important task is for the U.S. to bolster its own unilateral capabilities aggressively to safeguard U.S. economic security. This includes dramatically scaling up funds for innovation and basic research as well as increasing enforcement resources in various executive agencies.

II. Trade and Supply-Chain Distortions Impacting U.S. Companies

As the Commission is well aware of the wide range of trade-distorting policies employed by China in order to advance its industrial policies, I will simply highlight several key ones that I believe impact U.S. firm behavior, with negative repercussions for U.S. workers or economic security. One way to conceptualize the problem is simply as a "laundry list" of issues to be resolved across a range of sectors.

1. Tariffs and Value Added Tax (VAT) Rebates

China's tariffs remain higher than those of many other major economies, including some that are at a comparable level of development. This creates an incentive for U.S. companies to shift manufacturing to China rather than export from the U.S. To be clear, this is only one of several drivers. Others may include lower labor costs, lower costs for regulatory compliance, a desire to base production closer to the end customer, gains from agglomeration effects, etc.

It is true that over the last few years, Chinese tariff rates have come down for certain goods. However, this is often only after China has attracted the desired investment and/or developed competitiveness in the sector. For example, in 2015, China lowered tariffs for categories of shoes, outerwear, and consumer goods where China was already an export power.[4] In recent months, China has lowered automobile tariffs. Again, this is happening only years after all major U.S. auto companies have already set up joint ventures (JVs) and shifted production to China.

With much of the focus on tariffs, an often overlooked element of Chinese industrial policy is its use of value-added tax (VAT) rebates. WTO rules permit countries to impose a VAT on imports. China applies a 16% VAT on most imported U.S. goods and services, with the exception of a few categories that are exempt or subject to a lower 6-10% rate. Many countries will refund the full VAT upon export, but this is not required. China therefore can manipulate the VAT rebate rate in order to induce companies to produce in China rather than import the product from abroad. Of concern is the pressure this may place on U.S. companies that currently export high-value intermediate goods (*e.g.*, semiconductors) to offshore production of such goods to China instead. This tool can be especially effective if the downstream parts

[4] Tom Mitchell, "China Slashes Tariffs on a Range of Consumer Goods," *Financial Times*, June 1, 2015.

of the manufacturing supply chain have already clustered in China, but China hopes to acquire greater indigenous production capability in the more valuable upstream portions of the supply chain.

VAT exemptions and VAT rebates can also be manipulated to develop domestic capacity at the expense of U.S. firms. Nor is it just high-tech or value-added inputs that are affected. An example is phosphate fertilizers. For years, China exempted certain, but not all, phosphate fertilizers from the VAT. This dichotomy was instituted to bolster the competitiveness of domestically-produced substitutes for U.S.-made imports. In 2015, China once again changed its fertilizer VAT policies in order "to optimize the agricultural production investment structure."[5] After years of rapid double-digit growth, U.S. exports of phosphate fertilizers peaked at $43.6 million in 2012; they have since plummeted to $2.5 million in 2016 and less than $3,000 in 2017.[6] This example illustrates how VAT exemption and VAT rebate policies can quickly transform what once seemed to be a very promising export market for U.S. companies into one which is now dominated by Chinese producers.

2. Investment Restrictions and Subsidies

Also well-documented is China's aggressive use of subsidies and investment restrictions. The negative impact on U.S. companies and workers is straightforward. Subsidies prop up Chinese competitors, providing them with an unfair advantage both domestically and overseas. Examples of sectors affected include steel, aluminum, semiconductors, fisheries, renewable technologies, etc. Investment restrictions keep foreign firms out or limits them, allowing Chinese competitors to capture the lion's share of the market. Examples of sectors affected include agriculture, automotive, cloud computing, entertainment and video services, extractive industries, film-related services, financial services, telecommunications services, etc.

Subsidies are used not just to bolster Chinese companies at the expense of foreign firms. They can also be used to provide an incentive for foreign multinationals to invest in China and offshore production. These programs are not always transparent and can be provided by different levels of government (central, provincial, municipal, etc.). By imposing a cap on the permissible equity stake of a foreign firm, the investment restriction will force a U.S. producer to engage in some form of a joint venture as the price of participation in the Chinese market. An explicit condition may be that the Chinese partner must have greater than 50% equity stake, thereby allowing it to retain control over the operation. Examples of sectors that have been affected by this requirement are aircraft, film-related services, financial services, and market research services.

One of the questions posed by the Commission is whether the market environment has improved over the past five years. As far as investment restrictions are concerned, the answer is yes. Chinese government has committed to easing investment restrictions, including lifting the equity cap on participation in several sectors. The most recent example is the 2018 announcement that China will ease or lift ownership limits for automobile, insurance, and several other sectors, as indicated in the revised negative list issued by the National Reform and Development Commission.

However, it is important to keep three points in mind when analyzing this trend:

- Investment restrictions decrease primarily in one of two circumstances: (1) The Chinese market has matured; Chinese firms have already established competitiveness; and the industrial policy

[5] "New Chinese Fertilizer VAT to Have Limited Industry Impact," *Fastmarkets IM*, August 27, 2015 (quoting a Ministry of Finance announcement).
[6] This is based on an analysis of HS-code 3103 of the UN Comtrade database compiling data from Chinese figures. Between 2008 and 2012, Chinese imports of phosphate fertilizer grew at a compound annual growth rate of 73%.

objectives are accomplished; or (2) Market reform efforts have stalled; and policymakers deem a fresh injection of foreign competition to be necessary to spur further reform.

- Despite the positive direction of these changes, China remains an outlier among large emerging economies. According to the OECD Foreign Direct Investment (FDI) Restrictiveness Index, Chinese restrictions are significantly higher than those faced by foreign firms in Brazil, India, South Africa, Argentina and Vietnam. Among G20 countries, only Indonesia and Saudi Arabia are comparable.
- The lifting of such restrictions may be staged over time. These transition periods provide time for domestic Chinese firms to adjust and limits the economic benefits to U.S. companies.

While investment curbs may exist on one part of the supply chain, subsidies may exist on another part in order to induce the greater movement of foreign production and technology than would otherwise be the case. The goal is to embed a significant portion of the overarching ecosystem that underlies the supply chain within China, so as to position China to become a market leader in portions, if not all, of that supply chain.

The automotive sector serves as an illustrative example for how this strategy works and its impact. Until the recent 2018 announcement, U.S. and other foreign car companies have faced ownership curbs on their foreign investment in China, requiring that they engage in joint ventures with Chinese car manufacturers. Leveraging its large domestic market with a combination of high tariffs and lower costs, China induced many U.S. and foreign car companies to set up manufacturing facilities in China. At the same time that FDI in the production of complete automobiles was "restricted," Chinese planning authorities placed FDI in auto engines and auto parts into the "encouraged" category. China offered subsidies to induce upstream parts manufacturers to offshore production to China.[7] It then enacted a series of policies served to create incentives for these ventures to source parts domestically from China rather than import them from overseas.[8]

The net result is that a much greater portion of the automotive supply chain shifted to China, with upstream U.S. workers paying the price. While China has yet to emerge as a major global player in finished automobiles, this industrial policy has allowed China to become a major player in auto parts. Whereas U.S. car manufacturers once imported their parts from U.S.-based parts suppliers to supply their joint ventures, they have increasingly de-linked from North American sources and now source their parts directly from China.[9] Instead of conceding this market to Chinese upstarts, some U.S. auto parts companies have followed by establishing and expanding production facilities in China. For example, shortly after Goodyear closed its Tennessee factory in 2011, it opened a production facility in Dalian; in 2016, Goodyear announced plans to expand its factory significantly by 2020.[10] Very quickly, a reversal in trade flows for auto parts has happened. North American auto supply chains increasingly source a greater percentage of their parts from China than was the case more than a decade ago. In each of the last five years, the U.S. has consistently imported approximately five to seven dollars' worth of Chinese auto parts for every dollar of auto parts exported from the U.S. to China.[11]

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[7] For a description of these subsidy programs and their overall impact, see Usha Haley, *Putting the Pedal to the Metal*, Economic Policy Institute, Jan. 31, 2012.

[8] These additional measures have been at the heart of several WTO disputes, including *China – Measures Affecting the Import of Auto Parts* (DS 339, 340, and 342), filed in 2006 by the U.S., Canada, and EU, and *China – Certain Measures Affecting the Automobile and Automobile Parts Industry* (DS 450).

[9] The 2004 International Trade Administration staff reports noted that at the time, General Motors imported more auto parts into China than it exported but had plans to reverse

[10] See Goodyear News Release, Nov. 2, 2016, https://corporate.goodyear.com/en-US/media/news/goodyear-expands-tire-factory-in-china.html.

[11] This is based on data reported by the Department of Commerce's International Trade Administration on the balance of trade in auto parts with various countries for the period of 2012 to 2017. The OECD-WTO Trade in Value-Added database does not break out for

Importantly, these industrial policies have not only undermined the U.S. auto parts industry but also enabled China to position itself to become a leader in next-generation electric vehicles (EV). To be clear, this is not the only reason; China has also undertaken much greater infrastructure investments to spur the development of a nascent EV market. In response, several U.S. auto parts companies are scaling up their investments in China, as opposed to the U.S. or North America. For example, BorgWarner is expanding its Wuhan production factory for motors, starters, alternators, and other components for propulsion systems for EVs and hybrid EVs.[12] Dana is repurposing a factory in Yancheng to manufacture thermal management solutions and battery cool plates for EVs.[13]

It is difficult to judge the exact overall impact of these policies on U.S. companies and workers. In their absence, it is likely that a sizeable proportion of U.S. firms would have shifted production overseas anyway to take advantage of lower labor costs, etc. What these policies are likely to have distorted is the pace of such shifts and their distributional impact. They are likely to have created incentives for various U.S. companies to shift more of their production to China (as opposed to Mexico) sooner and to enjoy lesser gains than they would have otherwise reaped without JV requirements. In other words, they create an artificial "price to play" in order to try to reap sales and profits from the growing Chinese market. For the U.S. workers, these distortions are likely to have accelerated the decline in manufacturing jobs, with the impacts concentrated in certain geographic regions of the U.S.

3. Export Restrictions

Over the past decade, China has enacted a series of export bans, quotas, and taxes on a wide range of inputs. From an industrial policy standpoint, the aim is to create a price wedge and supply uncertainty, so as to induce downstream firms to relocate production to China. Several of the products for which Chinese planners have imposed export restrictions those that are necessary in high-tech supply chains (*e.g.*, rare earth minerals, antimony, bauxite, cobalt, coke, fluorspar, graphite, tungsten, etc.). These export restrictions have given rise to several WTO cases challenging Chinese export restrictions, all of which have resulted in U.S. litigation victories or the removal of the export restraints prior to the litigation's completion.

These export restrictions have affected a range of U.S. manufacturing industries, including aerospace, automotives, EVs, medical equipment, and semiconductors. Again, while it is hard to judge the exact impact that these restrictions may have had on investment decisions, what is clear is that in each of these sectors, American companies have increased their FDI and China-based manufacturing. Export restrictions act as yet another distortive instrument to bolster the competitiveness of downstream Chinese producers and to induce shift of manufacturing toward China.

4. Regulatory Approval Delays

Even when China has agreed to open up a market formally, delays in regulatory approval can negatively impact the ability of U.S. and other foreign firms to gain actual access to the Chinese market. Two examples follow: In 2017, China agreed to remove restrictions on foreign payment providers from being able to process renminbi payments, a highly lucrative market. However, both Visa and Mastercard have yet to receive formal approval from the People's Bank of China to do so.[14] During the decade-long battle,

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auto parts, but a general examination of the trade for motor vehicles shows that even only if value-added trade is considered, there has been a dramatic shift, due to offshoring of U.S. production.

[12] See BorgWarner Press Release, Oct. 8, 2018, https://www.borgwarner.com/newsroom/press-releases/2018/10/08/borgwarner-opens-new-plant-in-wuhan-significantly-expanding-propulsion-system-capability-and-capacity-for-hybrid-and-electric-vehicles.

[13] See Dana, Inc. News Release as reported on PR Newswire, May 23, 2018, https://www.prnewswire.com/news-releases/dana-inaugurates-new-facility-to-support-automakers-with-thermal-management-and-new-energy-solutions-in-yancheng-china-300653295.html

[14] Gabriel Wildau, "China's Central Bank Delays Market Entry for Visa and Mastercard," *Financial Times*, Jan. 13, 2019.

China's Unionpay has leveraged its dominant position in the domestic market to become a formidable global competitor. In agriculture, despite discussion and commitments at numerous bilateral meetings, U.S. agricultural products derived from biotechnology continue to face frustrating delays in regulatory approval.[15] Once again, they are left on the sidelines while Chinese firms are given time to gradually increasing their own ability to compete in agricultural biotechnology.

5. Intellectual Property

Finally, much attention has been given to how various issues concerning technology transfer and intellectual property are of concern to U.S. companies in the Chinese market. These cover a wide range of practices, from outright intellectual property theft to inconsistent enforcement of IP laws to pressure to enter into JVs. Again, as the Commission has already heard from several leading experts in previous hearings, I will not engage in extensive discussion about the details of such practices. I simply note that while there has been progress in the creation of IP laws and specialized IP courts, the problem is still severe. In the American Chamber of Commerce's 2018 Business Climate Survey, more than half of U.S. member companies still believe that IP leakage and data security threats are higher in China than elsewhere. Inadequate IP enforcement and pressure to transfer technology remain an important issue of concern for U.S. companies seeking to operate in China.

III. The "China, Inc." Challenge: How China's Unique Economic Structure Makes Resolving These Trade-Distortive Practices Much More Difficult

It is a mistake to believe that the solution to resolving this "laundry list" of issues is as simple as creating a "laundry list" of new legally-binding commitments to address each of the concerns, to be captured in a bilateral agreement or new WTO rules. What is important to understand is that China's unique economic structure renders such an approach inadequate to fixing the problem.

In my academic work, I have suggested that six elements make China's economic structure different than that of any other economy. Any of these individual elements might be found in another country, but it is how the combination of these six elements operate in tandem that makes China unique. Together, they give rise to "China, Inc."

- First, the Party-state retains control over the "commanding heights" of the Chinese economy through the State-owned Assets Supervision and Administration Commission (SASAC). This includes China's aerospace, aviation, chemicals, energy, metals, minerals, nuclear, petroleum, power, railway, steel, shipbuilding, and telecommunications companies – in short, all of the key components that underlie the economy. This structure is then replicated from the central government level down to the provincial and municipal level. The equivalent would be if the U.S. government had one holding entity that allowed it retain control over Boeing, Dow Chemicals, Duke Energy, General Electric, United Technologies, Honeywell, US Steel, American, United, Delta, Verizon, AT&T, Sprint, ExxonMobil, Chevron, Amtrak, etc.

  The Party-state uses its control over these key assets to direct its industrial policies. At the same time, Chinese policymakers have been careful not to allow these companies ossify into rent-seeking "national champions" that gradually lose competitiveness. To do so, SASAC ensures that there is competition among its holding companies and between its holding companies and non-SASAC firms. There is no guarantee that the state-owned enterprise will prevail over private companies. Indeed for much of the reform era, private companies have outperformed state-owned

[15] As the various sources of frustration were discussed in detail during the Commission's hearing on China's agricultural policies held on April 26, 2018, I will not elaborate upon them here.

enterprises and been responsible for driving a large proportion of China's rapid economic growth. The degree of interference by the Party-state will vary depending on the necessity for intervention if a firm behavior deviates from the Party-state's interests. Traditionally, policymakers have recognized the important role to be played by market forces and competition to shape the economy's development and embarked on sequential economic reforms as necessary. Whether or not this approach has changed in the Xi era is open to debate.

- Second, the Party-state retains control over the Chinese financial sector by maintaining significant ownership stakes in China's most important banks. This is done through various financial vehicles that are separate from SASAC. The control extends beyond the "Big Four" banks, which are among the world's largest, to include leading regional institutions. The exact structure of ownership and control will vary by financial institution, but the important point is that once again, the Party-state can direct resources to serve its interests as necessary that well exceeds that of any other major government. Also, once again, it has set up a structure to allow for competition and market forces to play a role, without ceding control.

- Third, there are entities that shape an overarching plan to guide the economy. This includes the traditional planning agency, the National Development and Reform Commission (NDRC). In the Xi era, it also includes the Central Financial and Economic Affairs Commission of the Communist Party.[16] Both have much broader and greater powers than planning agencies to be found in most countries.

- Fourth, there are relatively nimble formal or informal networks that are much smaller in scale than other Asian conglomerates (*e.g.*, Korean *chaebol* or Japanese *keiretsu*). Nevertheless, they allow firms to achieve synergies.

- Fifth, the Party's Organizational Bureau retains control over top-level appointments. Individuals compete to advance, but the Party considers a much broader set of metrics to measure performance beyond shareholder value that includes the ability to accomplish Party objectives. Moreover, promising individuals rotate through a series of roles to ensure that they gain relevant experience while preventing them from being captured by special interests.

- Sixth, as private entities succeed, the Party may seek to co-opt them by taking out a financial stake or inviting the business leaders to join the Party and/or take on positions of responsibility. Moreover, entities with three or more Party members, including private and foreign ones, are required to have an operating Party cell. This allows the Party to retain some degree of oversight over private entities that it does not control.

The combination of these six elements give rise to an economy that, on the one hand, remains extremely sensitive to the Party-state's interests, while on the other hand, can still spark competition and innovation to allow Chinese firms to move up the value chain. It involves both state interference and market forces, with the exact balance between the two vacillating over time. To prevent overt capture by any special interest or faction, traditionally, it has involved some internal checks-and-balances along with a sense of meritocratic competition, but both mechanisms operating within the confines of the Communist Party rather than the state.

This structure provides the Party-state with a powerful set of mechanisms to marshall resources in advance of a set of desired goals. When deployed effectively, it can achieve impressive economic results,

[16] Members of this Commission include the NDRC director, the Minister of Finance, the Minister of Industry and Information Technology, the central bank governor, and several other leading officials.

by overcoming market failures and allowing for an integrated, long-term strategy. However, it also carries with it the risk of spectacular collapse if deployed ineffectively, since the impact of mistakes, if not caught early enough, are compounded and magnified. As I see it, much of the contemporary debate over the course of the U.S.'s strategy toward a rising China reflects a debate over whether this structure is bound to stumble in the long-run or not.

All companies in China – whether state-owned or private, domestic or foreign – operate in the shadow of this overarching "China, Inc." structure. To succeed, one must be sensitive to Party-state's interest. Herein lies the "China, Inc." problem.

Even if the U.S. is able to manage a formal commitment from the Chinese government itself that it will not engage in a particular practice, there is no guarantee that other related entities will not do so. In other words, the "China, Inc." structure provides the Party-state with various informal mechanisms to indirectly carry out a particular industrial policy that harms U.S. companies, even if there is no formal directive. It allows the government, on the one hand, to proclaim formal innocence, while on the other hand, still accomplishing what it seeks.

The tensions over technology transfer helps to illustrate this point. In acceding to the WTO, China undertook a clear and binding commitment that it would not link import rights or investment to the transfer of technology, export performance, or the conduct of research and development in China.[17] Were it to do so, China's trading partners could bring a case alleging a violation and impose retaliatory sanctions if such conditionality were not dropped.

In the 2018 AmCham survey, one in five U.S. companies survey said that they faced pressure to transfer technology to Chinese partners. The percentage of such firms was much higher in aerospace (44%) and chemicals (41%). Chinese government officials, however, dismiss such pressure as indicative of forced technology transfer, arguing that they have never directly pressured U.S. firms to do so.

Why is it that despite an explicit WTO law prohibiting the conditionality of import rights or investment approval on technology transfer, backed up with the power of authorized retaliatory sanctions, U.S. firms still face such pressures? And why, if such pressures are genuine, have foreign governments not brought more WTO cases against China on technology transfer?

To bring a suit requires that there be some actual evidence that there was such a demand for technology transfer placed on a foreign firm. There may very well have been some actual cases of such demands being issued, but firms are reluctant to come forward out of fear of future retaliation. However, the "China, Inc." structure makes it possible that there was no such explicit demand, but rather implicit pressure that arose out of structural pressures.

For example, consider aircraft, a major U.S. export. The major consumers are state-owned airlines. Or consider medical equipment, another major U.S. export. The major consumers are a mix of public and private hospitals, but even the latter will require government licenses and may be reliant on financing from banks. In both instances, the government may never request the U.S. firm to shift production to China, establish a joint venture, or transfer technology. But the corporate consumers making the purchases know that they will be looked upon more favorably if they buy from suppliers whose behavior more closely align with the expressed goals of the government to increase Chinese manufacturing value in the sector. At the same time, they will be hesitant to sacrifice quality. Market forces remain at work, but the degree to which they dominate depends on the dynamics of the sector.

[17] Protocol on the Accession of the People's Republic of China, para. 7.3.

Foreign firms are caught in a collective action problem. If all are able to resist the temptation to shift production and technology to China, then they can resist the pressure. But if one defects, then that firm can capture outsized gains from being a first mover. Downstream consumers with some link to the Party-state are likely to reward it with more purchases of its aircraft, medical equipment, etc., even if purchasers were never instructed explicitly to do so. Thus, the foreign firm feels some form of implicit pressure. It is faced with what game theorists call a prisoners' dilemma. If it resists but its other foreign competitors do not, it will be left worse off because it will have yielded the large and growing Chinese market to its competitors. This sparks a potential race-to-the-bottom, with offshoring to China and the transfer of technology to JV partners. Whether this is simply a business decision made in the pursuit of profits and markets (as Chinese negotiators assert) or cajoled/forced by government policies, depends on one's perspective.

The aviation industry provides clear examples of this dynamic at work. Boeing and Airbus have both increased their footprint in China. For nearly a decade, Airbus has manufactured its narrow-body A320s outside Tianjin for nearly a decade; it recently announced that the facility would be expanded to include finishing for its A330s and that it would open an innovation center in Shenzhen.[18] Boeing had been more reluctant to shift production to China. Boeing suffered the consequences as Chinese aircraft purchases tilted toward Airbus. In December 2018, Boeing responded by opening its first 737 finishing facility outside Shanghai. Meanwhile, Chinese authorities continue to pressure Airbus to produce more in China, by slowing down the regulatory approval process for its newer models.[19] Both firms are betting that they can manage to innovate at a faster pace and control the flow of technology transfer successfully in order to prevent the Chinese domestic upstart (*i.e.*, Comac) from becoming a major competitor. Meanwhile, upstream aircraft parts manufacturers have already set up JVs in China, anticipating growing demand and the shift of downstream players.

What I hope to make clear is that the difficulties confronting U.S. companies in China are not simply on account of a "laundry list" of problems. They run deeper. Problems arise because of China's unique economic structure. Therefore, a "laundry list" of commitments to make additional purchases, lower investment restrictions, enact new laws, etc. against trade-distorting problems is only likely to have limited effect. They may assuage problems for a while. However, as long as the "China, Inc." structure remains in place, the impact of such commitments will be limited. The long shadow that the Party-state casts over China's economic structure will continue to influence behaviors of both state and private actors in the Chinese economy.

Given that the tentacles of "China, Inc." extend wide and deep, the possibility remains that foreign firms can and will be manipulated through a variety of policies in order to advance industrial policy interests. That is not to say that they always will. As I noted in the opening section, while some foreign companies express legitimate and deep-seated complaints, others are thriving. Nor is this structure static. The success of China's economic reforms to date is due, in large part, to the open-minded willingness of its leaders to adapt the economic governance model as China's economic needs evolve. This leaves open the possibility of positive structural reforms.

At the same time, we ought to be realistic. While the Chinese leadership will seek further reforms of "China, Inc." on its own, there are sharp limits to how far and how fast it will go. At best, structural reforms will be incremental. After all, many view the economic governance model as critical to the Party's desire to balance the goals of fostering dynamic growth, maintaining political control, and addressing negative market externalities.

[18] "Boeing to Open Its First 737 Plant in China Under Shadow of a Trade War," *Bloomberg*, Dec. 13, 2018.
[19] Jon Ostrower, "Airbus Built a Lot of Planes for China Last Year – But Can't Deliver Them," *CNN Business*, Jan. 13, 2018.

Profound differences are likely to remain for the foreseeable future, arising out of these competing models of economic governance. Against this backdrop, we ought to abandon any pretense that commitments obtained in a trade agreement can solve problems once and for all. They are simply a tool for managing and dialing back the problems that arise.

IV. Digital Protectionism: Tensions Emerging From the Governance of "China.com"

The likely persistence of differences becomes even clearer when the digital domain is concerned. Although the major Chinese internet companies are all private firms, the tentacles of "China, Inc." nevertheless extend deeply into "China.com."

- Chinese telecommunications companies, operated by SASAC, control the cables and infrastructure underlying the Chinese internet.
- The Party-state itself and/or financial services companies with ties to the Party-state control the payment mechanisms on which e-commerce depends.
- Chinese banks and venture capital funds with ties to the Party-state, supply much of the capital necessary to finance start-ups and internet activity. These include specialized funds targeted at the development of particular technologies (*e.g.*, artificial intelligence (AI)) or general funds.
- Coordination and planning agencies issue plans to guide the development of the Internet of Things (IoT), AI, and other key emerging sectors. These include the Central Cyberspace Affairs Commission and the Cyberspace Administration of China.
- Linkages, both through formal ownership stakes as well as informal ties, exist between the major Chinese internet giants, "unicorns" (privately-held companies valued above $1B), and government-related entities at a level well beyond that found in the U.S. market.

The Chinese internet operates by a set of rules and regulations that are different from those in the rest of the world. In addition to the so-called Great Firewall, there is an elaborate system of heavy-handed content controls along with Party-state oversight of the critical components of each layer of the internet ecosystem. While "China.com" remains porous enough to allow for information flows and collaboration across borders, it rejects the open, interoperable, stakeholder-driven model of the internet that is dominant in the West. Instead, China favors an internet governance model with closer collaboration between the state and private players and with greater emphasis on cyber-sovereignty.

There are parallels between the physical domain of "China, Inc." and the digital domain of "China.com," but also important differences. One similarity is that "China.com" is also structured to balance and achieve multiple interests of the Party-state. These include fostering innovation and growth, maintaining political control, and guarding against cybersecurity threats. However, the Party-state plays less of a direct role in the daily operations of China's internet giants than it does with industrial giants; it also does not exert control over appointments in the internet giants as it does with SASAC firms. In both domains, however, state-led industrial policy is at the heart of a unique economic structure and governance model.

Through the growth of the Internet of Things (IoT) and data-driven analytics, the digital and physical domains will increasingly intersect. As they do, the various restrictions placed on the digital domain will have greater negative spillover effects for a broader array of American companies operating in China. These include concerns over requirements for data localization, restrictions on the cross-border transfer of data, mandatory source code disclosure for regulatory review, content controls and censorship, etc. For critical digital sectors (*e.g.*, cloud computing), the government will use a similar array of policy instruments – *i.e.*, investment restrictions, regulatory approval delays, subsidies, etc. – to direct outcomes to favor its interests.

Altogether, this gives rise to yet another set of major distortions for a broad array of U.S. internet, cloud computing, digital services, data analytics and e-commerce companies already operating or hoping to operate in the Chinese market. Some U.S. companies find themselves shut out altogether because their services are prohibited or because they refuse to comply with strict Chinese content controls. Other American companies acquiesce to the investment restrictions in order to gain a toehold in the rapidly-growing market, out of fear that if they do not, they will cede the market to competitors. For example, both Microsoft and IBM have entered into partnerships with Chinese cloud computing companies because investment restrictions prevent them from operating independently. Still others attempt to curry favor with influential agencies through research investments. For example, Dell formed an AI lab with the Chinese Academy of Sciences in 2015. Were the Chinese digital domain not subject to such distortions, it is questionable whether U.S. firms would have chosen to make these moves.

Chinese policymakers are determined to capture the opportunities associated with the next wave of transformative technologies to catapult both "China, Inc." and "China.com" ahead. Despite the enormous gains made by the Chinese economy over the past four decades, Chinese companies in traditional industrial manufacturing sectors still depend on Western and U.S. high-tech inputs (*e.g.*, semiconductors). Recent incidents with ZTE and Huawei have highlighted how vulnerable Chinese firms remain to U.S. pressure. Chinese policymakers are determined to reduce their vulnerability with the coming Fourth Industrial Revolution. China, therefore, will deploy enormous resources while seeking to leverage its scale to attract foreign capital and know-how related for core technologies, such as quantum computing and AI. At the same time, they will keep the Chinese digital domain relatively closed to nurture its own companies and carefully develop its controlled ecosystem.

Whether this form of digital protectionism will ultimately succeed remains to be seen. What is clear is that the industrial policy leveraging "China, Inc." to support the development of "China.com" has yielded more impressive results than most expected a decade ago. For the foreseeable future, this has given Chinese policymakers the confidence necessary to proceed with their digital industrial policies and their alternative approach to internet governance.[20] Profound differences therefore are also likely to remain for the foreseeable future in the digital realm. Again, trade agreements are simply a tool to manage and dial back the sources of tensions but cannot be expected to eliminate these problems once and for all.

V. Why Multilateral and Alliance-Based Approaches are Likely to Yield Only Limited Results

Several experts, whether through prior Commission testimony or in other public reports, have emphasized the need for the U.S. to return to WTO litigation and alliance-based approaches to counter Chinese practices. I share the overall view. America is much more likely to push back effectively against problematic Chinese practices working through institutional structures and with like-minded countries collectively to exert pressure on China than in going at it alone.

Where I perhaps differ, however, is in my assessment of how much can be achieved through these approaches. Some have suggested that a coalition of G7 countries can push China to embrace new rules and norms, by cajoling China eventually to sign on to regional trade agreements such as the Comprehensive and Progressive Agreement for the Trans-Pacific Partnership (CPTPP) and/or WTO plurilateral agreement(s). I am dubious that this will be the case. There are strong merits to embrace such an approach for reasons related to our strategic alliances, norms construction in international law, etc. But we ought to be realistic about the fact that they are unlikely to achieve dramatic reform of "China, Inc."

[20] In addition, there are some signs that China may be trying to spread certain norms associated with its governance approach to other developing countries. See Samm Sacks, "Beijing Wants to Rewrite the Rules of the Internet," *Atlantic*, June 18, 2018.

China will embrace new rules when Chinese policymakers deem it to be their domestic reform interests to do so. However, they need not do so wholesale, but can do so in a piecemeal fashion. Intra-Party dynamics have changed dramatically since the late 1990s. Even pro-reformers within the Party will not find it politically useful to latch onto a treaty to push a reform agenda, as was the case with WTO accession.

In short, we ought not deceive ourselves into thinking that tackling the "China, Inc." challenge is as simple as just returning to the pre-Trump era policies of combining WTO litigation with new regional trade agreements. This section explains why.

1. WTO Litigation is Likely to Be of Only Limited Use

In an academic article, I suggested that WTO cases are effective only against a limited range of problematic Chinese trade practices. Importantly, existing WTO rules were not written with China's unique economic structure in mind. Moreover, they were developed prior to the rise of digital trade. Therefore, while the U.S. ought to devote resources to WTO litigation, there are limits to how much can be achieved because the law itself is outdated.[21]

Even where the law makes clear that a practice is illegal, WTO law does not provide for retrospective remedies. In other words, there is no way to receive restitution for the harm arising out of the illegal activity, as is the case in domestic law or international commercial arbitration. Therefore, WTO members can exploit a "free pass" to breach for a limited period of time and consolidate the gains that it receives during the period. China has effectively taken advantage of this loophole in the remedies provided under WTO law to advance its industrial policies. A clear example is in the case of illegal export restrictions, where the U.S. and its allies prevailed in two different WTO cases. Yet, China continued to implement additional export restrictions because this would advantage downstream firms and shift investment patterns temporarily. By the time China acquiesces in the wake of WTO litigation, "China, Inc." has already consolidated the desired benefits from the export restrictions, which WTO law is powerless to dislodge.

The Commission has recommended that the Office of the U.S. Trade Representative should work with allies to bring a "non-violation, nullification and impairment" (NVNI) case to address Chinese practices not explicitly deemed illegal. This is an ambitious approach which has not been tested for matters of this scale. The Commission should realize that several roadblocks stand in the way of this approach, which I will elaborate upon only in brief. First, the resources necessary to acquire the proof to meet the evidentiary burden to demonstrate such a claim are rather large. Second, not only must the U.S. cajole its firms (and/or intelligence officials) to provide this evidence, it will also need to convince allies to do the same. Third, the case will require at least three years to prepare and litigate before its bears any fruit. Finally, the U.S. will only be able to retaliate if the U.S. lifts its current blockage of WTO Appellate Body appointments. All this is not to suggest that a NVNI case against China with allies is not worth undertaking. It is simply to caution that the Commission ought not put too much weight on a NVNI case as the primary tool to achieve a comprehensive solution to problems arising out Chinese market distortions.

2. CPTPP is Unlikely to Change China's Practices in the Medium-Term

Some have suggested that the U.S. ought to consider joining CPTPP and negotiating a trans-Atlantic trade agreement as a means of instilling fear in China that it will be disadvantaged in its key export markets

[21] For a more elaborate discussion of this argument, see Mark Wu, "The 'China, Inc.' Challenge to Global Trade Governance," *Harvard International Law Journal* (2016).

unless it signs on to the new norms addressing state-owned enterprises, digital trade, etc. in these agreements. My research suggests that this strategy is unlikely to work.[22]

There are three reasons why this is the case. First, Chinese firms are already so deeply enmeshed in global supply chains where the inputs they supply fall largely into tariff lines for which the U.S., EU, Japan, and others have made binding commitments to keep tariffs low. Thus, the additional advantage that CPTPP countries gain over China is minimal and unlikely to induce FDI shifts, unless the U.S. and/or others undertake additional steps to raise tariffs on these categories.

Second, the products where Chinese firms would be placed at a competitive disadvantage are largely in industries such as textiles and shoes from which China is already trying to shift production. China is unlikely to agree to undertake fundamental reform of its economic system simply to save these sunset industries.

Third, at least for the CPTPP, the current rules of origin (ROOs) for autos and textiles are written in a way that provides loopholes for Chinese firms to exploit without formally joining the agreement. For example, the CPTPP contains lower ROO thresholds for autos and auto parts as compared to NAFTA or the new USMCA. Should the U.S. rejoin the CPTPP and the existing ROOs remain in place, it may ironically end up benefiting Chinese auto parts manufacturers, even if China does not join, since downstream car manufacturers can shift away from North America suppliers to buy a greater share of Chinese-made parts up to a certain point without risking the loss of preferential tariffs.

Collectively, this means that the economic cost of remaining outside of CPTPP is not sufficiently high enough to compel China to seek to join. Pro-reformers in China can simply adopt the positive elements of CPTPP that they like unilaterally while avoiding those elements that are more politically sensitive (such as rules impacting data governance). As noted above, there may be good reasons for the U.S. to consider joining the CPTPP for strategic and alliance-building purposes, independent of its effect on China. But we ought to free ourselves from the illusion that CPTPP plus a trans-Atlantic deal will exert enough pressure on China to cause it to undertake fundamental reform of "China, Inc." and "China.com." It will not.

3. WTO Reform is Unlikely to Deliver Fundamental Changes in WTO Rules to Curb Chinese Practices

The same is true of working within the confines of the WTO to shape new rules to address trade-distorting Chinese practices. It too is unlikely to yield major results. The problems are two-fold.

First, the process itself is time-consuming. Even if issues are rendered manageable by dividing them across a scope of plurilateral agreements led by G7 countries, it may take several years for negotiating parties to agree upon the exact treaty language. The strength of commitments for sensitive issues such as data localization are likely to be diluted as negotiators compromise. And as already noted, the system has incomplete remedies to enforce such commitments.

Second, and more importantly, the U.S. and its allies are no longer in a position where it can impose new WTO rules on China, unless they want to make a credible threat that they are prepared to abandon the WTO altogether. If not, then the U.S. and its allies will need to provide some concessions back to China. After all, China has provided numerous suggestions and proposals for WTO reforms and new rules itself. So far, the U.S. and its allies have not discussed what they might be prepared to do in exchange.

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[22] Please contact me at mwu@law.harvard.edu if you would like to see a more elaborate article discussing this research. A preliminary version was presented to the economics faculty at Cambridge University in 2017 and a working draft of that presentation is available online.

All this is not say that the U.S. ought not to try to negotiate new rules with like-minded allies through the WTO. Again, there may be legitimate reasons apart from China for the U.S. to undertake this approach. Once more, I am simply cautioning that even if the WTO can overcome long odds and update its rulebook, it is unlikely that China will sign up to most of the vital ones aimed at changing its economic regime, at least in the near-to-medium term.

VI. Recommendations

What I hope to have highlighted through the analysis above is that there are structural factors that render both the industrial and digital economic landscapes in China unique. The challenges arising out of "China, Inc." and "China.com" implicate a much greater range of actors than state-owned enterprises. They concern an ecosystem of corporate actors, both state-owned and private, as well as regulatory agencies that collectively implement industrial policy goals in line with the Party-state's interest. We need to realize that these structures are unlikely to be dismantled proactively in the near to medium term, but may be further evolve as interests shift. Due to the economic and social stresses that they face, there is also a possibility that these structure could eventually collapse on its own if major Chinese policy mistakes are committed. However, such an outcome is far from certain.

Given the above, regardless of what may be achieved in current negotiations, trade tensions with China are likely to persist for an extended period due to these structural differences. Efforts to engage like-minded allies through bilateral, regional, and multilateral approaches to tackle these tensions are to be welcomed. However, we need to realize that they are not likely to succeed in pressuring China to undertake deep structural reforms, in the absence of additional unilateral or collective tariffs or other efforts to erect higher trade barriers. Still, these efforts can yield limited results in guiding selective current and future Chinese policies toward global norms, even in the absence of deep structural reform.

Where then do we go from here?

<u>On the question posed by the Commission concerning the evaluation of possible outcomes from ongoing trade negotiations:</u>

1. ***Congress should evaluate any possible agreement with China to resolve ongoing trade tensions on the basis of firm commitments to dismantle existing trade-distorting Chinese policies and to undertake observable structural changes.***

We ought not to be distracted by Chinese negotiating promises to make additional purchases of American exports, welcome as those may be. Success is not to be measured by near-term reductions in the bilateral trade deficit, but whether the economic sacrifices made by American producers in this extended trade conflagration give rise to specific commitments on issues covered by the ongoing negotiations including:

- Lifting of investment restrictions on U.S. firms, particularly for next-generation industries such as cloud computing, IoT, and renewable products.
- A list of specific subsidies program to be dismantled and a commitment to not reintroduce similar programs in these sectors.
- A firm commitment that China will advance or back a WTO reform proposal allowing WTO members to temporarily nullify benefits against any WTO member whose submissions notifying subsidies are deemed incomplete until fixed.
- A list of goods and services for which VAT rebate policies, export restrictions, export taxes, and other policies will be kept stable and unchanged for the next five years, so that they cannot be manipulated to generate uncertainty
- Specific targets to lower the incidence of cybertheft activity originating from China

- Specific targets to lower the percentage of U.S. companies reporting that they deem enforcement of intellectual property protections to be inadequate and that report pressure to transfer technology

To ensure that these commitments are enforceable, the agreement ought to include agreed-upon monitoring mechanisms that allow for tariff "snap-back" without the possibility for retaliation.

2. ***Congress should evaluate any possible future trade agreement with other countries (e.g., USMCA, US-Japan, US-EU) specifically for its impact on shifts in global supply and value chains vis-à-vis China.***

The incentives for corporations to shift production, technology, and/or the sourcing of inputs to China arises not just from Chinese policies but also shifts arising out of bilateral and regional trade agreements concluded by the U.S. with other major trading partners. Congress ought to evaluate whether future U.S. trade agreements will lower ROO thresholds or contain other provisions that generate incentives to shift production to China. For example, were the US to accede to the CPTPP under its current ROOs, such incentives would arise for certain downstream U.S. auto and auto parts manufacturers. At the same time, Congress should also evaluate whether the rules are tightened so stringently that corporations will simply decide not to seek preferential access for their goods and shift production to China in response. This is a careful balancing act, and the evaluation of such policies is highly technical. Congress ought to strengthen the resources and capabilities of its own committee staff members to undertake such evaluation as well as to draw on experts to provide advice specifically on this issue during the course of negotiations. It also ought to require USTR negotiators to provide briefings specifically on this issue during closed hearing throughout the course of negotiations. Finally, it should require the International Trade Commission (ITC) to include an addendum to its mandated evaluation of U.S. trade agreements highlighting such risks. It should provide the ITC with additional funds to hire the staff necessary to conduct such analyses.

<u>On the question posed by the Commission of what additional tools Congress ought to consider to address problematic Chinese practices:</u>

3. ***Congress should increase appropriations to U.S. enforcement authorities to bolster its resources to target firms that benefit from commercial cyberespionage, illicit acquisition of intellectual property, and circumvention of U.S. sanctions.***

The U.S. approach toward tackling problematic practices ought to shift away applying across-the-board tariffs toward a targeted policy of applying heavy pressure against actual offenders and those that benefit from the offense. Tariffs are a crude instrument that inadvertently harm U.S. bystanders, as other experts will testify. They also unnecessarily turn ordinary Chinese who may otherwise support deeper economic reforms into ardent nationalists. A smarter strategy would be target specific Chinese companies and their benefactors who enable and profit from egregious policies, including but not limited to cyberespionage, illicit intellectual property acquisition, and circumvention of U.S. sanctions.

Existing U.S. law provides a variety of tools through which to target such firms. These include the imposition of trade remedies, Section 337 investigations, scrutiny by the Committee on Foreign Investment in the United States (CFIUS), and the International Emergency Economic Powers Act (IEEPA). However, to do so effectively requires that the various agencies involved in employing these tools have greater resources available to deploy against these tasks. Congress ought to commit to appropriate greater resources to various departments and agencies involved in scrutinizing Chinese trade-distorting practices. These include, but are not limited to, USTR, Commerce, Justice, Treasury, Homeland Security, ITC, and various national security agencies.

4. ***Congress should update U.S. law to expand the scope of firms and individuals who may be held liable and sanctioned to include all those that interact in a commercially meaningful manner with problematic firms.***

We are engaged in a protracted competition of not only economic systems but also of values. The U.S. must hold true to the principles that underlie its soft power. To that end, it is imperative that the U.S. not succumb to any nationality-based targeting and continue to remain an open society to anyone, including Chinese citizens and firms, whose behavior aligns with our core values. Congress plays an important role in safeguarding such values, especially if the other branches of government fail to do so.

The flip side of this equation is that the U.S. ought to have a broader no-tolerance policy against any entity or individual that may enable the illegal or illicit behavior that we condemn. To date, if targeted actions have been taken, they have been mainly against firms or the individuals who directly oversee the illegal act. However, as the earlier analysis suggested, Chinese policies are enabled by a broad array of actors that operate within its unique economic structure.

Therefore, Congress ought to consider broadening the category of firms and individuals who are targeted to include:

- Firms that supply financing to the firms engaging in the illegal activities, whether directly or through pass-through entities
- Firms that source inputs and/or procure products whose development has benefitted from cyberespionage, illegal intellectual property theft, or other forms of unauthorized activities
- Firms and individuals that engage in research collaborations that profit from these illegal activities

In addition to holding firms accountable, Congress should consider extending responsibility to top executives as well as board members of such firms, as well as government officials involved.

While these categories, at first glance, may seem overly broad, the idea is to develop a model of community self-policing within the Chinese economic system itself. Rather than turn a blind eye to the egregious acts happening around them, individual and corporate actors should be enlisted to conduct due diligence of their partners, suppliers, clients, etc. so as to create greater costs and instill a chilling effect for undesirable actions.

Because of its broad sweeping powers, the IEEPA could be utilized for such purposes, although there may be judicial challenges over its permissible bounds. So as to guard against unnecessary abuse of the notion of a "national emergency," Congress should draft specific legislation to complement the IEEPA. This new set of laws should extend criminal and civil liability to individuals and entities who support, facilitate, or substantially benefit from an enumerated list of the most egregious trade-distortive activities, such as cyberespionage or IP theft. Doing so will make clear to the economic actors who wish to gain from our open markets and open society that they have a responsibility to devote their own resources to patrol against those who seek to undermine it.

5. ***Congress should increase the resources provided to U.S. enforcement authorities to evaluate the scope of technology to be moved offshore to China and to update export controls as necessary.***

Provided the analysis above is correct that China's economic structure is unlikely to be reformed in fundamental ways in the foreseeable future, regardless of the outcome of the ongoing bilateral negotiations, U.S. and other foreign companies will continue to face pressures to shift production and technology to China. Congress ought to urge executive agencies to make broader use of its existing powers to evaluate technology transfers, particularly over core technologies and dual-use technologies, in specific transactions on an ongoing basis. Agencies should make greater use of document requests for investigations, subpoena powers, the power to compel testimony, etc. This will require that Congress provide greater appropriations to the Department of Commerce's Bureau of Industry and Security as well as the Justice Department so that they can increase the number of agents devoted to such actions.

In addition, greater interagency coordination is required, particularly across economic and national security agencies, to suspend or postpone outbound transactions by U.S. firms if it poses a danger to U.S. national security interests. Currently, much attention is devoted to inbound transactions, and the Commission has been briefed about efforts to reform CFIUS. A similar effort must be devoted to outbound transactions, especially when many more may have dual-use implications given the growing importance of data analytics and IoT products.

Similarly, Congress should require that the National Economic Council and National Security Council to engage in regular consultations with each other and with Congress on efforts to keep export controls current. It is imperative that the national security agencies be kept abreast of what technologies are being moved offshore, just as it is imperative for economic agencies to be kept of abreast of what technologies are deemed vital for future national security purposes. Congress can play an important role in creating the procedural mechanisms to ensure that these exchanges happen regularly and in providing the resources necessary to safeguard against supply chain, cyber, or data security vulnerabilities.

6. ***Congress should take steps to bolster U.S. technology competitiveness, both through investments in fundamental research as well as in an ecosystem that is able to make use of applied technologies.***

As many experts have emphasized in past testimony before this Commission, the U.S. has fallen behind in terms of making necessary investments in education, infrastructure, and support for basic research. I wish to re-emphasize the point that the most important thing that Congress can do to ensure long-term U.S. economic competitiveness is to devote greater resources to cultivate talent and to ensure that the U.S. remains the most exciting place for global talent to conduct research, build businesses, and raise families.

If trade conflicts and trade accords are unlikely to change the fundamental nature of China's economic system for the foreseeable future, then many of the next-generation industries with disruptive potential will continue to be distorted through a series of Chinese industrial policies. This gives rise to the inevitable question of whether the U.S. must respond in-kind, even if such spending may not always be efficient or desirable, in order to counter Chinese industrial policies. These are difficult questions that will require additional policy debate. But they will become increasingly irrelevant questions if Congress does not quickly take steps to reverse the stagnation or decline in U.S. education, basic and applied research, and physical infrastructure while the Chinese are investing heavily in next-generation technologies. Much greater funding by Congress for research in core technologies and infrastructure upgrading is vital for safeguarding long-term U.S. economic security.