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The Importance of Being Earnestly Innovative: The Increasing Role of Intellectual Property Law in the Global Economy

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Introduction

This brave new world of innovation and globalization boasts that times are changing and so are the very rules of the game. However, in the wake of a global pandemic, why does it feel like all the efforts of true global harmony came right back to square one? In everyday life, the whole world seemed to be within reach with access to places far away being at an all-time high. Currently, there are flights to space available, if one is well-positioned.¹ As such, an inquiry should be made into why access to care for a global pandemic is causing a problem that could have been dealt with swiftly to persist for almost two years now. Is it possible that the very laws that govern the ever-growing profusion of innovation aren't innovative enough?

Intellectual Property (IP) is starting to rise above tangible property in a world full of innovation and creativity. In an increasingly competitive worldwide marketplace, strong IP laws are vital to business success. The global transition to a technology reliant economy makes Intellectual Property Rights (IPR) a cornerstone of modern economic and trade policy. This is especially true in the United States.² As such, IP law negotiations have taken up the mantle of being one of the key negotiating points for international trade amongst countries. Countries that are heavy exporters of medicine, technology and other IP heavy goods strongly advocate for stronger and stricter IP laws to protect their competitive edge in the global market while other lower income countries are struggling to achieve any negotiating power in the market.

Throughout the COVID crisis that has raged on for over a year and a half now, the uneven vaccine distribution across the world showed how IP rights might promote innovation, which is

¹ Joey Roulette, *In a Blue Origin Rocket, William Shatner Finally Goes to Space*, N.Y. TIMES (Oct 13, 2021), <https://www.nytimes.com/2021/10/13/science/william-shatner-space-blue-origin.html> (last visited Oct 15, 2021).

² SHAYERHA ILLIAS AKHTAR ET AL., CONG. RSCH. SERV., RL34292, INTELLECTUAL PROPERTY RIGHTS AND INTERNATIONAL TRADE (2020).

most profitable but not always desirable for the global good. While IP rights are important to protect creators and innovation, it is important to not let our solutions to protecting IPR mimic the same old trade barriers in a world that is striving to be increasingly globalized. In our effort to localize the global economy, our approach to trade and information exchange remains a massive determinant of accessibility to markets for both commerce and public wellbeing.

This article will explore some of the most pressing IP concerns in US trade policy and how that impacts the state of foreign relations today. This article will further assess areas where a loosening of IP might be overall beneficial and how a nuanced IPR policy can be the way forward in this brave new world.

Background

Increased globalization is characterized by a persistent decline in formal trade barriers³ and refers to the increased integration of economies worldwide, particularly through the unencumbered movement of goods, services, and investment across borders. Globalization can also refer to the movement of labor and technology across international borders.⁴ As such, trade tensions amongst economies are being shifted to a new frontier: a technological one.⁵ An overwhelming consensus exists that the evolving system of stronger IPR and private rights in new technical developments will lead to an increase in innovation and market mediated information transfers to all countries.⁶

³ Melina Kolb, *What Is Globalization?* PETERSON INSTITUTE FOR INTERNATIONAL ECONOMICS (2021), <https://www.piie.com/microsites/globalization/what-is-globalization> (last visited Oct 13, 2021).

⁴ *Id.*

⁵ See generally Margot E. Kaminski, *The Capture of International Intellectual Property Law through the U.S. Trade Regime*, 87 S. CAL. L. REV. 977 (2014).

⁶ KEITH E. MASKUS, *INTELLECTUAL PROPERTY RIGHTS IN THE GLOBAL ECONOMY* 109-42 (Inst. Int'l Econ., 2000). at 109-42.

Access to global markets has lifted many out of poverty in emerging markets.⁷ However, the benefits have not been equally shared.

This article will concentrate on the intermingling of trade policy and IP laws from the perspective of the United States, which is considered to have one of the most robust bodies of IP law in the world.⁸ This article will first provide an overview of the United States' approach in protecting its IP interest against foreign partners and discuss current conflicts between the U.S. and its foreign counterparts. The article will then conduct an in-depth analysis of the IP related issues that are at the root of the current U.S.-China trade war,⁹ the effect of said trade war on the U.S. economy, and question whether there might be a better way to address the preservation of the United States' IPR interests. Finally, this article will discuss areas where traditional IPR might be falling short in serving public interest and propose that an innovative approach to at least certain areas of Intellectual Property might be beneficial not only for the global economy but also to national interests.

The State of Intellectual Property Laws in The United States

Intellectual property law in the USA is governed by both federal and state legislation. IP laws are further subject to international conventions implemented by the World Intellectual Property Organization (WIPO)¹⁰ and the World Trade Organization (WTO).¹¹ The United States Patent and Trademark Office (USPTO) oversees granting U.S. patents and registering trademarks. The USPTO is a federal agency tasked with advising the President, the Secretary of Commerce

⁷ *Id.*

⁸ Ross Kelly, Here are the best and worst countries for Intellectual Property Protection, CHIEFEXECUTIVE.NET (2017), <https://chiefexecutive.net/best-worst-countries-intellectual-property-protection/> (last visited Oct 24, 2021).

⁹ Ana Swanson, Keith Bradsher, U.S. Signals No Thaw in Trade Relations With China, N.Y. TIMES (October 5, 2021), <https://www.nytimes.com/2018/07/05/business/china-us-trade-war-trump-tariffs.html> (last visited Oct. 24, 2021).

¹⁰ WIPO Homepage, <https://www.wipo.int/portal/en/index.html> (last visited 10/13/2021).

¹¹ WTO Homepage, <https://www.wto.org/> (last visited 10/27/2021).

and other government agencies on matters relating to policy and enforcement of patents. The USPTO also works towards promoting IP protection internationally.¹²

The congressional interest in IPR stems directly from the US Constitution and since 1988, Congress has addressed IPR as a principal trade negotiating objective.¹³ This includes policy concerns due to the large role of IPR in the US economy and the balance between protecting IPR and competing public policy interests.¹⁴ The Constitution vests this power in the Congress, “to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors exclusive Right to their respective Writings and Discoveries” and “to regulate Commerce with foreign Nations.”¹⁵ As such, Congress has long included IPR in their trade negotiating objectives to protect the incentivization of innovation and creative output in the United States.¹⁶

The TRIPS Agreement

The WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (the “TRIPS Agreement” or “TRIPS”) came about in 1995 and globalized IPRs by tying intellectual property rights to trade and making them visible and enforceable in the international arena.¹⁷ IPR considerations have since played a prominent role in trade negotiations. The TRIPS Agreement

¹² UNITED STATES PATENT AND TRADEMARK OFFICE Homepage, <https://www.uspto.gov/> (last visited, 10/13/2021).

¹³ SHAYERHA ILLIAS AKHTAR ET AL, *Supra* note 2.

¹⁴ *Id.*

¹⁵ U.S. Const., art. I, § 8.

¹⁶ SHAYERHA ILLIAS AKHTAR ET AL, *Supra* note 2.

¹⁷ AGREEMENT ON TRADE-RELATED ASPECTS OF INTELLECTUAL PROPERTY RIGHTS, art. 27.3, Apr. 15, 1994, MARRAKESH AGREEMENT ESTABLISHING THE WORLD TRADE ORGANIZATION, ANNEX IC, LEGAL INSTRUMENTS- RESULTS OF THE URUGUAY ROUND, 33 I.L.M. 81 (1994) [hereinafter referred to as TRIPS AGREEMENT]; *See also*: Robert D. Anderson, Anna Caroline Müller & Antony Scott Taubman, *The WTO TRIPS Agreement as a Platform for Application of Competition Policy to the Contemporary Knowledge Economy*, COMPETITION POLICY AND INTELLECTUAL PROPERTY IN TODAY'S GLOBAL ECONOMY 62–98 (Robert D. Anderson, Nuno Pires de Carvalho, & Antony Taubman eds., 2021).

articulates broad principles to establish a balance of rights and obligations and provides the scope for domestic remedies against the anti-competitive abuse of IP rights that would otherwise restrain trade. As such, it establishes obligations for transnational cooperation in addressing anti-competitive IPR practices. Even though these provisions have yet to be systematically reviewed in their implementation, they provide a unique framework for the application of law and policy in this area.¹⁸ TRIPS radically altered the international arena by holding all WTO member nations to a core of established IP norms.

Indeed, a harmonized system of IPRs provides all countries involved, especially rich countries with technology driven tools that they would otherwise lack.¹⁹ With access to licensing and regulated technology transfers, nations might be able to avail foreign direct investment (FDI) and grow their economy. However, the implications of the shift from formal trade barriers in the form of tariffs and quotas to a technology-based regulation system are still being uncovered. Although the rise of global IPRs affect all involved, poorer countries which happen to also be countries that import more IP than they export, have exerted little to no influence on setting the standards.

Watchlist Countries

The “Special 301” Report (the “Report”), by the Office of the U.S. Trade Representative pursuant to the Trade Act of 1974 as amended, identifies countries with inadequate IPR regimes on “watch lists.” Trade secret theft, including through cybercrime, is a growing focus. The Report conducts an annual review of the state of IPR with U.S. trading partners around the world. Congress amended the Trade Act in 1988 “to provide for the development of an overall strategy

¹⁸ *Id.*

¹⁹ KIETH E. MARKUS, *Supra* note 6 at 112.

to ensure adequate and effective protection of intellectual property rights and fair and equitable market access for United States persons that rely on protection of intellectual property rights.”²⁰

Congress particularly expressed an important policy concern that:

[T]he absence of adequate and effective protection of United States intellectual property rights, and the denial of equitable market access, seriously impede the ability of the United States persons that rely on protection of intellectual property rights to export and operate overseas, thereby harming the economic interests of the United States.²¹

The 2021 Special 301 Report addressed the priority of the American Administration to craft trade policy in service of American workers especially in the innovation driven sectors:

This Report provides an opportunity to put a spotlight on foreign countries and the laws, policies, and practices that fail to provide adequate and effective IP protection and enforcement for U.S. inventors, creators, brands, manufacturers, and service providers, which, in turn, harm American workers whose livelihoods are tied to America’s innovation-driven sectors. The Report identifies a wide range of concerns, including: (a) challenges with border and criminal enforcement against counterfeits, including in the online environment; (b) high levels of online and broadcast piracy, including through illicit streaming devices; (c) inadequacies in trade secret protection and enforcement in China, Russia, and elsewhere; (d) troubling “indigenous innovation” and forced technology transfer policies that may unfairly disadvantage U.S. right holders in markets abroad; and (e) other ongoing, systemic issues regarding IP protection and enforcement, as well as market access, in many trading partners around the world. Combatting such unfair trade policies will encourage domestic investment in the United States, foster American innovation and creativity, and increase economic security for American workers and families.²²

The USTR identified thirty-two trading partner countries to be placed on a Priority Watch List. The Report used stakeholder input on over 100 trading partners. The Special 301 Subcommittee focused its review on those submissions that responded to the request set forth in

²⁰ Omnibus Trade and Competitiveness Act of 1988, § 1303(a)(2), 102 Stat. 1179.

²¹ *Id.*, § 1303(a)(1)(B).

²² Office of the United States Trade Representative, 2021 Special 301 Report (2021).

[https://ustr.gov/sites/default/files/files/reports/2021/2021%20Special%20301%20Report%20\(final\).pdf](https://ustr.gov/sites/default/files/files/reports/2021/2021%20Special%20301%20Report%20(final).pdf) (last visited Oct. 27, 2021), [Hereinafter referred to as 2021 Special 301 Report].

the notice published in the Federal Register to identify whether a particular trading partner should be placed on the watchlist or not and conducted extensive research to determine the list.²³

The US-China Trade War

IP issues have played a big role in trade relations between the U.S. and China, and disputes between these two countries regarding IPR were described as a "war" long before the current trade war²⁴ began in 2018.²⁵ In a recent report from the Office of Trade and Manufacturing Policy, the White House acknowledged that China has experienced rapid economic growth and moved up the global value chain. However, the report also asserts that “much of this growth has been achieved in significant part through aggressive acts, policies, and practices that fall outside of global norms and rules (collectively, ‘economic aggression’).”²⁶

According to a March 2019 study released by the Organization for Economic Co-operation and Development (OECD) and European Union Intellectual Property Office (EUIPO), titled “Trends in Trade in Counterfeit and Pirated Goods,” the global trade in counterfeit and pirated goods produced \$509 billion in 2016 and accounted for 3.3% of the global trade in goods that year.²⁷ The study found that China was “by far the biggest origin” country for counterfeit and pirated goods, accounting for 63.4% of the global exports of counterfeit goods in 2016 and amassing a total value of \$322 billion.²⁸

²³ *Id.*

²⁴ Ana Swanson, *Trump's Trade War With China Is Officially Underway*, N.Y. TIMES (July 5, 2018), <https://www.nytimes.com/2018/07/05/business/china-us-trade-war-trump-tariffs.html> (last visited Oct. 9, 2021).

²⁵ See, e.g., GORDON C.K. CHEUNG, INTELLECTUAL PROPERTY RIGHTS IN CHINA 32-33 (2009).
see also Weighou Zhou, *Pirates Behind an Ajar Door, and an Ocean Away: U.S.-China WTO Disputes, Intellectual Property Protection, and Market Access*, 25 TEMP. INT'L & COMP. L.J. 139, 140-41 (2011).

²⁶ How China's Economic Aggression Threatens the Technologies and Intellectual Property of the United States and the World, OFFICE OF TRADE & MANUFACTURING POLICY REPORT (2018).

²⁷ OECD/EUIPO, *Trends in Trade in Counterfeit and Pirated Goods* at 11 (Mar. 2019).

²⁸ 2021 SPECIAL 301 REPORT *Supra*, note 22.

Trade tensions between the United States and China have escalated to a significant degree in the last five years. The Trump administration had very publicly adopted a hardline policy when it came to China.²⁹ IPR issues have unsurprisingly been a primary driving force in some recent trade disputes between the two countries. On August 14, 2017, Donald Trump, in his capacity as the U.S. President, issued a memorandum to the USTR stating the following:

China has implemented laws, policies, and practices and has taken actions related to intellectual property, innovation, and technology that may encourage or require the transfer of American technology and intellectual property to enterprises in China or that may otherwise negatively affect American economic interests. These laws, policies, practices, and actions may inhibit United States exports, deprive United States citizens of fair remuneration for their innovations, divert American jobs to workers in China, contribute to our trade deficit with China, and otherwise undermine American manufacturing, services, and innovation.³⁰

The memorandum indicates that IPR is closely tied to U.S. economic interests in the international arena. USTR was asked to “determine, consistent with section 302(b) of the Trade Act of 1974 (19 U.S.C. 2412(b)), whether to investigate any of China's laws, policies, practices, or actions that may be unreasonable or discriminatory and that may be harming American intellectual property rights, innovation, or technology development.”³¹ Following this 2017 memorandum, the USTR conducted an extensive investigation of China's IP practices culminating in the initiation of the recent U.S. IP war against China. The USTR produced various reports pursuant to Section 301 of the Trade Act of 1974 criticizing China’s IP practices, as discussed in previous sections.³² The following sections will analyze the key points of contention between the U.S. and China according to the Section 301 Report from 2018.

²⁹ See, e.g., Sahashi Ryo, *Keeping the Lid on US-China Trade Tensions*, NIPPON (Feb. 7, 2019), <https://perma.cc/SXZ3-FPCU>.

³⁰ Addressing China's Laws, Policies, Practices, and Actions Related to Intellectual Property, Innovation, and Technology, 82 Fed. Reg. 39,007 (Aug. 17, 2017).

³¹ *Id.*

³² See, e.g., OFFICE OF THE U.S. TRADE REPRESENTATIVE, FINDINGS OF THE INVESTIGATION INTO CHINA'S ACTS, POLICIES AND PRACTICES RELATED TO TECHNOLOGY TRANSFER, INTELLECTUAL PROPERTY, AND INNOVATION UNDER SECTION 301 OF THE TRADE ACT OF 1974 5-6.

1. *Technology Transfer Policies*

A foreign direct investment (FDI) is an investment made in a business in one country by an entity based in a different country that takes the form of a controlling ownership.³³ FDI creates a lasting interest and generates many benefits in the host country.³⁴ FDI is favored by economists because it allows capital to seek out its highest rate of return. FDI also allows for global mobility such that the competition and free flow discourages governments from pursuing bad business policies.³⁵ Many emerging markets employ incentive schemes to attract foreign direct investments (FDI), with the hope that such investments will benefit the technological capabilities of the host country.³⁶ China is no exception and has taken up the policy of pressing foreign trading partners to share their technologies with domestic actors in exchange for market access.³⁷ However, China's approach to these technology transfers has been contentious.³⁸

The USTR and the U.S. Chamber of Commerce have accused China of using foreign ownership restrictions to facilitate technology transfers from U.S. firms to their Chinese partners.³⁹ Most foreign businesses prefer to invest in China through the structure of a wholly-owned foreign enterprise ("WFOE").⁴⁰ China's regulations require foreign companies that seek to invest in certain

³³ FOREIGN DIRECT INVESTMENT (FDI) CORPORATE FINANCE INSTITUTE, <https://corporatefinanceinstitute.com/resources/knowledge/economics/foreign-direct-investment-fdi/> (last visited Oct 28, 2021).

³⁴ *Id.*

³⁵ Prakash Loungani and Assaf Razin, HOW BENEFICIAL IS FOREIGN DIRECT INVESTMENT FOR DEVELOPING COUNTRIES? FINANCE AND DEVELOPMENT | F&D, <https://www.imf.org/external/pubs/ft/fandd/2001/06/loungani.htm> (last visited Nov 17, 2021).

³⁶ Daniel Gervais, *TRIPS and Development*, in INTELLECTUAL PROPERTY, TRADE AND DEVELOPMENT 3, 54 (Daniel Gervais ed., 2007).

³⁷ OFFICE OF THE U.S. TRADE REPRESENTATIVE, FINDINGS OF THE INVESTIGATION INTO CHINA'S ACTS, POLICIES AND PRACTICES RELATED TO TECHNOLOGY TRANSFER, INTELLECTUAL PROPERTY, AND INNOVATION UNDER SECTION 301 OF THE TRADE ACT OF 1974 5–6 (Mar. 22, 2018), <https://perma.cc/6ELQ-42VZ> [hereinafter USTR, 2018 SECTION 301 REPORT]

³⁸ *Id.*, at 23-24.

³⁹ *Id.*, at 19-20, 27.

⁴⁰ *Id.*, at 27.

industries to enter cooperative contracts, such as joint venture agreements, with Chinese partners.⁴¹ The USTR Section 301 Report asserts that the Chinese government use “joint venture requirements, foreign investment restrictions, and administrative review and licensing processes to force or pressure technology transfers from American companies.”⁴² The U.S. China Economic and Security Review Commission⁴³ noted that these technology transfers, taken together, have led to the loss of billions of dollars in U.S. research and development, IP, and technology products.⁴⁴ Further, the Commission on the Theft of American Intellectual Property purports that the annual cost of global IP theft to the U.S. economy could be as high as \$600 billion.⁴⁵ The Section 301 Report from 2018 names China as “the world’s principal IP infringer,” stating that:

China continues to obtain American IP from U.S. companies operating inside China, from entities elsewhere in the world, and of course from the United States directly through conventional as well as cyber means. These include coercive activities by the state designed to force outright IP transfer or give Chinese entities a better position from which to acquire or steal American IP.⁴⁶

The U.S.China Economic and Security Review Commission claims that the Chinese government relies on several different means to acquire U.S. technology for its technological development. The means listed by the Commission are as follows: (1) pursuing FDI in foreign technology firms, (2) making venture capital (VC) investments in foreign technology firms and startups, (3) establishing joint ventures(JVs) between foreign and Chinese companies, (4) requiring licensing agreements for foreign firms to operate in China, (5) conducting cyber espionage to steal IP, and

⁴¹ SEAN O’CONNOR, HOW CHINA’S ECONOMIC AGGRESSION THREATENS THE TECHNOLOGIES AND INTELLECTUAL PROPERTY OF THE UNITED STATES AND THE WORLD (2019).

⁴² USTR, 2018 SECTION 301 REPORT *Supra* note 37.

⁴³ The United States-China Economic and Security Review Commission is an independent government agency of the United States that focuses on providing recommendations based on findings on bilateral trade with China.

⁴⁴ *See*: HOW CHINESE COMPANIES FACILITATE TECHNOLOGY TRANSFER FROM THE UNITED STATES, *Supra* note 41.

⁴⁵ *Id.*

⁴⁶ USTR, 2018 SECTION 301 REPORT *Supra* note 37.

(6) attracting U.S. experts and researchers to work for or partner with Chinese companies.⁴⁷ These practices categorized as “forced technology transfer”(FTT) have been a key point of contention in driving tension between the U.S. and China in the current trade war.⁴⁸

However, using the term “forced” in this scenario feels like a misnomer because foreign firms are not forced but simply presented with the condition of whether or not to avail themselves to these conditions. FTT policies in China can come in different forms, which include: (1) “Lose the market” policies (where access to the market is preconditioned upon meeting requirements of technology transfer); (2) “No choice” policies (which are denoted by unfair IP civil litigation rulings, and requirements to divulge trade secrets in order to receive regulatory approvals); and (3) “Violate the law” policies (these include lax legal provisions in the governance of interface between antitrust and IP).⁴⁹ With the exception of the “no choice” policies, foreign firms have some choice about whether or not they want to comply with FTT policies though these choices have consequences.⁵⁰ As such, FTT policies attempt to facilitate technology transfer through negative repercussions rather than through incentives. Like other emerging markets before it, the Chinese state has implemented FTT policies in an attempt to shift the bargaining power in commercial transactions to gain more ground in international trade.⁵¹

2. *Discriminatory Licensing Practices*

The United States has also posited that China restricted foreign entities in negotiating market-based licensing terms with Chinese companies.⁵² Most notably, China imposes mandatory

⁴⁷ *Id.*

⁴⁸ Julie Wernau, *Forced Tech Transfers Are on the Rise in China, European Firms Say*, WALL ST. J. (May 20, 2019), <https://perma.cc/7GNY-HNEV>.

⁴⁹ Dan Prud'homme & Max von Zedtwitz, *Managing “forced” technology transfer in emerging markets: The case of China*, 25 *Journal of International Management* 100670 (2019).

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² USTR, 2018 SECTION 301 REPORT *Supra* note 37.

terms in contracts where one party is a foreign licensor, and these mandatory terms discriminate against foreign IP owners.⁵³ The USTR's 2018 Section 301 Report claims that China's imposition of mandatory adverse licensing terms can be seen in the official measures that impose a different set of rules for imported technology transfers originating from outside China, compared to separate rules that apply to technology transfers occurring among domestic companies.⁵⁴ The Report further states that the mandatory requirements on foreign technology are clearly discriminatory since they are very obviously more burdensome than the domestic requirements.⁵⁵ These restrictions are meant to benefit domestic entities at the expense of foreign competitors, including U.S. competitors.⁵⁶

However, this kind of anti-foreign bias in IP enforcement and litigation is common in many countries outside of China. There has reportedly been a persistent anti-foreign bias present in IP litigation in Canada.⁵⁷ Foreigners also face potential discrimination during the patent examination processes at both the European Patent Office (EPO) and the Japanese Patent Office, as well as in other liberal democracies.⁵⁸ Further, the United States and European Union (EU) have the largest amount of WTO cases against them as defendants⁵⁹ and have the worst records in terms of timeliness and complete compliance when it comes to WTO settlements.⁶⁰

⁵³ *Id.*

⁵⁴ *Id.*

⁵⁵ *Id.*

⁵⁶ *Id.*

⁵⁷ Joseph Mai & Andrey Stoyanov, *Anti-foreign bias in the court: Welfare explanation and evidence from Canadian intellectual property litigations.*, 117 JOURNAL OF INTERNATIONAL ECONOMICS 21–36 (2019).

⁵⁸ Elizabeth Webster, Paul H. Jensen & Alfons Palangkaraya, *Patent examination outcomes and the national treatment principle*, 45 The RAND Journal of Economics 449-469 (2014).

⁵⁹ WTO | dispute settlement - Map of disputes between WTO Members, Wto.org (2021), https://www.wto.org/english/tratop_e/dispu_e/dispu_maps_e.htm (last visited Oct 27, 2021).

⁶⁰ Arie Reich, *The Effectiveness of the WTO Dispute Settlement System: A Statistical Analysis*, SSRN Electronic Journal (2017).

3. *State-Backed Acquisition of Global Tech*

China has employed the strategy of investing in foreign technologies in the pursuit of economic and technological development.⁶¹ The USTR has accused China of distorting the market and undermining U.S. industry competitiveness saying:

The Chinese government directs and unfairly facilitates the systematic investment in, and acquisition of, U.S. companies and assets by Chinese companies to obtain cutting edge technologies and... IP... and generate large-scale technology transfer in industries deemed important by state industrial plans. The role of the state in directing and supporting this outbound investment strategy is pervasive... The market-distorting acts, policies, and practices of the Chinese government in technology-focused sectors impose significant costs and risks on U.S. industry. They undermine the ability of U.S. technology companies to innovate and adapt and threaten the long-term competitiveness of U.S. industry.⁶²

Although such investment and acquisitions are normal transactions in the market economy, the United States is concerned that China's outbound foreign direct investment is not driven by market factors, but rather guided and supported by the government.⁶³ The U.S. Chamber of Commerce has cited that Chinese outbound foreign direct investments in the technology sector are tied to China's industrial policy.⁶⁴

Even though the U.S. claims that the controversial transactions are a result of China's unfair IP practices, a few of these controversies seem to be resulting from transactions between private parties. These claims could be substantiated if the transactions occur where one of the parties is a Chinese state-owned enterprise (SOE), but when it is between private parties, these claims are difficult to substantiate. The U.S. would essentially have to prove that the Chinese

⁶¹ Andrew B. Kennedy & Darren J. Lim, *The Innovation Imperative: Technology and US-China Rivalry in the Twenty-First Century*, 94 INT'L AFF. 553, 557 (2018).

⁶² USTR, 2018 SECTION 301 REPORT, *supra* note 37.

⁶³ USTR, 2018 SECTION 301 REPORT, *supra* note 37, at 63 ("China's OFDI is ... driven by non-market factors.... These factors stem from the Chinese government's extensive intervention ... to achieve industrial policy objectives.").

⁶⁴ U.S. CHAMBER OF COMMERCE, MADE IN CHINA 2025: GLOBAL AMBITIONS BUILT ON LOCAL PROTECTIONS 23-24 (2017), <https://perma.cc/GL6Z-6CC2>.

government planned and directed unfair IP practices.⁶⁵ A unit of the U.S. Department of Defense describes the difficulty in pointing out China's overall technology agenda through individual transactions:

[China's] principal vehicles [for technology transfer] are investments in early-stage technologies as well as acquisitions. When viewed individually, some of these practices may seem commonplace and not unlike those employed by other countries. However, when viewed in combination, and with the resources China is applying, *the composite picture illustrates the intent, design and dedication of a regime focused on technology transfer at a massive scale.*⁶⁶

Currently, the United States assumes that most Chinese parties involved in the transactions are SOEs, which are controlled by the state, and as such, all transactions are considered to be made as a part of a Chinese conspiracy.⁶⁷ Though it can be a seemingly problematic practice on China's part, there are better ways to address such state driven acquisitions from China. For instance, the U.S. could increase disclosure requirements for state led acquisitions and extend the scope of national security screenings. By being intentional about the threshold for notification upon acquiring a share, countries can make sure that no national security interests are being compromised.⁶⁸ International companies in China need to explore ways to shift their focus maintaining their presence in the Chinese market, if they are to have any leverage in influencing the market and surrounding regulations. As discussed below, punitive sanctions are not going to offer any redress and are doing more harm to each economy.

4. *How long is the U.S.-China trade war going to persist and what are the implications?*

⁶⁵ Mark Wu, *The "China, Inc." Challenge to Global Trade Governance*, 57 HARV. INT'L L.J. 261, 275 (2016).

⁶⁶ MICHAEL BROWN & PAVNEET SINGH, DEF. INNOVATION UNIT EXPERIMENTAL, CHINA'S TECHNOLOGY TRANSFER STRATEGY: How CHINESE INVESTMENTS IN EMERGING TECHNOLOGIES ENABLE A STRATEGIC COMPETITOR TO ACCESS THE CROWN JEWELS OF U.S. INNOVATION 16 (2018), <https://perma.cc/L49B-SPBL>.

⁶⁷ See USTR, 2018 SECTION 301 REPORT, *supra* note 37, at 80-81.

⁶⁸ MADE IN CHINA 2025: The making of a high-tech superpower and consequences for industrial countries, No. 2 Mercator Institute for China Studies 61-65 (2020).

The U.S. business community has implored President Joe Biden to ease tensions.⁶⁹ The groups that signed onto the plea include the U.S. Chamber of Commerce, the Business Roundtable, and other groups representing sectors of the economy with close business ties to China, such as the Pharmaceutical Research and Manufacturers of America, the Semiconductor Industry Association, and the American Farm Bureau Federation.⁷⁰ However, President Joe Biden has only amplified his predecessor's policies so far by implementing additional sanctions and calling the dispute "a battle between the utility of democracies in the twenty-first century and autocracies."⁷¹

Among experts that believe it to be in the best interest of both U.S. and the global economy for U.S. and China to reach a policy understanding, Yukon Huang states that the accusations against China's Intellectual Property safeguards are misguided:

China's patent courts have matured in dealing with this problem—foreign plaintiffs are now more likely to win their cases than domestic firms. In addition, theft is becoming less of a concern as payments for royalties and licenses by Chinese firms, according to one think tank scholar, have grown almost by a factor of four in the past ten years, making China the second-largest payer of such royalties globally. The reality is that it takes generations to develop a sound regime for intellectual property rights, as was the case for the United States. The foundation of China's system was laid only two decades ago with reforms that accompanied China's 2001 accession to the World Trade Organization. Progress has been notable in recent years as evidenced by the findings of the "2020 Business Climate Survey" by the American Chamber of Commerce in China; the survey indicated that nearly 70 percent of surveyed U.S. firms in China felt that China's enforcement of intellectual property rights had improved, compared with only 47 percent in 2015.⁷²

⁶⁹ Thomas Kaplan, Alan Rappoport, Businesses Push Biden to Develop China Trade Policy, N.Y. TIMES (September 01, 2021), <https://www.nytimes.com/2021/09/01/business/economy/biden-china-trade-policy.html> (last visited Oct. 13, 2021).

⁷⁰ *Id.*

⁷¹ David E. Sanger, Biden Defines His Underlying Challenge With China: 'Prove Democracy Works': White house memo, N.Y. TIMES (Mar 26, 2021), <https://www.nytimes.com/2021/09/01/business/economy/biden-china-trade-policy.html> (last visited Oct. 13, 2021).

⁷² Yukon Huang, THE U.S.-CHINA TRADE WAR HAS BECOME A COLD WAR CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE, <https://carnegieendowment.org/2021/09/16/u.s.-china-trade-war-has-become-cold-war-pub-85352> (last visited Oct 29, 2021).

The trade war has resulted in economic pain on both sides and caused trade flow to be diverted away from both economies.⁷³ Heather Long at the Washington Post explained, “U.S. economic growth slowed, business investment froze, and companies didn’t hire as many people. Across the nation, a lot of farmers went bankrupt, and the manufacturing and freight transportation sectors have hit lows not seen since the last recession. Trump’s actions amounted to one of the largest tax increases in years.”⁷⁴

A September 2019 study found that the trade war had already cost the U.S. economy almost 300,000 jobs and an estimated 0.3% loss of real GDP⁷⁵ and in 2020, research from the Federal Reserve Bank of New York and Columbia University found that U.S. companies had lost at least \$1.7 trillion in the price of stocks as a result of the tariffs imposed on imports from China.⁷⁶

The article by Yukon Huang suggests that:

U.S.-China tensions, however, are now being driven less by economic realities and more by great power rivalry and nationalism—factors exacerbated by mutual mistrust over each other’s strategic intentions. In describing the United States’ multifaceted relationship with China, the Biden administration has emphasized the need to “compete, confront, and cooperate” all at the same time. But as Chinese President Xi Jinping stressed at the 2021 World Economic Forum, “competition is for pursuing excellence—not killing off a rival.”⁷⁷

As shown by the studies referenced above, punitive trade measures do little to alter economic outcomes in a favorable way, and countries worldwide have seen that sanctions are generally not

⁷³ Heather Long, Was Trump’s China trade war worth it?, THE WASHINGTON POST (Jan 20, 2020), <https://www.washingtonpost.com/business/2020/01/15/was-trumps-china-trade-war-worth-it/> (last visited Oct. 13, 2021).

⁷⁴ *Id.*

⁷⁵ Mark Zandi, Jesse Rogers & Maria Cosma, *Trade War Chicken: The Tariffs and the Damage Done*, MOODYSANALYTICS.COM (2019), <https://www.moodyanalytics.com/-/media/article/2019/trade-war-chicken.pdf> (last visited Oct 14, 2021).

⁷⁶ Mary Amity, The Investment Cost of the U.S.-China Trade War, LIBERTY STREET ECONOMICS (2020), <https://libertystreeteconomics.newyorkfed.org/2020/05/the-investment-cost-of-the-us-china-trade-war/> (last visited Oct 14, 2021).

⁷⁷ YUKON HUANG, *Supra* note 72.

effective in getting governments to change their core beliefs. Instead, more can be gained from leveraging certain specialized advantages with the U.S.'s foreign trade partners and using their dependence on a rules-based international trade system to foster a harmonious global economy.

The Trouble with Internet Regimes and WTO E-Commerce Negotiations

Although common technical protocols govern the flow of data across networks, there is no single set of international rules that govern or guide key digital trade issues, and the topic is treated inconsistently in trade agreements.⁷⁸ The WIPO Copyright Treaty (WCT) and the WIPO Performances and Phonograms Treaty (WPPT) (collectively, the WIPO Internet Treaties) came into force in 2002.⁷⁹ The framework established was meant to facilitate “adequate solutions to questions raised by new economic, social, cultural, and technological developments.”⁸⁰

Several issues arise out of the emergence of national internet regimes that both govern and divide the global datasphere. Differing requirements of data governance can lead to increased barriers in trade and investment, which in turn enforce the same barriers that global technology aims to steer us away from. A concern for any country with a more open network, such as the U.S., would be that U.S. firms trading remotely using a digital network can be blocked from markets with discriminatory restrictions.⁸¹ For instance, many U.S. firms are unable to access the Chinese online market, which raises growing concerns about discrimination and protectionism, as well as apprehension that other countries may emulate China and its internet regime.⁸²

⁷⁸ Rachel F. Fefer, Cong. Rsch. Serv, R46198, *Internet Regimes and WTO E-Commerce Negotiations* (2020): <https://sgp.fas.org/crs/misc/R46198.pdf> (last visited Oct. 24, 2021) [hereinafter Fefer, CRS Report 2020].

⁷⁹ World Intellectual Property Organization [WIPO] Copyright Treaty, Dec. 20, 1996, S. TREATY DOC. No. 105-17, 36 I.L.M. 65 (1997) [hereinafter WCT]; WIPO Performances and Phonograms Treaty, Dec. 20, 1996, S. TREATY Doc. No. 105-17, 36 I.L.M. 76 (1997) [hereinafter WPPT].

⁸⁰ See WPPT, *supra* note 79 preamble.

⁸¹ *Id.*

⁸² *Id.*

For the U.S., the interest lies in establishing multilateral rules to make access in the global datasphere uniform and reliable.⁸³ Some analysts predict that the inconsistencies in established rules and regulations in national regimes may create hard splits between different dataspheres and lead to digital trading blocks.⁸⁴ There are ongoing e-commerce negotiations at the WTO that aim to establish a common foundation of trade regulations which could lead to interoperability mechanisms and build bridges between differing national internet regimes.⁸⁵ There are also multiple international forums that discuss internet governance issues, which include active participation from representatives of the U.S. public and private sectors.⁸⁶ Often these forums may identify promising solutions and frameworks but do not necessarily lead to enforceable rules.⁸⁷

Presently, most of the global population is subject to the digital copyright regime.⁸⁸ Despite its broad application meant for a global audience whose citizens live well below the global poverty level, these digital copyright laws have yet to impact most citizens of smaller economies.⁸⁹ One academic commented on the way the copyright laws are mimicking previous international trade frameworks in perpetuating the familiar hierarchies by asserting that:

Assimilating DCs and LDCs (Here DCs stand for Developed Countries and LCDs stand for Least Developed Countries as they are categorized by the UN) into the global copyright system is a familiar component of the path dependency characteristic of global copyright lawmaking. Since the Stockholm Protocol, which first formally acknowledged special needs of DCs, no other revision of the Berne Convention or associated special treaty has purposively sought to identify the impact of new provisions on the development needs and aspirations of the global South beyond general statements regarding the "balance" evidenced by the formal language of the treaties. Instead, the justifications for "globalizing copyright" have sought to impute benefits deeply linked to and dependent on the existence of capital

⁸³ See Fefer, CSR Report 2020 *supra* note 78.

⁸⁴ *Id.*

⁸⁵ *Id.*

⁸⁶ *Id.*

⁸⁷ *Id.*

⁸⁸ See WPPT, *supra* note 79.

⁸⁹ Ruth L. Okediji, Regulation of Creativity under the WIPO Internet Treaties, 77 FORDHAM L. REV. 2379 (2009).

markets and institutional actors to copyright regulation in the impoverished and unstable economies of much of the Southern Hemisphere. In the context of the WIPO Internet Treaties, DC and LDC participation has been specifically justified in ways that echo disputed, untested, and at times inapplicable (but yet historically pervasive) rationalizations for the internationalization of IP more generally. These include, most notably, benefits of technology transfer, foreign direct investment, stimulation of domestic creativity and innovation, and general development progress. However, none of these claims have been proven in the experience of most DCs and LDCs, and there is some consensus that the relationship between IP and development is much more complex than the claims suggest. Indeed, it is instructive to compare official justifications for DC and LDC participation in the WIPO Internet Treaties with concerns articulated by these countries in the proposal for a WIPO Development Agenda.⁹⁰

The author of the article goes on to point out that the current WIPO Internet Treaties have fallen considerably short in their central mission of providing relevant and credible guidelines to facilitate knowledge in the global digital context.⁹¹

The article points out that the regulation provided by the treaties fails to acknowledge the collaborative efforts in creative engagement with which some countries identify strongly and suggests that there is an important opportunity to reconsider how international copyright law might accommodate a dynamic plethora of incentives to support innovative processes across the globe.⁹² Indeed, the social and legal recognition of novel expressions of creativity through digital technologies requires to be addressed more innovatively across geographical, cultural, and technological boundaries. There must be lenses added to these regulations, which can be borrowed from consumer law, competition policy, and human rights ideology.⁹³

How global IP laws impact the mobility of global public goods

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² *Id.*

⁹³ Laurence R. Helfer, *Regime Shifting: The TRIPS Agreement and New Dynamics of International Intellectual Property Lawmaking*, 29 YALE J. INT'L L. 1, 49- 50 (2004).

As noted in prior sections of this article, the world economy is moving towards a harmonized system of private rights in IP innovation and goods with self-preservation as a guiding principle in every national policy. While this may be beneficial in terms of incentivizing innovation and efficient tech diffusion, such impacts would not be spread evenly across the globe. In a globalized economy, where all economies are inextricably interdependent, self-preservation must be seen through a much broader lens. As such, the increasingly privatized nature of IP laws brings up the question of whether such privatization of knowledge will raise significant roadblocks to the provision of global public goods.⁹⁴ There is danger that these roadblocks affect the international dissemination of goods such as public health, environmental protection, education, and general scientific advancement to countries with a smaller presence in the global IP market.

An example of this lies in the recent COVID-19 crisis and the vaccine disparity that followed.⁹⁵ In the last two years, the world faced a global crisis that resulted not only in vast medical emergencies but also a world-wide supply chain crisis.⁹⁶ In the face of a global crisis, localized, co-productive approaches to resolve such crisis-induced shortages should gain acceptance. This presents a good opportunity to revisit and revise existing structural patterns and mechanisms.

Medical IP protections and what we should have addressed with South Africa

In the last year and half, the obvious solution to the COVID-19 crisis was widespread use and administration of vaccines to combat the global pandemic involving the highly infectious and mutating virus. However, vaccines have been distributed very inequitably in the global market,

⁹⁴ Keith E. Maskus & Jerome H. Reichman, *The globalization of private knowledge goods and the privatization of Global Public Goods*, GLOBALIZATION AND INTELLECTUAL PROPERTY, 335–377 (2017).

⁹⁵ COVID vaccines: Widening inequality and millions vulnerable, UN News (2021), <https://news.un.org/en/story/2021/09/1100192> (last visited Oct 28, 2021).

⁹⁶ Martin Farrer, *A perfect storm': supply chain crisis could blow world economy off course*, THE GUARDIAN, 2021, <https://www.theguardian.com/business/2021/oct/02/supply-chain-world-economy-energy-labour-transport-covid> (last visited Oct 28, 2021).

with many countries still lacking adequate supplies, to the point that some called the situation a “vaccine apartheid.”⁹⁷ By July of 2021, less than half of a percentage of all doses of the COVID-19 vaccine had been administered in low-income countries, while many wealthy countries had vaccinated the majority of their populations and were already preparing to administer booster shots.⁹⁸

Poorer countries even had difficulty acquiring doses of the vaccines with higher efficacy, so that even when countries were able to achieve higher inoculation rates of the less effective vaccines, they still ended up with outbreaks and required re-vaccination.⁹⁹ The lack of market power also resulted in these countries paying a higher price for these vaccines than their wealthier counterparts.¹⁰⁰ An article reported that South Africa, Uganda, and Bangladesh all paid higher prices than the EU for AstraZeneca vaccines, with some African countries having to pay over twice the EU price.¹⁰¹ Early in the pandemic, the World Health Organization (WHO) urged governments and medical companies to lower their IP barriers and pool resources in anticipation of discrepancies previously described.¹⁰² Countries like India and South Africa also requested IP waivers as an alternative approach.¹⁰³ However, these requests faced a lot of resistance.¹⁰⁴

⁹⁷ See e.g., Emma Farge, Vaccine nationalism puts world on brink of moral failure – WHO chief says, REUTERS, Jan 18, 2021, <https://www.reuters.com/business/healthcare-pharmaceuticals/vaccine-nationalism-puts-world-brink-catastrophic-moral-failure-who-chief-2021-01-18>.

⁹⁸ Josh Holder, Tracking Coronavirus Vaccinations Around the World, NY TIMES (July 31, 2021), <https://www.nytimes.com/interactive/2021/world/covid-vaccinations-tracker.html> (last visited Oct 14, 2021).

⁹⁹ Yen Nee Lee, *Six Vaccinated Countries have high COVID infection rates. Five of them rely on Chinese Vaccines*, CNBC (July 8, 2021), <https://www.cnbc.com/2021/07/08/five-vaccinated-countries-with-high-covid-rates-rely-on-china-vaccines.html> (last visited Oct 14, 2021).

¹⁰⁰ Carmen Paun & Ashleigh Furlong, *Poorer countries hit with higher price tag for Oxford/AstraZeneca vaccine*, POLITICO (Feb. 22, 2021).

¹⁰¹ *Id.*

¹⁰² WHO, Solidarity Call to Action, <https://www.who.int/initiatives/covid-19-technology-access-pool/solidarity-call-to-action>.

¹⁰³ WTO, Communication from India and South Africa, Waiver from Certain Provisions of the TRIPS Agreement for the Containment and Treatment of COVID-19, IP/C/W/669, Oct. 2, 2020.

¹⁰⁴ CONG. RSCH. SERV., IF11858, POTENTIAL WTO TRIPS WAIVER AND COVID-19 (2021).

These policies that are considered protectionist for most nations that have heavy IP-related exports fail to consider the big picture of a truly globalized economy. The vaccine shortage in parts of the world results not only in unnecessary deaths but also a resurgence of variants that may not be controllable through the existing vaccines.¹⁰⁵ The U.S. did surprisingly endorse waiving IP rights for COVID vaccines, although not for all of them.¹⁰⁶ The partial support is indicative of the U.S.'s protectionism since treatments other than vaccines, although necessary, are excluded.¹⁰⁷

The U.S. has a long history of imposing retaliatory trade sanctions against trade partners that do not accommodate favorable IP laws to benefit its IP intensive industries, and the previously discussed spat with China is just one of the most recent instances. In 1997, during the height of the AIDS epidemic, the South African government passed the South African Medicines and Related Substances Control Act Amendments to address the problem surrounding the lack of access to AIDS medication for the millions of South Africans who had contracted HIV/AIDS.¹⁰⁸ The act was modest in scope, and the intent was to reduce the price of drugs and increase the supply. The act allowed the Minister of Health to make affordable medication available with the national interest to protect public health.¹⁰⁹

Almost immediately, multinational medical companies sued the South African government arguing that it violated the TRIPS act.¹¹⁰ The U.S. government seemed to be in agreement with the

¹⁰⁵ Matteo Chinazzi et al., *Estimating the cooperative versus uncooperative strategies of COVID-19 vaccine allocation: A modeling study*, NORTHEASTERN U. NETWORK SCI. INST. (2020). https://www.mobs-lab.org/uploads/6/7/8/7/6787877/global_vax.pdf (last visited Oct 29, 2021).

¹⁰⁶ Jorge Contreas, *US Support for a WTO Waiver of COVID-19 Intellectual Property*, 56 INTERECONOMICS 179, 179 (2021).

¹⁰⁷ *Id.*

¹⁰⁸ MEDICINES AND RELATED SUBSTANCES CONTROL AMENDMENT ACT, 1997 EXPLAINED (1996), http://everything.explained.today/Medicines_and_Related_Substances_Control_Act%2C_1997/ (last visited Oct 29, 2021).

¹⁰⁹ *Id.*

¹¹⁰ Pat Sidley, *Drug companies sue South African government over generics*, BMJ: BRITISH MEDICAL JOURNAL (2001), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1119675/> (last visited Oct 29, 2021).

position of the pharmaceutical companies and subsequently put South Africa on the Special 301 “watchlist” in the years 1998 and 1999 following a determination made by the USTR that held that South Africa was lacking in the arena of adequate intellectual property protection to an extent that merited bilateral attention.¹¹¹ The Report also stated that, “South Africa's Medicines Act appears to grant the Health Minister ill-defined authority to issue compulsory licenses, authorize parallel imports, and potentially otherwise abrogate patent rights.”¹¹² South Africa’s presence on the watchlist also subjected the country to the imposition of unilateral trade sanctions from the U.S.

In July 1998, the USTR used its discretion and suspended trade benefits for a range of South African products that had previously been granted under the Generalized System of Preferences (GSP) program, stating that the act flouted internationally recognized intellectual property rights for ethical drugs.¹¹³ However, these stances faced great public backlash painting U.S. politicians as greedy and ruthless.¹¹⁴ In 1999, the USTR and the South African government announced that they had resolved their differences and that the U.S. would stop pressuring South Africa, and South Africa, in turn, would promise to adhere to the parameters of the TRIPS agreement.¹¹⁵

The situation with South Africa was a missed opportunity for countries to include some nuance in the field of IP laws. As a society, we value innovation because of the promise of public good that comes out of it. As such, in the case of overwhelming public interest, IP laws should be

¹¹¹ OFFICE OF THE U.S. TRADE REPRESENTATIVE, “SPECIAL 301” ON INTELLECTUAL PROPERTY (Apr. 26, 1991), <https://ustr.gov/sites/default/files/1991%20Special%20301%20Report.pdf> [hereinafter USTR, 1991 SPECIAL 301 REPORT].

¹¹² *Id.*

¹¹³ Simon Barber, *U.S. Withholds Benefits Over Zuma's Bill*, AFRICA NEWS (1998), <http://lists.healthnet.org/archive/html/e-drug/1998-07/msg00041.html> (last visited Oct 14, 2021).

¹¹⁴ Ralph Nader, *Al Gore bullies South Africa on U.S.-made AIDS drugs*, KNIGHT RIDDER/TRIBUNE (April 26, 1999).

¹¹⁵ Robert Weissman, *AIDS Drugs for Africa*, 20 No. 9 Multinational Monitor 9 (1999).

amended to reflect these same public policy concerns. In her analysis of South Africa's fight against Intellectual Property laws for access to AIDS drugs, Deborah Halbert stated:

The issue of the public interest is at the heart of the question of patents. What role should government play and what exactly is the "public" the government ought to protect? For whatever reasons, in the case of AIDS, the developing world has taken a stand in favor of its people, while the U.S. has taken a stand in favor of its corporations. This division will define the future of governmental relations as the U.S. attempts to transform the ideological makeup of the world in favor of "liberal" markets that only consider issues of public health and welfare through the lens of markets and intellectual property laws. The debate is about more than who should own information, it goes to the very heart of whom government is for and who ought to be protected. If the U.S. is successful in defining the public health programs of India, Brazil, and South Africa as immoral because they do not protect the "rights" of corporate citizens, then the democratic principles that serve as the basis for our constitutional rights will have been seriously undermined. However, if activists can successfully offer an alternative, we will all live in a world that is richer, healthier, and more just.¹¹⁶

However, almost two decades after this hopeful note, there is yet to be a balance in approaching intellectual property protections and the human right to health. In 1991, the Doha Declaration¹¹⁷ was made by the WTO to stress the importance of interpreting TRIPS in a way that supports public health, "It emphasizes that the TRIPS Agreement does not and should not prevent member governments from acting to protect public health. It affirms governments' right to use the agreement's flexibility in order to avoid any reticence the governments may feel."¹¹⁸

What can be done?

Policy suggestions exist to help introduce the nuance of public welfare into global intellectual property law. The benefits of open trade and investments can be optimized if deployed evenly to all countries and not just ones with technical advantages. Without such progress, the

¹¹⁶ Halbert, Debora (2002) "*Moralized Discourses: South Africa's Intellectual Property Fight for Access to AIDS Drugs*," SEATTLE JOURNAL FOR SOCIAL JUSTICE: Vol. 1: Iss. 2, Article 2, <https://digitalcommons.law.seattleu.edu/sjsj/vol1/iss2/2> (last visited Oct. 28, 2021).

¹¹⁷ Ministerial declaration, WORLD TRADE ORGANIZATION (2001), https://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm#trips (last visited Oct 28, 2021).

¹¹⁸ The Doha Declaration explained, WORLD TRADE ORGANIZATION, https://www.wto.org/english/tratop_e/dda_e/dohaexplained_e.htm#trips (last visited Oct 28, 2021).

economy risks becoming fragmented and diverged from the global marketplace. Much attention should be paid to the impact of IP regulation on the deployment of global public goods. Global public goods refer to technology and goods that should be universally accessible for the global welfare and include medicine, education, climate change combatting technology, and general technological advancement that contributes to higher standards of living.

1. Compulsory Licensing for Public Health Goods

One of the most common and accessible options is compulsory licensing. Compulsory licensing allows governments to use IP in times of crisis.¹¹⁹ It is afforded to countries by the TRIPS agreement.¹²⁰ It is also the same solution that was provided by the South African Medicines and Related Substances Control Act discussed above. The controversy of this solution surrounds the appropriate responses by private pharmaceutical companies and their home governments using intellectual property rights to place the price of life-saving drugs outside the reach of whole patient populations in lower income countries. In the case of the current pandemic, scholars have insisted upon compulsory licensing as an effective way of approaching the cure:

International cooperation is necessary to successfully combat the coronavirus. For the United States to lead in the development, mass manufacturing, and distribution of drugs and a vaccine to treat Covid-19, it will have to embrace scientific cooperation and global supply chains. Policymakers and the private sector in the United States should also be cognizant that others around the world view treatment and a vaccine for Covid-19 as a public necessity, not necessarily a geopolitical race to win for their own citizens and international prestige. In turn, compulsory licensing of new treatments and a vaccine is more likely than not, particularly given the legislative steps a number of countries have taken to ease that process. Instead of gearing up to fight those measures, the U.S. government and businesses should accept that, in current circumstances, there is a growing expectation that medical solutions to Covid-19 will be freely shared, not made available only to those that can afford it.¹²¹

¹¹⁹ William Allen Reinsch, *COMPULSORY LICENSING: A CURE FOR DISTRIBUTING THE CURE? COMPULSORY LICENSING: A CURE FOR DISTRIBUTING THE CURE? | CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES* (2021), <https://www.csis.org/analysis/compulsory-licensing-cure-distributing-cure> (last visited Oct 28, 2021).

¹²⁰ TRIPS AGREEMENT, *Supra* note 17.

¹²¹ William Allen Reinsch, *Supra* note 119.

With the TRIPS waiver provision and the direness of the pandemic, it is already apparent that the cure to a global health crisis should be allowed to bend some IP laws. Though the international agencies such as the WTO are intended to govern the moral space of international law, they are ineffective without the participation of willing governments. At minimum, a treaty amongst world leaders that would recognize such exceptions for future pandemics seems appropriate. Beyond pandemics, it would still be wise to recognize that public health crises are not just specific national problems but rather global emergencies. Any major national events now have a massive effect on the global supply chain through disrupted deliveries, cancelled flights, closed ports, and unbalanced supply and demand.¹²²

Compulsory licensing provides a government the license to use a patent without the specific permission of the patent holder.¹²³ Often the following are included within the practice: (1) granting licenses to domestic producers; (2) granting a license to generic producers in a different country for sale only to the license granting country in the absence of adequate capacity to produce domestically; and (3) importing parallelly from generic producers that have been granted compulsory licenses by a different government.¹²⁴

In essence, a compulsory license allows a government to import drugs from a generic manufacturer but does not allow the manufacturer access to other countries' markets. Compulsory licensing, therefore, limits the risks to competition associated with disregarding patents created in other jurisdictions. The TRIPS agreement provides compulsory licensing with a gap left for interpretation by participant countries. If construed liberally and with good faith, it could be the

¹²² Helen Carey, *The Impact of Natural Disasters on Economy and Supply Chain — and How to Prepare for the Worst*, THOMAS INSIGHTS, August 19, 2020, <https://www.thomasnet.com/insights/how-natural-disasters-affect-the-supply-chain-and-how-to-prepare-for-the-worst/> (last visited Oct 28, 2021).

¹²³ Aditi Bagchi, *Compulsory Licensing and the Duty of Good Faith in TRIPS*, 55 Stan. L. REV. 1529 (2003).

¹²⁴ *Id.*

answer to the global need for public health goods dissemination without undermining return on innovation.

2. *3D printing and rethinking IPR in decentralized manufacturing:*

3D Printing, also known as Additive Manufacturing (AD), is an emerging industry that could radically overhaul our current approaches to manufacturing and distribution with profound implications for globalization and trade. Of course, with this hot button development, there are questions of law that arise, especially in the field of intellectual property.¹²⁵ Given the innovative and revolutionary results of 3D printing technology, it is counterintuitive to encumber this discovery within the strict parameters of existing IP laws. As discussed below, 3D printing technology provides a radical way to approach global public good needs and should be accorded that way in the international IP arena.

In an article focusing on how private individuals with 3D printing equipment engaged in production of medical devices during the COVID-19 crisis, the authors signaled that it might be time to reconcile decentralized manufacturing with quality, safety, and IP rights.¹²⁶ Proponents of decentralized manufacturing through 3D printing were among the first responders to the global shortages in crucial medical equipment during the COVID-19 crisis that began in 2020.¹²⁷

Reportedly, Isinnova, an Italian company, was able to print unofficial 3D replacement valves for a CPAP system that was needed to treat COVID-19 patients when the original

¹²⁵ Jasper L. Tran, *The Law and 3D Printing*, 31 *J. Marshall J. INFO. TECH. & PRIVACY L.* 505 (2015).

¹²⁶ Taubman, Antony, *The Competition Policy Roots of Intellectual Property Law: A Reflection* (June 1, 2021). Anderson, Carvalho & Taubman (eds), *Competition Policy and Intellectual Property in Today's Global Economy*, Cambridge: Cambridge University Press, 2021.

¹²⁷ Office of the Commissioner, *3D PRINTING IN FDA'S RAPID RESPONSE TO COVID-19* U.S. FOOD AND DRUG ADMINISTRATION, <https://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/3d-printing-fdas-rapid-response-covid-19> (last visited Oct 28, 2021).

manufacturer of the system failed to meet increased demands for the valve.¹²⁸ When the demand began to outgrow Isinnova's capacity due to the size of the crisis, the company distributed its digital part file to another company with 3D printers to meet the need.¹²⁹ Isinnova further shared, free of charge and for non-commercial purposes, a digital file for an adapter that could be 3D printed to turn snorkeling masks into non-invasive ventilators.¹³⁰ In America, a New York couple who makes and sells custom 3D items used their 3D printers to make protective face shields for testing clinics.¹³¹ These kinds of stories were quite prominent in the early stages of the global pandemic,¹³² but it is important to note the overarching knowledge that those who were 3D printing parts designed by others ran the risk of claims of intellectual property infringement. and thus, had to proceed with caution.

On the other hand, those who found their parts being 3D printed by others also had to carefully weigh how to best proceed—especially in the time when the crisis was in full steam, since their claim of infringement might have resulted in not only undesirable social outcomes but negative public perception of the company themselves.¹³³ With respect to Isinnova, the original patent holder of the patent was Intersurgical who reportedly did not have any issues with Isinnova reverse engineering their product in the face of need.¹³⁴ Instances such as these show the need for

¹²⁸ Jay Peters, Volunteers produce 3D-printed valves for life-saving coronavirus treatments, THE VERGE (Mar 17, 2020) <https://www.theverge.com/2020/3/17/21184308/coronavirus-italy-medical-3d-print-valves-treatments> (last visited Oct 28, 2021).

¹²⁹ Zoe Kleinman, *Coronavirus: 3D printers save hospital with valves*, BBC NEWS, March 16, 2020, <https://www.bbc.com/news/technology-51911070> (last visited Oct 28, 2021).

¹³⁰ David Sherr, *Isinnova shares 3D printed adapter to turn snorkeling mask into a non-invasive ventilator*, 3D PRINTING MEDIA NETWORK, March 21, 2020, <https://www.3dprintingmedia.network/isinnova-shares-3d-printed-adapter-to-turn-snorkeling-mask-into-a-non-invasive-ventilator/> (last visited Oct 28, 2021).

¹³¹ Rick Moriarty, *CNY couple, using 3D printers, makes 100s of face shields for coronavirus testing clinic*, SYRACUSE.COM, March 17, 2020, <https://www.syracuse.com/coronavirus/2020/03/cny-couple-using-3d-printers-makes-100s-of-face-shields-for-coronavirus-testing-clinic.html> (last visited Oct 28, 2021).

¹³² Tim Nelson, *For some medical providers, P-P-E is being spelled D-I-Y*, MPR NEWS, March 22, 2020, <https://www.mprnews.org/story/2020/03/22/for-some-medical-providers-ppe-is-being-spelled-diy-masks> (last visited Oct 28, 2021).

¹³³ *Id.*

¹³⁴ JAY PETERS, *Supra* note 128.

more creative arrangements that could help protect the patent owner and still provide society with the benefits of the 3D printer technology during times of crisis.

In Europe, industrial actors and lobby groups like the European Association of the Machine Tool Industries and related Manufacturing Technologies (CECIMO) tried find a way to address and solve the IP dilemma presented by the COVID-19 medical supply crisis: how to balance the public need for a speedy response with the protection of IP rights. Filip Geerts, director general of CECIMO, answered by saying:

I believe that the additive manufacturing sector could provide immediate solutions to sustain the effort of hospital workers in the middle of this emergency. However, it is in the best interest of all to clarify the regulatory issues in order to move forward quickly and in a way that is not going to delay immediate actions.¹³⁵

As noted by the incidents described above, the pandemic showed some glaring weaknesses in the global supply chain and some opportunities of improvement that can be capitalized upon by restricting IP laws for certain types of products in the name of public welfare.

3. Open Source for Technology to Combat Climate Change

Another area where the interest in IP protection might be outweighed to a good degree is the climate crisis. A widespread environmental desecration will not affect only the region where it occurs but the entire world. The lack of access to critical information on sustainability is a pressing issue that needs to be addressed in a globally collaborative manner. One suggested solution to combat this issue is the concept of open-source appropriate technology or OSAT.¹³⁶ OSAT refers to technologies that provide for sustainable development and is designed in the same manner as free and open-source software.¹³⁷ Appropriate Technology (AT) is a manifestation in

¹³⁵ CECIMO Press Release: Unleashing the Potential of Additive Manufacturing to Fight COVID-19 – CECIMO Recommendations to Policymakers(CECIMO, 2020) <https://www.cecimo.eu/news/unleashing-the-potential-of-additive-manufacturing-to-fight-covid-19-cecimo-recommendations-to-policymakers>.

¹³⁶ Pearce, J.M. *The case for open source appropriate technology*, ENVIRON DEV SUSTAIN 14, 425–431 (2012).

¹³⁷ *Id.*

the sustainability movement that encompasses technological application of tools for sustainable development in small-scale, affordable, decentralized, and locally autonomous.¹³⁸ In making the case for OSAT against IPR interests, one scholar writes:

Copyright, patents, and trademarks are often lumped together under the term of intellectual property (IP). However, if one uses information, it does not prevent someone else from using it, and in fact if both people use it, it may actually accelerate the development of additional information or innovation. Because of this exclusive monopoly rights governing IP, information is locked up and often prohibits or slows innovation, which is the exact opposite of the intended purpose of modern IP laws (Kogut and Metiu 2001). IP laws rewarding innovators for inventions or art/writing are meant to encourage innovation. In some industries, this aim may be achieved with patents, and in others, this is highly questionable such as in software (Merges and Nelson 1990). In the case of AT, there is an unavoidable moral and ethical dilemma. Is it acceptable to withhold information that could save the world's poorest people from suffering and death? For most individual and academic researchers, the answer is obvious.¹³⁹

Stakeholders in the climate crisis include every single person in the world. It is therefore imperative that it is worked through in a collective manner.

Access to climate change technology must be accessible to all. Shankar et. al., notes that even though the richer countries of the world have started addressing the realities of global warming with cutting edge technology, the stringent intellectual property laws on clean energy technology are such that this response is withheld from “three-fourth of humanity.”¹⁴⁰ While there is evidence that technology exists to adapt to and tackle climate change, there are also barriers to the transfer of information that renders these solutions inaccessible to many parts of the world.¹⁴¹ International agencies like the WTO recognize the need to improve technology transfer and the

¹³⁸ Hazeltine, B.; Bull, C. (1999). *Appropriate Technology: Tools, Choices, and Implications*. New York: Academic Press. pp. 3, 270. ISBN 0-12-335190-1.

¹³⁹ PEARCE JM, *Supra* note 136

¹⁴⁰ Uday Shankar, Tapas K Bandopadhaya & Chandrika Mehta, *Climate Change and Technology Transfer: Tying the Knot through Human Rights*, NISCAIR-CSIR, INDIA 27–34 (2018).

¹⁴¹ *Id.*

role the IPRs will have to play in it.¹⁴² The TRIPS agreement is the most significant global IPR treaty, and yet it contains minimal policy discussions pertaining to the dissemination of climate friendly technology.¹⁴³ A recent article identifying different types of barriers to climate change technology found that legal barriers constituted between 60% to 70% of the reasons.¹⁴⁴ IPR protections are still important in this sector as a stimulant for incentives in place to keep climate change related technologies at top priority in innovative sectors.¹⁴⁵ However, scholars have argued that IPRs can become barriers to competition rather than a means to ensure competition, and therefore they should be monitored and only condoned when they are used to encourage technological progress.¹⁴⁶

4. *Treating the Supply of Global Knowledge as a Public Good*

As we move toward a transnational system, it is important to understand the dynamic property of knowledge as a public good. Keith Maskus, the Chief Economist at the U.S. Department of State, notes how knowledge plays “a triple role” in trade related issues.¹⁴⁷ In describing the complex relationship of knowledge-based goods to trade Maskus points out that:

Existing knowledge fuels the production of additional knowledge as an input from any commons accessible to any given set of researchers or entrepreneurs. New knowledge emerges fresh from publicly supported research endeavors, often involving massive expenditures, whence it may enter a research commons, as typically occurred in the United States, or it may attract proprietary rights of either a public or private nature. Finally new knowledge may come to light from privately funded research and development initiatives, or from public-private partnerships.

¹⁴² Matthew Littleton, *The TRIPS Agreement and Transfer of Climate-Change-Related Technologies to Developing Countries*, UN DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS (DESA) WORKING PAPERS (2008), <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1477-8947.2009.01228.x> (last visited Oct 28, 2021).

¹⁴³ *Id.*

¹⁴⁴ Jackie De Roche, 2021. *How Can Technology And Innovation Be Used To Alleviate The Climate Crisis In Developing Countries Through Mitigation And Adaptation?* PROQUEST DISSERTATIONS PUBLISHING, 28717836 (2021).

¹⁴⁵ *Id.*

¹⁴⁶ Brady Lund, *Barriers to ideal transfer of climate change information in developing nations*, 45 IFLA JOURNAL 334–343 (2019).

¹⁴⁷ KEITH E. MASKUS, *Supra* note 94.

In this form, it may or may not become available as an input for open research in the future, depending upon the modalities of intellectual property protection-including permanent rights in collections of data- that investors obtain under national and international law.¹⁴⁸

Maskus argues that both knowledge and competition must be recognized and preserved as a public good in order to nurture a transnational system of innovation.¹⁴⁹ In that, it should be incentivized to innovate through returns and IPR protections but at the same time it should be ensured that no one is left behind as the world is propelled forward through technological advancements. The worldwide emergence of a system of innovation regulation will have to include a lot of trial and error. Maskus points out that while intellectual property law will play a crucial role in enabling this system of innovation it is important to not allow IP laws to prematurely shackle the movement of ideas in the name of regulation.¹⁵⁰

Conclusion

Recent times, and most recently the COVID-19 crisis, have highlighted how overly-regulated IP policies can fall short in a globalized economy. As noted, historically, such policies have resulted in inadequate supplies of affordable drugs and unequal dissemination of climate change response. There is a current and pressing reason that international IP laws should be addressed more innovatively as a matter of public policy. Although many have long questioned over-valuing IP rights in all countries, the tangible outcomes of health disparities from COVID-19, the worldwide supply chain crisis, and the imminent climate change crisis provides an appropriate reason to bring these issues to the forefront of debates. IP policies are still new, and there is no need to have their regulations mimic that of previous trade barriers that they should be removing. Instead, innovators and world leaders should treat these opportunities with some

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*

¹⁵⁰ *Id.*

experimentation and the same kind of innovative mindset that drives technological advances in the first place.