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A CRUCIAL LINK: USING INTELLECTUAL PROPERTY TO INFORM GLOBAL SUPPLY CHAIN POLICY

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Summary

The COVID-19 pandemic, coupled with trade tensions and technological competition between the United States and China, have severely disrupted global supply chains. As businesses and policymakers grapple with "building back better" in a tense trade environment, they face the dilemma of balancing the traditional benefits of global production with the security demands of new geopolitical realities. This policy brief, part of a series on great power competition, highlights the productive role that intellectual property (IP) can play in navigating supply chain disruptions resulting from great power competition in a post-pandemic world. Rather than reinforcing the vicious cycle of techno-nationalist confrontation, it is possible for businesses and policymakers to promote virtuous cycles of competition with a more robust focus on intellectual property. Specifically, businesses and policymakers can look to IP licensing and allocation of rights to play a key role in tariff mitigation strategies and supply chain restructuring. At the same time, competitive pressures can lead to enhanced IP regimes in China and other economies, which argues for a more nuanced discussion of supply chains beyond physical relocation and economic decoupling.

SERIES ON GREAT POWER COMPETITION IN THE 21ST CENTURY

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The Context: Disrupted Global Supply Chains

Trade tensions and technological competition between the United States and China have disrupted global supply chains. Though more confrontational in its approach, the Trump administration acted on longer-standing U.S. concerns over the trade deficit with China, forced technology transfers to Chinese manufacturing partners, and aggressive industrial policy under the banner of "Made in China 2025." The subsequent increase in tariffs, export controls, and investment restrictions significantly challenged the profitability of global production strategies that leverage Chinese manufacturing. Just as the ink was drying on a Phase 1 Trade Agreement between the two powers, the COVID-19 pandemic ignited concerns over the security and resiliency of supply.

Within a month of assuming office, President Biden issued an executive order to review the security of U.S. supply chains while reiterating their geopolitical relevance. The subsequent 100-day report issued in June 2021 discusses China extensively, and the four emphasized sectors—semiconductors, large capacity batteries, rare earths, and pharmaceuticals—are redolent of concerns over both technological competition and medical responsiveness. Against the backdrop of U.S. tariffs on Chinese manufacturing and export restrictions impacting companies like Huawei and ZTE, Chinese leadership likewise emphasized securing supply chains in its new 14th Five Year Plan.

Decoupling pressures are likely to persist, with many of the trade policies initiated under President Trump still in place and China as resolute as ever in its quest for technological leadership. Meanwhile, the COVID-19 pandemic has prompted calls for new and innovative approaches to the management of global supply chains. As businesses and policymakers grapple with "building back better" in a tense trade environment, they face the dilemma of balancing the traditional benefits of global production with the security demands of new geopolitical realities. For corporate supply chain managers, the question is how to continue drawing upon established production networks while adjusting to the increased economic and political costs of using them. For policymakers, the issue is how to secure the supply of critical goods while tapping into global market opportunities.

Many products and industries at the center of the storm not only rely on international supply chains but also heavily involve intellectual property (IP). For example, Apple sources physical components for its iPhones from a variety of companies in America, Taiwan, China, South Korea, France, Italy, and the Netherlands. With China historically playing an important role in the manufacture and assemblage of these components into a finished iPhone, U.S. trade policy toward China reverberates throughout Apple's global network. At the same time, the iPhone's

Credit: Ian Taylor, Unsplash

components and manufacturing techniques incorporate an array of patented technologies whose use is licensed or granted during production. Protecting such proprietary technology in China remains a source of contention, especially in the context of the race for leadership in the 21st century.

This policy brief highlights the productive role that IP can play in navigating supply chain disruptions resulting from great power competition in a post-pandemic world. Businesses and policymakers can look to IP as a solution because the IP-intensive nature of extended supply chains enables the licensing/allocation of rights to play a key role in tariff mitigation strategies and supply chain restructuring. In particular, focusing on IP can help smooth the transition to restructured supply chains while injecting a healthy dose of competition helpful for sustaining the benefits of globalized production. At the same time, competitive pressures can lead to enhanced IP regimes in China and other economies, which argues for a more nuanced discussion of supply chains beyond physical relocation and economic decoupling.

Intellectual Property as a Solution Instead of a Problem

Accusations of IP theft and forced technology transfer were major driving forces behind U.S. actions initiating the trade war with China in 2017; the initial round of tariffs was a response to findings in the U.S. Trade Representative's investigation of unsavory Chinese business practices, such as requiring the transfer of proprietary technology as a precondition for joint ventures and aggressive state-supported industrial espionage aimed at stealing U.S. intellectual property. Though the Phase 1 Trade Agreement emphasized IP accordingly, it is unclear if or when a Phase 2 Trade Agreement will move toward greater resolution of the many sources of tension that remain.

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IP is in a sense both the source of problems and part of their solution. Consider the types of goods whose manufacturing process tends to involve multiple countries with China among the most prominent: office machines/automatic data processing equipment, telecommunications, electrical machinery, motor vehicles, professional scientific equipment, and photographic/optical equipment. Together these goods accounted for approximately 32 percent of global trade in 2020.[1] Using concordances between trade classifications and industrial classification codes, it is also possible to quantify the overlap between these types of goods and industries that U.S., E.U., and Chinese agencies classify as patent intensive.[2]

When matching the Standard International Trade Classification codes for the six categories above to the relevant industrial classification systems, 82 percent of these goods fall within U.S. patent-intensive industries, 56 percent fall within the top 20 E.U. patent-intensive industries, and 67 percent fall within Chinese patent-intensive industries.[3]

While the sheer volume of patents involved increases the likelihood of proprietary/strategic technology appropriation, it also points to the importance of technology licensing in supply chain management. In other words, the patent complexity of goods manufactured over global supply chains presents opportunities for licensing or relocating IP rights to mitigate the risk of shifting trade policy and structural pressures. These include:

1. Reassigning IP rights to modify country of origin specifications and dutiable value in response to new tariff schedules.

Companies can seek to negotiate license agreements to support arguments that products have had increased value added in newly proposed countries of origin. Alternatively, they can restructure IP ownership to reduce the valuation of the goods imported. For example, U.S. law defines royalties and license fees paid as a condition of sale to the United States as an "assist" that factors into the transaction value used to calculate duties. Restructuring the IP rights pertaining to such assists can thus lower or eliminate taxes on the royalties involved.

2. Relocating and creating IP to complement new technological innovations pushing supply chain restructuring.

A prime example is the prospect of 3D printing, which permits the rapid transfer of design data to any location by a design establishment. Relocating design work can reduce the assessed value of the manufactured product when imported, and production may be transferred to areas deemed more politically secure. 3D printing not only changes the geographic locations manufacturers are drawn to; it also raises the possibility of relocating IP resources and investments to reduce the risk of tariff or national security uncertainty. As with semiconductor fabless design, countries that afford adequate IP protections can protect IP rights that are relocated to their jurisdictions and thereby help companies optimize their responses to changing trade realities; doing so uses manufacturing capacity that is not as subject to tariff or sanction risks.

The sheer volume of patents involved in goods that are manufactured by way of supply chains that stretch across multiple countries presents opportunities for licensing or relocating IP rights to mitigate the risk of shifting trade policy and structural pressures.

Applying an IP Paradigm to Strengthen Global Supply Chains

Radical changes to supply chains such as reshoring and relocating overseas production facilities take time, even amidst political pressures and environmental shocks. Balancing the security of domestic supply of essential goods with the benefits of globalization is central to the rethinking of supply chains currently underway. Wherever that balance ultimately lies, the possibilities sketched above suggest that IP can play a strategic role in the transition to more resilient supply chains. The strategic deployment of IP assets can account for factors like trade resiliency, the availability of emerging technologies, export control risk reduction, and the availability of adequate IP protections in multiple markets. Despite narratives that promote a binary choice between decoupling or engagement, attention to IP enables more nuanced approaches.

It is, for example, critical to acknowledge that intellectual property can in fact be an element of Chinese industrial policy. Political discourse around Chinese industrial policy often emphasizes state support that creates an uneven global playing field, and the perception that China lacks any meaningful IP regime is widespread. However, China's patent office fields more applications than its counterparts in the United States, the European Union, Japan, and South Korea combined. A recent speech from Xi Jinping published in party magazine *Qiushi* emphasizes the need for higher-quality IP in China to further promote state-led technological advancements. Categorically scoffing at China's intellectual property regime can blind analysis to more nuanced possibilities for re-working supply chains, which in turn narrows the perspective on the range of possible outcomes that could emerge from current Sino-American frictions.

Emerging markets likewise have much to gain from establishing a robust regime for intellectual property licensing above and beyond the minimum standards in the Agreement on Trade-Related Aspects of Intellectual Property Rights. As supply chains from China are disrupted, companies may look to the environment for licensing in other markets, and opportunistic actors may proceed accordingly as this process diffuses. While the global trade regime may or may not formally incorporate such avenues, they may nevertheless become an important feature of bilateral and international trade relations.

Table 1: Using IP to Smooth Transitions and Support Healthy Competition

	ACTION ITEMS FOR....	
Area of Focus	Supply Chain Managers	Policymakers
Acknowledge the sophistication of China's IP regime while continuing to push for enhanced IP protections	Take fuller advantage of the ease/affordability of filing design patents in China	Continue to point out problematic areas of mutual concern
Create more welcoming investment and trade regimes by applying lessons learned from the trade war	Distribute IP assets and design work to minimize dutiable value and respond to country of origin specifications	Seek out bilateral/ plurilateral trade agreements with strong chapters on IP; strengthen domestic patent examination processes
Direct trade agendas and assistance toward countries more interested in building/enhancing their IP regimes	Invest in a variety of markets that offer competitive advantages in IP protection	Pursue more partnership programs between larger patent/trademark offices in developed markets and smaller patent/trademark offices in emerging markets

Finally, developed economies—both an originator and market for products made over extended supply chains—can direct their trade agendas and development assistance toward countries that are now more interested in crafting their IP regimes to better protect technology investments from abroad.

Table 1 summarizes action items that can smooth the transition to restructured supply chains while injecting a healthy dose of competition helpful for sustaining the benefits of globalized production.

Conclusion: Moving Beyond Reshoring and Decoupling

The very real connection between intellectual property and supply chains—and the licensing and filing possibilities that connection creates—present options for commercial actors and policymakers who may wish to preserve aspects of globalized supply chains while responding to the realities of a post-COVID-19 world where trade tensions linger. The manner through which solutions are pursued is the true measure of how the politics driving that environment will play out. Great power competition between China and the United States invites tactical adjustments from an array of actors whose response affects the day-to-day management of supply chains. Though the issues of reshoring and economic decoupling are key parts of the story, they need not be the only considerations. Rather than getting caught in a vicious cycle of techno-nationalist confrontation, it is possible for businesses and policymakers to promote virtuous cycles of competition with a more robust focus on intellectual property. While intellectual property has been a real source of friction, viewing it as a solution broadens the possibilities for adapting to supply chain dynamics.

Endnotes

1 Calculation based on data for the summed total value in U.S. dollars of imports/exports of goods in Standard International Trade Categories 75, 76, 77, 78, 87, and 88 as a ratio of the total value in U.S. dollars of worldwide imports/exports in all categories (available at https://comtrade.un.org/data).

2 Specifically, The United States Patent and Trade Office (USPTO), the European Intellectual Property Office (EUIPO), and China's National Bureau of Statistics (CNBS) have each published lists of patent-intensive industries, with "patent intensive" defined as an above average ratio of patents to employees in the industrial category (in the case of the USPTO and EUIPO) or above average rates of patent issuance, patents per employees, or research and development (R&D) intensity (in the case of the CNBS).

3 The publications upon which this brief is based (see the acknowledgements) discuss these findings and the methodology behind them in greater detail.

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