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Hearing on
“The Impact of International Technology Transfer on American
Research and Development”

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Subcommittee on Investigations and Oversight
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Mr. Chairman, Mr. Tonko, and members of the Committee, I appreciate the opportunity to appear before you today to discuss the issue of the impact of international technology transfer on American R&D.

I am president of the Information Technology and Innovation Foundation (ITIF). ITIF is a nonpartisan research and educational institute whose mission is to formulate and promote public policies to advance technological innovation and productivity. Recognizing the vital role of technology in ensuring American prosperity, ITIF focuses on innovation, productivity, and digital economy issues.

Why is the Issue of Tech Transfer and U.S. R&D is Becoming More Important?

A nation's investments in research and development (R&D) are vital to its ability to develop the next-generation technologies, products, and services that keep a country and its firms competitive in global markets. Until recently, corporate R&D was generally not very mobile, certainly not in comparison to manufacturing. But in a "flat world" companies can increasingly locate R&D activities anywhere skilled researchers are located. Moreover, as I argue in *Innovation Economics: The Race for Global Advantage*¹, in the last decade many other nations have put in place a range of policies, including expanding government R&D funding, training scientists and engineers, and expanding R&D tax incentives, to make them more attractive for global R&D investment. But many nations have also put in place a range of "bad" policies, including intellectual property theft and forced joint ventures and technology transfer that unfairly seek advantage.²

The result of these "good" and "bad" policies has been that the United States has seen its relative competitive advantage in R&D and advanced technology industries decline. While the United States still leads the world in aggregate R&D dollars invested, on a per-capita basis it is falling behind. The United States now ranks just eighth among Organization for Economic Cooperation and Development (OECD) countries in the percentage of GDP devoted to R&D expenditures (2.8 percent), behind Israel (4.3 percent), Finland (4.0 percent), Sweden (3.6 percent), Korea (3.4 percent), Japan (3.3 percent), Denmark (3.0 percent), and Switzerland (3.0 percent), with Germany and Austria close behind the United States. In 2008, for the first time, Asian nations as a group surpassed the United States in R&D investment, investing \$387 billion to the United States' \$384 billion.³

As another example, business R&D expenditures by U.S. IT manufacturing and IT services industries as a share of GDP fell substantially compared to 21 other OECD peer countries between 1997 and 2005. While at first glance the United States appears to score fairly well on these measures—fifth in business R&D expenditures in IT manufacturing and sixth in IT services—the data reveal a striking decrease of almost 50 percent in the amount of U.S. IT manufacturing industry R&D as a percentage of GDP from 1997 to 2005.⁴ Moreover, during this time, businesses in IT manufacturing and services industries in countries such as Finland, Korea, Denmark, Ireland, and the Czech Republic substantially increased their IT R&D investment.⁵ In the ITIF report *Atlantic Century II: Benchmarking EU & U.S. Innovation and Competitiveness*, which assesses the innovation-based competitiveness of 44 nations or regions on 16 factors, including corporate R&D, the United States ranks second to last, ahead of only Italy, in the rate of progress on these factors.⁶

The decline in America's innovative edge is due to a number of factors, not the least of which are failures of federal policy, such as an unwillingness to make permanent and expand the R&D tax credit, limitations on high-skill immigration, and stagnant federal funding for R&D.

But the decline is also related to unfair practices by other nations that collectively ITIF has termed as "innovation mercantilism." Many other nations engage in a variety of practices related to unfairly obtaining knowledge for competitive advantage. One way is through intellectual property theft. This can take the form of cyber espionage where foreign actors, sometimes governments themselves, hack into the computer systems of U.S. companies or government to steal intellectual property. (In fact, one German study found a 40 percent increase in industrial espionage cases between 2009 and 2010.)⁷ In other cases, nations maintain a weak and discriminatory patent or broader IP system that allows their firms to reverse engineer U.S. technology products, even though they are under patent protection. For example, some nations have weak protections for data related to biopharmaceutical firms (e.g., data exclusivity) in order to more easily transfer critical data to their domestic firms.

Increasingly, state-owned or state-supported enterprises buy U.S. technology companies and then transfer the intellectual property, including trade secrets, back to the home country and its companies. Nations also rely on forced joint ventures, where U.S. multinationals are forced to "partner" with a domestic firm to gain the right to produce in that country, with the domestic firm then using this relationship to steal the firm's IP.

In addition, many nations have turned to "compulsory licensing" as a way to transfer knowhow and technology to their economies. This normally involves countries granting permission to domestic companies to produce patented products from foreign companies without the permission of the patent owner. This is done often in the case of medical drugs, where countries not only want to get drugs at a lower price without paying for the costs of drug development, but also to support their own domestic pharmaceutical and biotech industry. For example, earlier this year the Indian government issued a compulsory license to Natco, an Indian pharmaceutical company, enabling it to produce a cancer drug made by Bayer. A decade ago, Brazil passed its Generics Law, which allows companies to legally produce generic drugs that are perfect copies of patented drugs.

Finally, a growing number of nations rely on forced technology transfer where U.S. firms are pressured to transfer technology to the host country (by opening R&D labs, sharing proprietary secrets with domestic firms, or opening advanced production facilities) in exchange for being able to sell their products or services in the market. While many nations practice this, China is by far the most egregious actor when it comes to forced technology transfer. As David Joy, Chief Market Strategist for Ameriprise Financial, stated with respect to China, "To me, that's [forced technology transfer] actually the biggest issue, more even than currency valuation. Being forced to give up technology for access to the market is essentially blackmail."⁸

Examples of Forced Technology Transfer: the Case of China

Many nations seek to engage in forced technology transfer, but no nation does it "better" or more than China. This is in part because China is not a market-oriented democracy constrained by the rule of law, but also because the Chinese economy is so large and fast growing that the country is able to get away

with practices that if implemented by a smaller nation would be rejected out of hand by multinational corporations. While the forced technology transfer practices of a nation like Argentina are onerous, it is small enough that many companies would rather give up on the Argentinean market than succumb to the strong arm tactics. U.S. multinationals have much less room to maneuver with China since it is the world's second largest economy. This is why in a survey of U.S. executives doing business in China by the U.S. Bureau of Industry and Security, "the majority of industry representatives interviewed for this study clearly stated that technology transfers are required to do business in China."⁹ Foreign companies capitulate because they have little choice; they either give up their technology or lose out to other competitors that are willing to make the essentially Hobson's choice.²⁸ Industrial organization economists refer to this type of market as monopsonistic: having one buyer that can set largely whatever terms it wants against competitive sellers.

A case in point is related to a Chinese state-owned enterprise engaged in dumping the chemicals for a particular herbicide that a U.S. company sold (that is, selling it below what it costs to make in order to gain market share). The company told the Chinese agricultural minister that it was planning to bring a complaint before the WTO. The minister responded that if the case were brought, the company would lose access to the Chinese market. Needless to say, the U.S. firm did not bring the case, even as it continued to lose global market share and jobs in the United States.

Forced technology transfer is a cornerstone of China's economic plan. For example, in 2011, the Chinese government committed to "place the strengthening of indigenous innovative capability at the core of economic restructuring, growth model change, and national competitiveness enhancement . . . Indigenous innovation refers to enhancing original innovation, integrated innovation, and re-innovation based on assimilation and absorption of imported technology, in order improve our national innovation capability."¹⁰ As Thomas Hout and Pankaj Ghemawat describe in the *Harvard Business Review*, China's goal with these "indigenous innovation" policies is no less than "creating a tipping point in which multinational corporations will have to locate their most-sophisticated R&D projects and facilities in China, enabling it to eventually catch up with the U.S. as the world's most advanced economy."⁵⁵ Figure 1 provides a framework to identify the types of innovation mercantilist practices the Chinese government engages in to directly benefit Chinese companies at the expense of foreign companies. As it shows, forced technology transfer is just one of many tools in the intellectual property category that the nation employs to gain unfair competitive advantage.

A principal arrow in China's innovation mercantilist quiver is to force requirements on foreign companies with respect to intellectual property, technology transfer, or domestic sourcing of production as a condition of market access. While China's accession agreement to the WTO contains rules forbidding it from tying foreign direct investment to requirements to transfer technology to the country, the rules are largely ignored.¹¹ Because China is still largely a technologically developing nation, forcing companies from developed nations to transfer their technology (or, in many cases, just downright stealing it) is a faster way to innovation success than engaging in the hard work to move up the technology learning curve, as European and American companies have had to do. And then China uses this newfound technological prowess to turn the tables on the "developed" companies, by combining their newly acquired advanced technology with low wages (and government subsidies) to take global market share away from them.

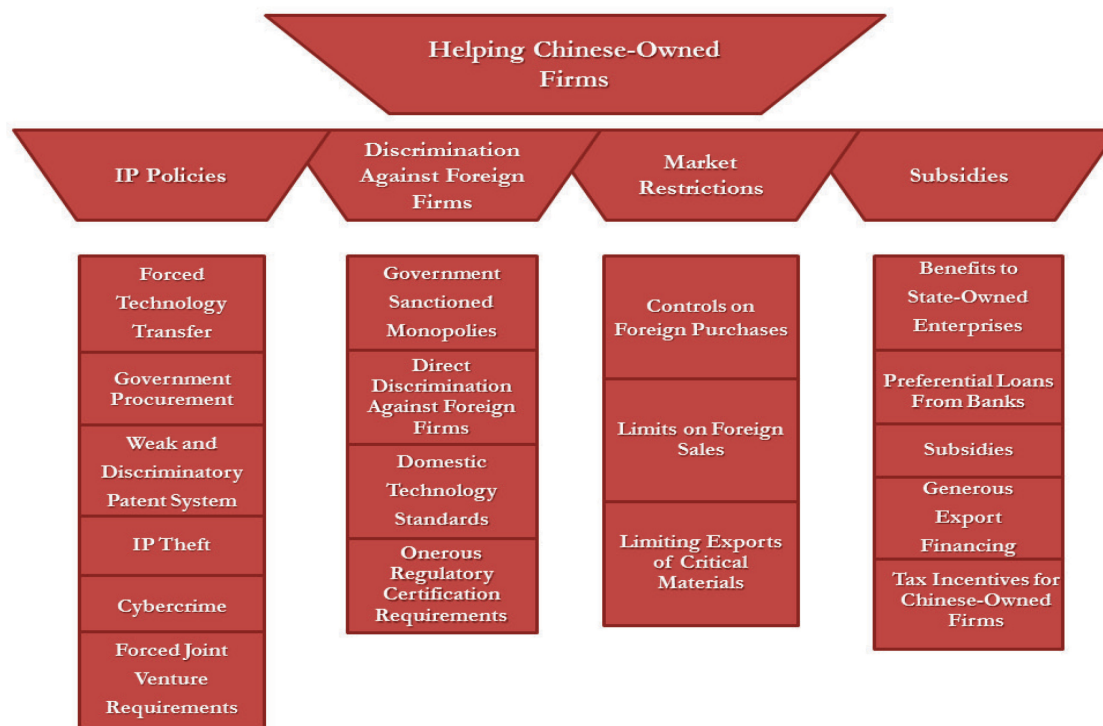


Figure 1: A Taxonomy of Unfair Chinese “Innovation Mercantilist” Policies Designed to Help Chinese-Owned Company Gain Advantage Over Foreign Firms¹²

In the 1990s, when China began aggressively promoting domestic technological innovation, it developed investment and industrial policies that included explicit provisions for technology transfer, particularly for collaboration in production, research, and training.¹³ Rather than doing the hard work to build its domestic technology industries, or better yet focus on raising productivity in low-producing Chinese industries, China decided it would be much easier and faster simply to take the technology from foreign companies.

China is the undisputed master of the joint venture and R&D technology transfer deal. China’s government unabashedly forces multinational companies in technology-based industries—including IT, air transportation, power generation, high-speed rail, agricultural sciences, and electric automobiles—to share their technologies with Chinese state-owned or influenced enterprises as a condition of operating in the country. For example, Chinese officials normally force multinational companies to form joint ventures with its national champions and transfer the latest technology in exchange for business opportunities. Although the WTO prohibits mandatory technology transfers, the Chinese government maintains that incentivized transfers, whereby companies trade technology for market access, are purely business decisions.²⁷ Thus, China continues to violate the WTO, only more covertly, getting the technology of developed countries and paying nothing in return.

In China, it is commonplace to require that firms transfer technology in exchange for being granted the ability to invest in China. For example, in the *Catalogue for the Guidance of Foreign Investment Industries (2007)* joint ventures with foreign firms have to be approved, and technology transfer

agreements reached within joint venture contracts must also be submitted for approval. The guidelines encourage transfer of technology.¹⁴

Sometimes this process takes the form of mandatory licensing of technology. As BASF Chairman and Chief Executive Jürgen Hambrech stated, foreign companies doing business in China face “forced disclosure of know-how.”¹⁵ Sometimes this is in the form of requirements to open up R&D facilities where the technology often “goes out the back door” in the form of Chinese researchers who leave to take the technology to Chinese firms. As one publication stated, the Chinese central government requires foreign firms:

To form joint ventures with its national champions and transfer the latest technology in exchange for current and future business opportunities. Companies that resist are simply excluded from projects. The Chinese government uses the restrictions to drive wedges between foreign rivals vying to land big projects in the country and induce them to transfer the technologies that state-owned enterprises need to catch up. Executives working for multinational companies in China privately acknowledge that making official complaints or filing lawsuits usually does little good.¹⁶

One example is the evolution of China’s high-speed rail market. In early 2009, the Chinese government began requiring foreign companies that wanted to bid on high-speed railway projects to form joint ventures with the state-owned equipment producers, CSR and CNR. Not willing to just import the trains and equipment, even though China was running (and still runs) massive trade surpluses it could have used to purchase the trains and expertise, the Chinese government stipulated that multinational companies could hold only a 49 percent equity stake in the new companies, that they had to offer their latest designs, and that 70 percent of each system had to be made locally. Competing foreign rail manufacturers—like France’s TGV, Japan’s Kawasaki, and Germany’s Siemens—had no choice but to go along with these stipulations, even though they realized that their joint-venture partners would soon become their rivals outside China.²⁹ But this was not sales; this was sales and tech transfer. The winning bidder, Kawasaki, had to develop the local supply chain for train components and teach the Chinese engineers—by sharing their entire know-how and catalog of technologies, and even bringing Chinese engineers to its Japanese manufacturing facilities for training.

While the foreign multinationals are still importing the most sophisticated components, such as traction motors and traffic-signaling systems, today they account for less than 20 percent of China’s high-speed rail market. Meanwhile, CSR and CNR have acquired many of the core technologies, applied them with stunning quickness, and now dominate China’s local market. Moreover, they have become major players in the \$110 billion international rolling-stock market, having built high-speed railways in several developing countries, including Saudi Arabia, Turkey, and Venezuela (several for which the Chinese government has generously cofunded the railway modernization projects).³⁰ They’ve also made inroads in developed markets, with CNR recently winning rail contracts in Australia and New Zealand, all the while outbidding their forced mentor Kawasaki because they got much of their technology for free and then enjoyed massively government subsidies for production and exports.

Chinese companies have negotiated to supply high-speed rail to the state of California. As the *New York Times* surreally explained, “Nearly 150 years after American railroads brought in thousands of Chinese

laborers to build rail lines across the West, China is poised once again to play a role in American rail construction. But this time, it would be an entirely different role: supplying the technology, equipment, and engineers to build high-speed rail lines.”³¹ Without a trace of irony about how China came to be so competitive in high-speed rail, Zheng Jian, director of high-speed rail at China’s Railway Ministry said: “We are the most advanced in many fields, and we are willing to share with the United States.” And not only is China offering to build California’s 215 mph bullet train, but it even generously offered to finance some of the construction (no doubt out of its trade surplus with the United States). Of course, California would still have to invest billions, including for Chinese rail components and engineering services.

Rail is far from the only industry where China uses pressured technology transfer against foreign multinationals. This occurs in industry after industry. For example, Ford Motor Company has opened several automobile plants in China, but as a condition of access, it had to do so as part of a joint venture with Chinese automobile producer Chang’an Motors so that Chang’an could learn from Ford, with the intention of ultimately replacing Ford in the Chinese marketplace. Moreover, as a condition of market access, the Chinese government required Ford to establish an R&D laboratory. When Ford sought to build a second factory nearby, again the requirement was to build a second R&D facility. Collectively, Ford employs at least 300 Chinese engineers at these two adjacent buildings.

China is also using this practice to try to win in the electric vehicle market. In accordance with its “New Energy Vehicles” plan, China requires foreign electric vehicle makers to transfer IP to a Chinese automaker as a requirement for gaining access to the market.¹⁷ One of the most recent cases of this involved General Motors, which looked to start selling its electric hybrid vehicle, the Volt, in China. The Chinese government began placing “heavy pressure on the company to share some of the car’s core technology.”¹⁸ Specifically, the Chinese government precluded the Volt from qualifying for purchase subsidies totaling up to \$19,300 a car—which are available for alternative fuel vehicles (but only if manufactured in China)—unless General Motors agreed to transfer the engineering secrets for one of the Volt’s three main technologies (electric motors, complex electronic controls, and power storage devices) to a joint venture in China with a Chinese automaker.¹⁹ In contrast, U.S. tax credits for the purchase of energy-efficient alternative fuel vehicles are not restricted to domestic cars nor are foreign auto manufacturers denied them unless they transfer technology to the United States. For its part, Ford Motor Company, which is currently conducting demonstration projects of electric cars in China (and plans to launch commercial sales there), has already acceded to China’s technology transfer demand.²⁰ Ford will transfer at least one of the three core electrical vehicle technologies to a Chinese joint venture partner: the civilian automotive affiliate of China Weaponry Equipment, a large contractor for the People’s Liberation Army.²¹

This is often par for the course, especially since 2006. China has done this with other car makers. It has always had a requirement that foreign auto makers open factories only as joint ventures. But recently China has begun to pressure foreign carmakers like GM and Nissan to build domestic brands with Chinese partners. Only after Volkswagen promised to build an electric car with a Chinese company was the company allowed to build a new factory in Foshan.²²

China is using the same process to gain advanced aeronautics and aviation technology where the Chinese government hopes to become self-sufficient through Chinese firms. Commercial Aircraft Corporation of

China (COMAC), the state-owned Chinese commercial aircraft company, benefits from a wide array of mercantilist policies in order to foster the development of a narrow-body aircraft to compete with Boeing and Airbus despite the fact that the global aviation market is best served through market-based policies and not artificially produced overcapacity.²³ COMAC's stated goal is clear: get as much foreign aviation technology as possible while seeking to develop its own "independent intellectual property rights."²⁴ COMAC "will commit to national and international cooperation based on the 'airframe suppliers' model to share risks and benefits, and build a system of both national and international suppliers for trunk lines, and eventually establish relatively complete service and industrial chains in the commercial airplane business."²⁵ In other words, the goal is to produce all kinds of airplanes, from commuter jets to wide-body, long-haul jets and to produce all the supply chain inputs, including engines and advanced avionics. A core strategy is to pressure Boeing and Airbus to transfer technology to China in exchange for market access so that COMAC can learn how to produce its own passenger jets for the Chinese and global markets. And because the Chinese government controls more than 95 percent of the passenger air travel market, it can use procurement to reward the company (Airbus or Boeing) that transfers the most technology.

This occurs with regard to R&D labs as well. The CEO of a large multinational telecommunications equipment company shared with us that his company opened a large R&D facility in Beijing employing more than 500 scientists and engineers. When asked if he did this to access Chinese engineering talent, he responded bluntly: "Unless I promised the Chinese government that I would open up an advanced technology lab there, I was told that I would not be able to sell to the Chinese telecommunications providers." Representatives of other U.S. technology companies have also acknowledged that they opened or expanded R&D laboratories in China in order to gain favor with the Chinese government so that they would be discriminated against less than otherwise might be the case.

Forced Technology Transfer Outside of China

But China is not alone; other nations also try to force the transfer of technology and R&D from foreign multinationals. Portugal requires any wind company wishing to gain access to its market to partner with a local Portuguese university to conduct clean tech research as a way to more quickly gain technical know-how.²⁶ Malaysia's official policy is to use government procurement to try to force the transfer of technology from foreign to domestic industries.²⁷ Another country with technology transfer requirements is Indonesia. Indonesia's Ministry of Health Decree No. 1010/MENKES/PER/XI/2008 requires foreign pharmaceutical companies to manufacture locally or entrust a company already registered as a manufacturer in Indonesia, a potential competitor, to obtain drug approvals for them. Under this policy, foreign companies can be barred from the Indonesian market even if they are market leaders in globally recognized good manufacturing and distribution practices and provide high quality pharmaceutical products to Indonesian patients. Among its requirements, Decree 1010 requires also contains a technology transfer requirement and requires local manufacturing in Indonesia of all pharmaceutical products that are five years past patent expiration.²⁸ Government procurement practices in Venezuela have included measures such as price preferences for domestic goods and suppliers, reservation of procurements for nationals, requirements for domestic content, technology transfer, or the use of local labor and other incentives to purchase from companies domiciled in Venezuela.²⁹

Finally, India, in an effort to what they see as China's successful forced technology transfer policies, is increasingly using forced technology transfer requirements. For example, according to the *2012 National Trade Estimate Report on Foreign Trade Barriers*:

India issued a series of new requirements for telecommunications service providers and equipment vendors in December 2009, March 2010, and July 2010, explaining that these were adopted to maintain the security of its commercial telecommunications networks. The requirements apply to the purchase of imported products and do not apply to products manufactured or developed in India by Indian-owned or –controlled manufacturers. Issued in the form of amendments to telecommunications service licenses, the new regulations imposed an inflexible and unworkable security approval process, mandating the forced transfer of technology to Indian companies, the escrowing of source code, and assurances against malware and spyware during the entire use of relevant equipment. These measures effectively halted billions of dollars worth of trade in telecommunications equipment and seemed unlikely to advance India's stated security objectives.³⁰

Why do Nations Like China Engage in Forced Technology Transfer?

As ITIF documented in *The Good, the Bad, the Ugly (and Self-Destructive) of Innovation Policy*, a growing number of nations are turning to innovation mercantilism, with China being the most egregious practitioner. Why do so many nations engage in innovation mercantilism? There are two principle reasons. First, these nations have embraced a particular and fundamentally limited model of economic growth that holds that the best way to grow an economy is through exports and shifting production to higher-value (e.g., innovation-based) production. Moreover, they don't want to wait the 20 to 50 years it will take to naturally move up the value chain through actions like improving education, research capabilities, and infrastructure, as nations like the United States did. They want to get there now and the only way to do this is to short-circuit the process through innovation mercantilism. This explains much of China's economic policies. The Chinese know that to achieve the level of technological sophistication and innovation that America enjoys will take them at least half a century if they rely on only their own internal actions. So they are intent on stealing and pressuring as much of American (and other advanced nations') technology as they can to their own companies. If you can't build it, steal it, is their *modus operandi*.

This gets to the second reason why these nations do this. Western nations like the United States, the Commonwealth nations, and much of Europe believe in the rule of law and the principles of free trade. Innovation mercantilists do not. For them the ends justify the means, even if they violate the values of market-based free trade and respect for the rule of law and private property rights (including respect for intellectual property). And on top of this, many developing nations advance a pernicious and subtle argument to work on the "guilt" of Western, developed nations. The narrative goes like this: the West has used its imperialist powers to gain its wealth, including at the expense of poor, developing nations and now it wants to "pull the ladder" up after it. This means turning a blind eye to intellectual property and giving our technology, including pharmaceutical drugs, to nations almost for free. After all, we are rich and they are poor because we are rich. In fact, it is the very fact that America (and other innovative nations) are leaders in R&D and technology that amazing new technologies get developed that provide vast benefits to developing nations. As Dan Breznitz states, Chinese officials and corporate leaders "agree that Chinese companies should not have to pay for the right to use a technology that every

economic actor is required to use.”³¹ But this misses the key point. China has almost \$3 trillion in foreign exchange earnings from chronic trade surpluses that it could use to purchase foreign IP. Former U.S. Ambassador to China and longtime China hand James Lilly once wrote, “The American guilt complex over wrongs done to China is often played upon by the Chinese. ‘We are weak,’ they say. You have caused this, so you owe us. Give us something.’ I never bought this.”³² Nor should we.

What Should the Federal Government Do?

Before identifying what the federal government should do, the first question is should it do anything at all. In other words, is forced technology transfer a threat to the United States? Some argue that because rampant IP theft shows little sign of abating, we should just give up fighting it. In a *Washington Post* op-ed, Zachary Karabell argued that since China steals so much IP, including through forced tech transfer, that it’s a waste of time to try to fight it and that the United States would be better off just trying to stay ahead and keep developing new IP faster than the Chinese can steal it.³³ This somehow implies that companies like Boeing, Cisco, Ford and other leading U.S. companies are not innovating as fast and as best as they can now. Moreover, this is akin to saying during the cold war that it made no sense to try to stop the Soviets from stealing our weapons technology; we should just develop better weapons faster.

The reality is that forced technology transfer is enabling China and other nations to gain global market share. But even if this does not succeed in transforming the Chinese economy into an innovation-based one, forced technology transfer polices do considerable harm to U.S. technology companies and to the U.S. economy, if for no other reason than reducing their profits and ability to reinvest in the next wave of innovation.

So what should the U.S. government do? This is a difficult question because if there were easy solutions, they would have been done by now. Any effective solution will need to be multifaceted:

A first step is to try to do more through conventional trade dispute channels. While there are limitations to what can be accomplished here, in part because some of the tech and R&D transfer practices are hidden and informal, the U.S. Trade Representative’s Office (USTR) can do more. But USTR is generally underfunded and needs more resources to make stopping coerced tech transfer a higher priority. To enable that, **Congress should expand funding for USTR.**

Second, **we need to ensure that future bilateral trade and investment treaties contain strong and enforceable provisions against forced technology and R&D transfer.** In 2010, Premier Wen Jiabao announced, “We will ... enable foreign businesses to get national treatment like their Chinese counterparts.” Yet, China’s system of investment screening is discriminatory, and would constitute a denial of national treatment under U.S. investment treaties and free trade agreements. China bound certain rights of establishment when joining the WTO, namely those for which it scheduled commitments under the General Agreement on Trade in Services (GATS). In the WTO Doha Development Round, a key sticking point has been Chinese unwillingness to expand its GATS commitments. Thus, Chinese statements that it gives non-discriminatory treatment to foreign businesses are not accurate.³⁴ The Office of the United States Trade Representative is negotiating a Bilateral Investment Treaty with China. It is not clear that this treaty will contain the provisions needed to actually end pressured technology transfer. Congress should make it clear to USTR and the administration that no treaty is given preference to a

treaty that does not firmly stop this practice. **Congress should also make it clear that it will not judge any administration by whether a BIT with China is concluded, but rather by if the United States made a strong effort to conclude a treaty that provided full protection against mercantilist practices like forced transfer of R&D.** Without this assurance, administrations will feel pressure to sign agreements just for the sake of signing agreements and being able to “check the box.” Likewise, federal trade negotiators and Congress should insist that any Trans-Pacific Partnership (TPP) agreement signed be a “gold standard” agreement that holds TPP signatories to the highest standards, including on IP protection and forced technology transfer.³⁵

Third, the United States needs to better empower multinational companies with tools to better resist forced technology transfer. **Congress should pass legislation that allows firms to ask the Department of Justice for an exemption to coordinate actions regarding technology transfer and investment to other nations.** For example, if companies in a similar industry can agree that none of them will transfer technology to China in order to gain market access then the Chinese government will have much less leverage over them. The same would be true if companies agreed that they would not invest in China until China improved its intellectual property protections. This could be modeled in part on the 1984 National Cooperative Research Act, which led to an explosion of consortium-based research activity by removing a defect of antitrust law which suggested that collaborative joint research efforts among corporations were potentially collusive. For those who worry that extending this kind of cooperative tool to foreign tech transfer would somehow be anti-consumer, it’s important to note that this would not apply to pricing issues, but only to tech transfer issues where companies could point to coercive action in foreign markets.

Fourth, **Congress should exclude mercantilists from the Generalized System of Preferences (GSP).** In 1976, the United States launched a new development assistance program called the Generalized System of Preferences. It eliminated duties on thousands of products from developing countries, intending to promote economic growth through a “trade, not aid” approach. In 2010, \$22.5 billion of imports from the 129 GSP-beneficiary countries entered the United States duty-free, saving the exporting countries \$682 million in import duties.³⁶ While the goal of promoting economic growth in these countries is admirable, some of the top GSP beneficiaries are countries like Argentina, Brazil, Russia, and Venezuela which restrict many U.S. exports to their markets and have long failed to maintain adequate intellectual property rights protections. In fact, of the top 20 GSP-beneficiary countries, 12—Argentina, Brazil, Bolivia, Colombia, India, Indonesia, Pakistan, the Philippines, Russia, Thailand, Turkey, and Venezuela—are on the U.S. Trade Representative’s Special 301 Watch List (which documents countries that fail to adequately protect U.S. companies’ or individuals’ intellectual property rights). Congress should amend the GSP authorizing legislation such that any country on USTR’s Special 301 Watch List, or any country with documented forced technology transfer practices in USTR’s *2012 National Trade Estimate Report on Foreign Trade Barriers*, becomes ineligible to receive GSP status.

Finally, the United States also needs to be actively exploring alternatives to the WTO. Whether because the WTO (and its member countries) continue to look the other way in the face of systemic mercantilist practices such as forced transfer of technology as a condition of market access, or because these practices are not fully covered by its terms, the WTO is limited in its ability to enforce action against rampant mercantilism. We need a new path. Therefore, **the United States needs to pursue a two-pronged trade strategy, continuing as best it can to improve conventional trade organizations like the WTO, but**

also creating alternative “play-by-the-rules” clubs of like-minded countries. This in fact was the originating spirit behind the Obama Administration’s efforts to pass a Trans-Pacific Partnership agreement, but also behind Governor Romney’s proposal for what he has termed “Reagan Economic Zones”—a multilateral trade agreement(s) comprised of “like-minded nations” genuinely committed to the principles of open markets and strong intellectual property protections.³⁷

Pressured or mandatory technology transfer by other nations has, is, and will continue to negatively impact American R&D and innovation capabilities. It’s time for the federal government to step up its actions to fight this corrosive mercantilist practice.

Notes:

1. Robert D. Atkinson and Stephen J. Ezell, *Innovation Economics: The Race for Global Advantage*, (New Haven, Yale University Press, 2012).
2. Stephen J. Ezell and Robert D. Atkinson, “*The Good, the Bad, and the Ugly (and the Self Destructive) of Innovation Policy: A Policymaker’s Guide to Crafting Effective Innovation Policy* (Washington, D.C.: ITIF, 2010), <http://www.itif.org/files/2010-good-bad-ugly.pdf>
3. Jonathan Adams and David Pendlebury, *Global Research Report: United States* (London: Thomson Reuters, 2010), <http://researchanalytics.thomsonreuters.com/m/pdfs/globalresearchreport-usa.pdf>.
4. Stephen J. Ezell and Scott M. Andes, “ICT R&D Policies: An International Perspective,” *IEEE Internet Computing* 14, no. 4 (2010), <http://www.itif.org/files/ICTRandD.pdf>
5. OECD, *OECD Information Technology Outlook, 2008* (Paris: OECD, 2008), p. 151, http://www.oecd.org/document/47/0,3746,en_2649_33703_46439983_1_1_1_1,00.html. For statistics, see <http://dx.doi.org/10.1787/474078101812>.
6. Robert D. Atkinson and Scott M. Andes, *The Atlantic Century II: Benchmarking EU and U.S. Innovation and Competitiveness* (Washington, D.C.: ITIF, 2011), <http://www.itif.org/files/2011-atlantic-century.pdf>.
7. “Industrial Espionage A Growing Threat,” *The Local*, April 16, 2011, <http://www.thelocal.de/national/20110416-34433.html>.
8. Chris Isidore, “U.S. vs. China: The Trade Battles,” *CNN Money*, March 13, 2012, <http://money.cnn.com/2012/03/13/news/international/china-trade/index.htm>.
9. U.S. Bureau of Industry and Security, “Technology Transfer to China,” (overview, U.S. Department of Commerce, Washington, D.C.: 1999), <http://www.bis.doc.gov/defenseindustrialbaseprograms/osies/defmarketresearchrpts/techtransfer2prc.html#techtransferpreprocesses>.
10. “CPC Central Committee’s Proposal on Formulating the 12th Five-Year Program on National and Social Development.”
11. “China’s Working Party Report,” (Congressional-Executive Commission on China, November 2011) p. 49, <http://www.cecc.gov/pages/selectLaws/WTOimpact/wkptrptPRCWTO.php>.
12. Source: Robert D. Atkinson, “Enough is Enough: Confronting Chinese Innovation Mercantilism (Washington, DC: ITIF, 2012)
13. Bureau of Industry and Security, “Technology Transfer to China,” (China Guide, U.S. Department of Commerce 1999, <http://www.bis.doc.gov/defenseindustrialbaseprograms/OSIES/DefMarketResearchRpts/ChinaGuides/China1.pdf>.
14. Terence P. Stewart and Elizabeth J. Drake, *China’s Support Programs for High-Technology Industries Under the 12th Five-Year Plan* (report, Law Offices of Stewart and Stewart, Washington, D.C.: 2001), p. 13, <http://www.stewartlaw.com/stewartandstewart/Portals/1/Douments/S+S%20Hi%20Tech%2012%20FYP%20Presentation.pdf>.
15. James T. Areddy, “Germany’s BASF: China Critic, Investor,” *The Wall Street Journal*, December 18, 2010, <http://blogs.wsj.com/chinarealtime/2010/12/18/germanys-basf-china-critic-investor/>.
16. Thomas M. Hout and Pankaj Ghemawat, “China vs the World: Whose Technology Is It?,” *Harvard Business Review*, December 2010, <http://hbr.org/2010/12/china-vs-the-world-whose-technology-is-it/ar/1>.
17. European Commission, “Ninth Report on Potentially Trade Restrictive Measures,” p. 30.
18. Keith Bradsher, “Hybrid in a Trade Squeeze.” *New York Times*, September 5, 2011, <http://www.nytimes.com/2011/09/06/business/global/gm-aims-the-volt-at-china-but-chinese-want-its-secrets.html>.
19. Keith Bradsher, “Hybrid in a Trade Squeeze.”
20. Ibid.
21. Ibid.
22. Wieland Wagner, “China Puts the Brakes on Foreign Automakers,” *Der Spiegel Online*, January 6, 2012, <http://www.spiegel.de/international/business/0,1518,807582,00.html#ref=nlint>.
23. Robert D. Atkinson, “Statement by ITIF President Robert D. Atkinson on WTO Ruling in Boeing-Airbus Dispute,” (statement, ITIF, Washington, D.C.: June 2010), <http://www.itif.org/pressrelease/statement-itif-president-robert-d-atkinson-wto-ruling-boeing-airbus-dispute>.
24. Glennon J. Harrison, “Challenge to the Boeing-Airbus Duopoly in Civil Aircraft: Issues for Competitiveness” (technical report, Congressional Research Service, July 2011), p. 11, <http://www.fas.org/spp/crs/misc/R41925.pdf>.

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25. Ibid., p. 12.
 26. As cited in: Matthew Stepp and Robert D. Atkinson, "Green Mercantilism: Threat to the Clean Energy Economy," (technical report, ITIF, Washington, D.C.: 2012), <http://www2.itif.org/2012-green-mercantilism.pdf>.
 27. Stephen J. Ezell and Robert D. Atkinson, "Gold Standard or WTO-Lite?: Shaping the Trans-Pacific Partnership," (technical report, ITIF, Washington, D.C., 2011), <http://www.itif.org/files/2011-trans-pacific-partnership.pdf>.
 28. Ibid., 197.
 29. Ibid., 397.
 30. United States Trade Representative's Office, *2012 National Trade Estimate Report on Foreign Trade Barriers* (Washington, D.C.: USTR, March 2012), p. 195, http://www.ustr.gov/sites/default/files/NTE%20Final%20Printed_0.pdf.
 31. Dan Breznitz and Michael Murphree, *Run of the Red Queen: Government, Innovation, Globalization and Economic Growth in China*, (New Haven, CT: Yale University Press, 2011), p. 66.
 32. James R. Lilley, *China Hands: Nine decades of Adventure, Espionage, and Diplomacy in Asia*, (New York: PublicAffairs, 2004), p. 171.
 33. Zachary Karabell, "Obama and Chinese President Meeting Should Cover New Topics," *Washington Post*, November 8, 2009, <http://www.washingtonpost.com/wpdyn/content/article/2009/11/06/AR2009110601904.html>.
 34. Jamil Anderson, "China vows to treat foreign business fairly," *The Financial Times*, September 7, 2010, <http://www.ft.com/intl/cms/s/2/0880387e-ba34-11df-8804-00144feabdc0.html#axzz11QeFBdpT>.
 35. Stephen J. Ezell and Robert D. Atkinson, *Gold Standard or WTO-Lite?: Shaping the Trans-Pacific Partnership*.
 36. U.S. Trade Representative's Office, "GSP by the numbers," (report, USTR, Washington, D.C.), http://www.ustr.gov/webfm_send/3017.
 37. Stephen J. Ezell, Robert D. Atkinson, Daniel Castro, Richard Bennett and Matthew Stepp, "Comparing the 2012 Presidential Candidates' Technology and Innovation Policies" (technical report, ITIF, Washington, D.C.: 2012), <http://www2.itif.org/2012-obama-romney-comparison.pdf>.