

ARTICLES

STRENGTH IN INTELLECTUAL PROPERTY PROTECTION AND FOREIGN DIRECT INVESTMENT FLOWS IN LEAST DEVELOPED COUNTRIES

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TABLE OF CONTENTS

I.	INTRODUCTION	501
II.	DEFINING LEAST DEVELOPED COUNTRIES (LDCs) AND ESTABLISHING CURRENT STATUS OF IP PROTECTION IN LDCs	504
	<i>A. What is an LDC?</i>	504
	<i>B. Current Status of IP Protection in LDCs</i>	507
III.	THE ORIGINS OF STRONG IPR PROTECTION	509
	<i>A. Tracing Strong IP Protection to the Paris Convention</i>	509
	<i>B. The Paris Convention, Non-Industrialized Members and the Development Question</i>	514
	<i>C. From the Paris Convention to the TRIPS Agreement</i>	516
IV.	EXAMINING CLAIMS OF STRONG IP PROTECTION WITH STRENGTH IN ATTRACTING FDI	523
	<i>A. A Literature Survey</i>	523
	<i>B. Over-Abundance of IPR Rights and Economic Gridlock</i>	528
	<i>C. Strong IPR Protection Not an Overriding Factor in FDI Flows</i>	532
	<i>D. Examining the Historical Evidence</i>	538

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V.	LDC VIEWS ON PROTECTING INTELLECTUAL PROPERTY TODAY	540
VI.	CONCLUSION	544
	APPENDIX ONE.....	550
	APPENDIX TWO	551
	APPENDIX THREE.....	553

I. INTRODUCTION

This Paper critically examines the claim that least developed countries (LDCs) must enact, implement, and enforce strong protections of intellectual property rights (IPR) as a precondition to attracting foreign direct investment (FDI).¹ The relationship between strong IP protection and greater attraction of FDI is a somewhat new justification for strengthening patent protection.² The traditional justification was that there is a causal relationship between strong IP protection and innovation. In other words, the traditional justification argued that strong IP protection incentivizes the creative impulse and therefore spurs technological innovation.³ This claim holds true for middle-income economies.⁴

¹ See generally Hitoshi Tanaka & Tatsuro Iwaisako, *Intellectual Property Rights and Foreign Direct Investment: A Welfare Analysis*, 67 EUR. ECON. REV. 107–24 (2014) (using a dynamic general equilibrium model to show that strengthening IPR protection increases innovation in the North and the flow of FDI from North to South in both the long and short run); Emmanuel Hassan, Ohid Yaqub & Stephanie Diepeveen, *Intellectual Property and Developing Countries: A Review of the Literature*, RAND Europe Technical Report (2010), http://www.rand.org/content/dam/rand/pubs/technical_reports/2010/RAND_TR804.pdf (arguing that disaggregated data on FDI and trade shows that “stronger IPRs seem to encourage FDI in production and R&D rather than in sales and distribution”); see also Alan O. Sykes, *TRIPS, Pharmaceuticals, Developing Countries, and the Doha “Solution,”* 3 CHI. J. INT’L L. 47, 65–66 (2002) (arguing strong IP protection would benefit developing countries in the aggregate because firms with protected IP would be incentivized to produce IP goods of importance to these countries).

² By strength in IP protection, I refer to the heightened levels of IP protection in the TRIPS Agreement relative to the weak protections of countervailing public interests. As a result, the protection of IP rights makes it difficult to balance between access and exclusion to IP protected products, which in turn exacerbates the gap between wealth and inequality within LDCs. I discuss those heightened protections of IP rights in Part III.C, *infra*. Strength in IP protection is measured by the adoption of national laws implementing international intellectual property treaties such as the TRIPS Agreement, a broad range of coverage of IP rights, a high level of enforcement of a country’s IP laws, and the absence of restrictions on those rights. In general terms, strong IP protection refers to the protection of IP rights as exclusive rights, often without balancing such protection with other interests. For more on this, see generally Walter G. Park & Douglas C. Lippoldt, *Technology Transfer and the Economic Implications of the Strengthening of Intellectual Property Rights in Developing Countries* (OECD Trade Policy, Working Paper No. 62 (2008)).

³ See Robert P. Terrill, *Cartels and the International Exchange of Technology*, 36 AM. ECON. REV. 745, 757 (1946) (arguing that “[t]he numerous patent jurisdictions of the world form an interrelated system whose reason for existence, from the standpoint of the world economy, is to promote invention and assist in the wide dissemination of technology and its prompt utilization in industrial improvements”). See also EDITH TILTON PENROSE, *THE ECONOMICS OF THE INTERNATIONAL PATENT SYSTEM* 131 (1951).

⁴ See Keith Maskus, *Strengthening Intellectual Property Rights in Asia: Implications for Australia*, 37 AUSTL. ECON. PAPERS 346, 346–51, 354–57 (1998).

However, unlike with higher-income developing countries, the traditional justification may not hold up for LDCs.⁵ This is because innovative capacity in LDCs does not solely depend on strengthened IP protection.⁶ Elsewhere, I have set forth in greater detail the steps that resource rich, low-income countries can take to spur greater technological innovation in their economies.⁷ The goal of this Paper is therefore primarily limited to examining claims that link strong IP protection to increased FDI flows in LDCs.

In examining claims of strengthened IP protection in developing countries in general and LDCs in particular, I trace the agenda of strong IP global protection by rich countries to the pre-Trade-Related Intellectual Property Rights Agreement (TRIPS Agreement) era.⁸ I show that for several decades, industrialized countries have sought strong IP protections for their products. Developing countries like nineteenth century France argued against strong global IP regimes, because at the time they were viewed as a barrier to the development of domestic industries. This trend continued into the late 1950s, when developing countries tried to diminish IP protection within the Paris Convention for the Protection of Industrial Property (Paris Convention). When these developing countries failed, they tried to diminish IP protections within the United Nations. Thus, in earlier periods there were similar contests over the strength of IP protection as there are in the contemporary period. These contests have been characterized by developing

⁵ See *infra* Part II.A (defining developing countries and LDCs).

⁶ See Keith E. Maskus, *Intellectual Property Rights and Economic Development*, 32 CASE W. RES. J. INT'L L. 471, 478 (2000) (identifying additional considerations regarding the nature of technological development, such as resource availability and technical capacity). While I do not pursue the argument in this Paper, there is a lot of creative activity in LDCs that falls outside the ambit of western style IP regimes, in much the same way that many creative endeavors in western countries are flourishing without strong intellectual property protection. See, e.g., Rochelle Cooper Dreyfuss, *Does IP Need IP? Accommodating Intellectual Production Outside the Intellectual Property Paradigm*, 31 CARDOZO L. REV. 1437 (2010) (illustrating how many creative endeavors such as fashion, stand-up comedy, magic, cuisine, and software have thrived without strong IP protections). But see Anupam Chander & Mandhavi Sunder, *The Romance of the Public Domain*, 92 CAL. L. REV. 1331 (2004) (warning that the romance of the public domain may undervalue the ability of non-Western property claims such as those relating to genetic resources and traditional knowledge).

⁷ See generally James Thuo Gathii, *Beyond China's Human Rights Exceptionalism in Africa: Leveraging Science, Technology and Engineering for Long-Term Growth*, 51 COLUM. J. TRANSNAT'L L. 644 (2013).

⁸ See analysis *infra* Part III.

countries using forum shifting to seek the best place to stake their IP rights claims.⁹

A discussion of the strength of IP protection in LDCs arose in November 2012 when Haiti—on behalf of all LDCs—filed a request under Article 66.1 of the TRIPS Agreement for an extension of the transition period within which they must become TRIPS compliant.¹⁰ The Council for TRIPS granted the request, and the transition period to apply the provisions of the Agreement was extended to July 1, 2021.¹¹ An exception was made for pharmaceutical patents, which were initially required to come into compliance in 2016, but now have until 2033 to become compliant.¹² The Haitian request for extension argued that in “view of the impossibility of determining when individual LDCs will be able to overcome the constraints that prevent them from creating a viable technological base, the transition period should remain in force while the member is considered a least developed country in the WTO.”¹³ Despite the extension being granted, the WTO has advocated for the view that there is a relationship between strengthened IP protection and the flow of FDI. In its 2011 World Trade Report titled *The WTO and Preferential Trade Agreements: From Co-existence to Coherence*, the WTO argued that IP ownership is one element that provides a competitive advantage to multinational firms in international markets and therefore Preferential Trade Agreements (PTAs) that provide for the protection of IP assets will encourage more FDI flow.¹⁴

⁹ See James Gathii & Cynthia Ho, *Regime Shifting of IPR Law-Making and Enforcement to International Investment Law*, 18 MINN. J. L. SCI. & TECH. (forthcoming 2017).

¹⁰ Request for an Extension of the Transitional Period under Article 66.1 of the TRIPS Agreement, Communication from Haiti on behalf of the LDC Group, IP/C/583 (Nov. 5, 2012), available at https://www.wto.org/english/tratop_e/trips_e/ldc_e.htm [hereinafter Request for an Extension].

¹¹ Council for Trade-Related Aspects of Intellectual Property Rights, *Extension of the Transition Period Under Article 66.1 of the TRIPS Agreement for Least Developed Country Members*, IP/C/W/64 (June 12, 2013), available at https://www.wto.org/english/tratop_e/trips_e/ldc_e.htm [hereinafter *Extension Decision*].

¹² Council for Trade-Related Aspects of Intellectual Property Rights, *Extension of the Transition Period Under Article 66.1 of the TRIPS Agreement for Least Developed Country Members For Certain Obligations With Respect to Pharmaceutical Products*, IP/C/73 (Nov. 6, 2015), available at https://www.wto.org/english/tratop_e/trips_e/ldc_e.htm.

¹³ See Request for an Extension, *supra* note 10, ¶ 10. Paragraph 11 notes that the request for extension of the transition period would last “as long as the WTO Member remains a least developed country.” *Id.* ¶ 11.

¹⁴ World Trade Organization, *World Trade Report – The WTO and preferential trade agreements: From Co-existence to Coherence* 137 (2011).

I proceed as follows. First, because this Paper is primarily about least developed countries, Part II begins by providing a definition of LDCs, as well as discussing the current coverage of IP protection in these countries. Part III traces the origins of strong IPR protection to the contentious debates between industrialized and non-industrialized countries, and within the Union for the Protection of Industrial Property from its founding in the late nineteenth century through the twentieth century. This Part then shows the continuity of this tension within the TRIPS Agreement. Part IV begins with a review of literature discussing relationship between protection of IP rights and innovation, development, and flow of FDI. This Part also examines the overabundance of IP rights and economic gridlock, before examining some historical evidence to establish whether or not strong IP protection is related to industrialization and development in a number of countries. Part V then briefly examines the current position of LDCs in relation to IP rights.

II. DEFINING LEAST DEVELOPED COUNTRIES (LDCs) AND ESTABLISHING CURRENT STATUS OF IP PROTECTION IN LDCs

A. *What is an LDC?*

The scholarly examination of IP protection in developing countries seldom distinguishes between LDCs and developing countries.¹⁵ In my view, failing to make this distinction—particularly in the context of justifying strong IP protection as a prerequisite for increased FDI flows—is problematic for at least two major reasons. First, LDC economies are at the very fringe of the global economy. Since 1971, LDCs have been identified as economies characterized by widespread poverty as well as “structural weaknesses” in their economic, institutional and human resources.¹⁶ LDCs are handicapped by extremely poor “human, physical and institutional infrastructure . . . [which frustrates their ability to take] advantage of

¹⁵ See Peter K. Yu, *TRIPS and Its Discontents*, 10 MARQ. INTELL. PROP. L. REV. 369 (2006), for an example of a recent examination of TRIPS in relation to developing countries did not make this distinction clear.

¹⁶ These weaknesses are often compounded by geographical handicaps. For example, small island LDC states that are isolated and have little land mass (some now subject to rising sea levels); others are landlocked which impedes their ability to trade; others have hard to access mineral resources which has provided militia groups with the ability to control their exploitation.

opportunities for sustained growth.”¹⁷ While these weaknesses certainly justify the need for increased capital flows, it is unrealistic to assume that merely strengthening IP protection in LDCs would result in increased capital flows.

Second, LDCs are overwhelmingly agrarian and dependent on primary commodities and mineral resources. These countries are the least equipped to strengthen their IP regimes—they have severe technical capacity and resource constraints, and extremely limited national budgets. They have particularly pressing needs to holistically address their structural weaknesses in welfare, productivity, and incomes. As such, investing in expensive IP outfits, like modern patent examination offices, may not comport with national priorities.¹⁸ Article XI, ¶ 2 of the Agreement Establishing the World Trade Organization anticipates that LDCs do not have to necessarily assume the same level of obligations as non-LDCs, providing that the “Least Developed Countries recognized as such by the UN will only be required to undertake commitments and concessions to the extent consistent with their individual development, financial and trade needs or their administrative and institutional capabilities.”¹⁹

It is important to note that the World Trade Organization (WTO) does not designate developing and least developed countries.²⁰ Rather, individual countries announce whether they are developing or least developed. This

¹⁷ U.N. Secretary-General, *Compact for Inclusive Growth and Prosperity*: Rep. of the Secretary General’s Eminent Persons Group on the Least Developed Countries, 10 (Mar. 28, 2011), http://www.un.org/en/conf/ldc/pdf/epg_report_032811_b_english_w_v2.pdf [hereinafter *Compact for Inclusive Growth and Prosperity*].

¹⁸ LDCs are particularly vulnerable given that the gap between them and low- and middle-income countries was widening from 2001–2010. *Compact for Inclusive Growth and Prosperity*, *supra* note 17, at 5. Developing countries, particularly those categorized as high- and middle-income countries, would have more flexibility to adopt modern IP regimes. See Jerome H. Reichman, *Intellectual Property in the Twenty-First Century: Will the Developing Countries Lead or Follow?*, 46 HOUS. L. REV. 1115, 1182 (2009) (arguing that high- and middle-income developing countries “are well positioned to undertake a leadership role in adapting traditional intellectual property law to the new technological conditions and challenges that the OECD countries have increasingly failed to address”); Cynthia M. Ho, *Sovereignty Under Siege: Corporate Challenges to Domestic Intellectual Property Decisions*, 30 BERKELEY TECH. L.J. 213, 230 (2015) (noting that member countries under TRIPS are able to define patentability criteria to minimize harm to social policies. India has done so by barring from patentability new uses of known compounds). See also *infra* Part IV.

¹⁹ Marrakesh Agreement Establishing the World Trade Organization, art. XI, ¶ 2, Apr. 15, 1994, 1867 U.N.T.S. 154 [hereinafter *Marrakesh Agreement*].

²⁰ Article XI, ¶ 2 of the Marrakesh Agreement adopts the U.N.’s designation of a country as an LDC for WTO purposes. *Id.*

designation is primarily income-based—the U.N. Economic and Social Council defines least developed countries as being characterized by three elements: low gross national income, weak human assets, and economic vulnerability to external shocks.²¹ In terms of income, a country is considered least developed if it has a three-year average gross national income per capita²² of less than \$992 USD, is characterized by negative real per capita income growth, and a population of less than 75 million.²³ In effect, the majority of people in LDCs live in gross poverty.

A weak stock of human assets is the second criteria. A composite of the following factors are taken into account: nutrition, health, and education. Nutrition is measured by the average caloric consumption per capita by the percentage of minimum dietary requirements. On this measure a majority of people in least developed economies receive less than the minimum dietary energy requirements. In assessing the second factor, health, analysis will consider child mortality and prevalence of disease. LDCs exhibit a high mortality rate for children under five. Further, there are high incidents of diseases like HIV/AIDS and malaria in these countries. Education is the third factor analyzed to determine strength of human assets. Education is measured by adult literacy. Adult literacy in LDCs is low, due to low enrollment in primary, secondary, and high school.

Economic vulnerability is the third criteria for establishing that a country is an LDC. Economic vulnerability is measured by merchandise export concentration, instability in export earnings, instability of agricultural production, an especially low share of manufacturing and modern services in the Gross Domestic Product, and often a significant percentage of population displacement attributable to natural disasters. Based on the foregoing criteria, as of January 2015, forty-eight countries were listed as LDCs.

²¹ See U.N. Economic and Social Council, Comm. for Dev. Policy, Rep. on the 16th Sess., Mar. 24–28, 2014, ¶¶ 34–59 U.N. Doc. E/2014/33, Supp. No. 13 (2014), available at http://www.un.org/en/development/desa/policy/cdp/cdp_ecosoc/E_2014_33_en.pdf (explaining the criteria and application of the criteria for the identification of least developed countries); U.N. Office of High Representative for Least Developed Countries (UN-OHRLS), *Criteria for Identification and Graduation of LDCs*, <http://unohrls.org/about-lDCs/criteria-for-lDCs/> [hereinafter *Criteria for Identification*].

²² Gross National Income is the sum of a country's gross domestic product (GDP) and net income (labor compensation and property income) from abroad. See U.N. Statistics Division, National Accounts, available at <http://unstats.un.org/unsd/snaama/glossresults.asp?gID=8>.

²³ *Criteria for Identification*, supra note 21.

Africa has thirty-four LDCs, the Asian Pacific region has thirteen, and Latin America has one.²⁴

The U.N. began focusing on the vulnerability of LDCs in the 1960s.²⁵ The First U.N. Conference on the LDCs was held in Paris in 1981. It adopted a comprehensive Substantial New Programme of Action for the 1980s for the Least Developed Countries (SNPA).²⁶ Subsequent conferences were held throughout the decade, whereupon the SNPA gained the endorsement of the General Assembly and the Economic and Social Council.²⁷ The Fourth U.N. Conference on the LDCs was held in Istanbul in May 2011, and resulted in the promulgation of the Istanbul Plan of Action (IPoA) and the Istanbul Declaration.²⁸ Neither IPoA nor the Istanbul Declaration note that strengthening IP rights will enable half of the current LDCs to meet the criteria for graduation from LDC status by 2020.²⁹ Instead, both emphasize that creating a productive base, such as through technological capability, should be an important priority for LDCs.

B. Current Status of IP Protection in LDCs

Different countries, and particularly LDCs, provide vastly different IP protections. To determine the current status of IP laws in various LDCs, I used information from the World Intellectual Property Organization (WIPO), the World Trade Organization (WTO), Trade Policy Review Reports, and (where available) information from individual countries. Many of these laws

²⁴ See UN-OHRLLS, *About LDCs*, <http://unohrlls.org/about-ldcs/>. There is also a category of thirty-seven low and lower-middle income countries that are not classified as LDCs. See UN-DESA, *Least Developed Countries: Country Resolutions and reports*, http://www.un.org/en/development/desa/policy/cdp/ldc2/ldc_countries.shtml (listing the list countries).

²⁵ Third United Nations Conference on the Least Developed Countries, Brussels, Belg., May 14–20, *Brussels Programme of Action for the Least Developed Countries for the Decade 2001–2010*, U.N. Doc. A/CONF.191/11 (May 20, 2001), available at <http://www.un-documents.net/ac191-11.htm>.

²⁶ *Id.*

²⁷ *Id.*

²⁸ Fourth United Nations Conference on the Least Developed Countries, Istanbul, Turk., May 9–13, *Programme of Action for the Least Developed Countries for the Decade 2001–2010*, U.N. Doc. A/CONF.191/11 (May 20, 2011), available at <http://www.un-documents.net/ac191-11.htm> [hereinafter 2011–2020 Programme of Action].

²⁹ See *About LDCs*, *supra* note 24. To be eligible for graduation from LDC status, a country must meet the threshold for two out of the three criteria. *Criteria for Identification*, *supra* note 21. In turn, to actually qualify for graduation, the same country must meet two of said criteria for two consecutive triennial reviews. *Id.* Examples of countries that have graduated from their LDC status include the Maldives, Samoa, and Cape Verde.

predate the TRIPS Agreement. Perusing through the provisions, I found that 87.5% of all LDCs have legal protection for patents, 93.75% for copyrights, 91% for trademarks, and 37.5% for plant varieties.³⁰ Since 1995—when TRIPS came into effect for non-LDC countries—56.25% have passed new patent laws, 58.33% copyright laws, 52.08% trademark laws, and 64.58% plant varieties laws.³¹

It is clear from the foregoing data that LDCs have taken legislative steps to protect IP rights. However, in many LDCs, these provisions are rarely enforced, if ever. Many LDCs lack a dedicated IP office, and to the extent that there is such an office, it is a small component of a larger governmental body. Such an office often has few resources and expert personnel, and as such is often engaged in lower-order tasks such as patent registrations of foreign rather than local patents.³² In essence, they are not engaged in higher-order tasks like patent examination.

Without reliable data on what gains may be made by an LDC adopting a modern IP legal and institutional regime, many LDCs may very well regard strengthened IP regimes as a mechanism to protect the IP assets of developed economies.³³ WIPO has devoted considerable resources to assist LDCs build IP capacity—including in technical advice, meetings, conferences and visits by IP experts.³⁴ In 2002, the World Bank estimated that it would cost an LDC between \$1.5 and \$2 million in upfront costs to implement the TRIPS Agreement.³⁵ Because fully implementing the TRIPS Agreement in an LDC

³⁰ See *infra* APPENDIX TWO.

³¹ See *infra* APPENDIX THREE.

³² See, e.g., Deema S. Jaafari, *Pharmaceutical Patents in Jordan*, 15 J. WORLD INTELL. PROP. 239 (2012) (noting that of 973 patents published by Jordanian authorities during the twenty years prior to 2012, 36% of them were pharmaceutical patents, and only 7% of these came from domestic applicants). Notably, Jordan has a Patent Registration Section within its Industrial Property Protection Directorate which is itself is a Department of the Ministry of Industry and Trade. The Jordanian experience is typical of LDCs that have patent registration offices as opposed to patent examination offices.

³³ See Frederick Abbot, *The Future of IPRs in the Multilateral Trading System*, in CHRISTOPHE BELLMANN ET AL., *TRADING IN KNOWLEDGE: DEVELOPMENT PERSPECTIVES ON TRIPS, TRADE AND SUSTAINABILITY* 44 (2003).

³⁴ CAROLYN DEERE-BIRBECK & RON MARCHANT, *THE TECHNICAL ASSISTANCE PRINCIPLES OF THE WIPO DEVELOPMENT AGENDA AND THEIR PRACTICAL IMPLEMENTATION* 3–5 (2010).

³⁵ See Rudolf V. Van Puymbroeck, *Basic Needs and Access to Medicines—Coming to Grips with TRIPS: Conversion + Calculation*, 38 J.L. MED. & ETHICS 520, 526 (2010) (citing WORLD BANK, *GLOBAL ECONOMIC PROSPECTS 2002: MAKING TRADE WORK FOR THE WORLD'S POOR* 141 (2002)). One estimate found the amount China would need on annual basis to administer and enforce a modern IP regime would be in excess of \$10 million. Keith Maskus *Intellectual Property Rights and Economic Development in China*, in *INTELLECTUAL*

is an expensive proposition, going beyond the TRIPS Agreement to further strengthen IP rights would require evidence that the benefits to be gained would outweigh the costs of implementing such reforms. The rest of this Paper examines the evidence for and against such strengthened IP protection in LDCs.

III. THE ORIGINS OF STRONG IPR PROTECTION

Support for strong IPR global protection is often traced to the TRIPS era. However, that view is historically inaccurate. The origins of strong IP protection date to before the TRIPS era. In this Part, I show two things: First, that strong patent protection as adopted in the TRIPS Agreement comes from a long history of U.S. support for the recognition of patents as private property. This foreign policy view on patents has been espoused since 1887, when the U.S. entered the Union for the Protection of Industrial Property (Union).³⁶ Second, the strong protection of IP rights that came to be reflected in the Union's Paris Convention was opposed by non-industrialized countries of the period. This history is symmetrical with the way in which LDCs in the last few decades have sought to reduce the impact the TRIPS Agreement has on them.

A. Tracing Strong IP Protection to the Paris Convention

The original Article 5 of the Paris Convention provided that “importation by the patentee into the country where the patent has been granted of objects manufactured in any countries of the Union shall not entail forfeiture.”³⁷ Edith Penrose, a French jurist and leading scholar of the Convention, has argued that when Article Five was drafted in the 1880s, it was directed against countries such as France, whose legislation barred importation of

PROPERTY AND DEVELOPMENT: LESSONS FROM RECENT ECONOMIC RESEARCH 303 (Keith Maskus & Carsten Fink eds., 2005).

³⁶ Heinrich Kronstein & Irene Till, *A Re-Evaluation of the International Patent Convention*, 12 L. & CONTEMP. PROBS. 765, 766 (1947). This view of patents as private property as opposed to conceptualizing them as instruments of public policy was finally consolidated in the TRIPS Agreement in 1994. TRIPS Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, *text reprinted in* 33 I.L.M. 1 (1994) [hereinafter TRIPS Agreement].

³⁷ Paris Convention for the Protection of Industrial Property, Mar. 20, 1888, 13 U.S.T. 2, as revised at Stockholm on July 14, 1967, 21 U.S.T. 1583 [hereinafter Paris Convention].

products and processes through its national patent legislation.³⁸ For France, a relatively unindustrialized country at the time, it was in its interest to condition the marketing privilege upon the patentee effectively working the patent to prevent the French market from being used as an export platform for products manufactured elsewhere.³⁹ This local working requirement meant that a patented product or process had to be used or produced within the patent granting country. The effect being that foreign patentees had to situate their production facilities within the patent granting country.⁴⁰

By conditioning the grant of foreign patents on a working requirement, countries like France sought to preempt a regime of international protection of patents that would frustrate the emergence of indigenous industries. As Penrose argued:

The right of inventors and of industrial creators is an equitable and useful creation of the civil law, which reconciles the rights of inventors and of society by the concession of a temporary monopoly.⁴¹

Thus, the very claims being made by developing countries, especially LDCs, today were made by the developing countries when the international IP regime was inaugurated. Historically, those who argued against the French position posited that the recognition of patents in and of itself benefited society, because it encouraged invention. By contrast, the French urged that the interests of society or consumers of IP rights should be specifically recognized; it was insufficient to advance the general proposition that the recognition of patents would, by itself, benefit society and consumers.

In 1925, the Paris Convention was amended to introduce compulsory licensing as a condition precedent for the forfeiture of patents.⁴² Prior to

³⁸ See PENROSE, *supra* note 3, at 160.

³⁹ *Id.* at 75.

⁴⁰ Manu Thadikkaran, *Local Working Requirement: Reconciling TRIPS Agreement with the Paris Convention*, 8 GLOBAL TRADE & CUSTOMS J. 18–19 (2013). See also Paul Champ & Amir Attaran, *Patent Rights and Local Working under the WTO TRIPS Agreement: An Analysis of the U.S.-Brazil Patent Dispute*, 27 YALE J. INT'L L. 365, 366 (2002); Michael Halewood, *Regulating Patent Holders: Local Working Requirements and Compulsory Licenses at International Law*, 35 OSGOODE HALL L.J. 243, 246 (1998), available at <http://digitalcommons.osgoode.yorku.ca/cgi/viewcontent.cgi?article=1605&context=ohlj>.

⁴¹ PENROSE, *supra* note 3, at 50.

⁴² A. Jayagovind, *The International Patents System and the Developing Countries*, 20 INDIAN J. INT'L L. 47, 52, (1980). Note that compulsory licensing had been originally introduced in the Convention in 1873, but was defeated in 1878. See PENROSE, *supra* note 3, at 79.

that, Article 5(2) required a patentee “to exploit his/her patent in accordance with the laws of the country into which s/he was introducing the patented articles.”⁴³ Hence, the original emphasis on failure to work as a form of abuse of rights that warranted forfeiture was watered down by the introduction of compulsory licensing in the place of forfeiture.⁴⁴ Simply put, before 1925, a foreign patentee who was not working his or her patent was regarded as engaging in an abuse of the patent rights and therefore eligible to forfeit the patent; whereas, after 1925, forfeiture for failure to work was substituted for the much weaker remedy of compulsory licensing. Compulsory licensing is a much weaker remedy, because unlike forfeiture it is consistent with the principle of patent protection in the Paris Convention. Compulsory licensing, unlike forfeiture in the pre-1925 Paris Convention, is consistent with the principle of patent protection because it does not involve the patentee losing compensation for his/her invention.⁴⁵

In 1958, around the time when newly independent developing countries began joining the Union in large numbers,⁴⁶ a new Section 5A was added to the Paris Convention, re-introducing remedies for failure to work.⁴⁷ However, the grant of compulsory licensing in cases of failure to work or insufficient working was not to be issued before the expiration of a certain period: four years from the date of filing of the patent application or three years from the date of grant of the patent, whichever period expires last.⁴⁸

Other conditions for the grant of a license were also imposed. For example, a patent holder had to be given a right to defend the failure to work before the license could issue. In addition, the license had to be non-

⁴³ See RALPH H. FLOSOM ET AL., *NAFTA: A PROBLEM ORIENTED COURSEBOOK* 398 (2000) (quoting Article 5(2) of the Paris Convention as originally ratified in 1883).

⁴⁴ Union members began to recognize the right of forfeiture—the outright revocation of a patent—in the 1878 conference. Paradoxically, it was at this conference where the principle of compulsory licensing for failure to work was rejected while the Union members were nonetheless strengthening patent protection as a private right. See PENROSE, *supra* note 3, at 51–52.

⁴⁵ *Id.* at 161.

⁴⁶ For details on accession dates, see *WIPO-Administered Treaties*, WORLD INTELLECTUAL PROPERTY ORGANIZATION (WIPO), http://www.wipo.int/treaties/en/ShowResults.jsp?lang=en&treaty_id=2.

⁴⁷ Jayagovind, *supra* note 42, at 52–54.

⁴⁸ Article 5A(4) provided that “An application for a compulsory license may not be made on the ground of failure to work or insufficient working before the expiration of a period of four years or three years from the date of the grant of the patent, whichever period expires last.” 1 Records of the Intellectual Property Conference of Stockholm 28 (1971) (citing Article 5(A)(4) of the Paris Convention as in effect in 1958).

exclusive and could not be transferred. A non-exclusive license did not transfer exclusive rights to a licensee in a developing country to perform the licensed patented act. As such, others with superior technical knowledge and finances could very well perform the patented act. Consequently, lack of technical expertise in a developing country might inhibit successful working of patent without the grant of an exclusive license. It would be risky for a firm in a developing country to start investing in the licensed technology only to have firms from developed countries undertake the same initiative thereby frustrating the transfer of technology from developed to developing country firms.⁴⁹ Another condition for granting compulsory licensing gave the patentee a right to work the patent for a period of two years after a finding that the patent had not been worked before proceedings for granting the license could be commenced.⁵⁰ These conditions illustrate the weakening of the restraints on abuse of patents and the simultaneous strengthening of patents as private property rights encumbered with fewer and fewer restraints in the public interest, particularly those aimed at curbing the potential abuse of monopoly power through restrictive business practices injurious of the public interest that patents are supposed to serve.⁵¹

The enhanced rights of patentees in the Paris Convention were further reinforced through a protectionist trade regime. Tariffs had the same effect as forfeiture of a patent right in the case of non-use, because forfeitures precluded foreign goods from entering the protected economy and the domestic exploitation of the patent was possible in those countries.⁵² As a result, patentees freely exploited markets of non-Union countries where there were no restraints in competition or working requirements.⁵³ For non-Union countries and territories, the Convention's benefits of technology transfer were therefore unrealizable. Consequently, Non-Union member countries and territories became export enclaves of the producers of patented products

⁴⁹ U.N. Conference on Trade and Development (UNCTAD), *The International Patent System: The Revision of the Paris Convention for the Protection of Industrial Property*, ¶ 35, U.N. Doc. TD/B/C.6/AC.3/2, (1977) [hereinafter UNCTAD, Paris Revision]. Here, it must of course be acknowledged that by granting non-exclusive licenses competition would be encouraged and there would be less of an attempt to monopolize or engage in restrictive business practices. See PENROSE, *supra* note 3, at 103.

⁵⁰ Paris Convention, *supra* note 37, art. 5(3); see also Jayagovind, *supra* note 42, at 53.

⁵¹ UNCTAD, Paris Revision, *supra* note 49, at 39.

⁵² Kronstein & Till, *supra* note 36, at 776.

⁵³ *Id.* at 777.

who based all their manufacturing in the developed union member countries.⁵⁴

To further buttress the rights of patentees, they created cartel arrangements amongst domestic competitors within Union member countries, further protecting themselves from external competition through private agreements.⁵⁵ For example, in the dyestuff industry, Germany pooled its patents into major conglomerates that closed off the industry to new entrants. This strategy resulted in large sums of capital that could be used for further research and development by existing German corporations.⁵⁶

When Switzerland refused to extend patents for chemical processes to German applicants, Germany teamed up with the United States to bring a claim against Switzerland. Germany and the United States asked the Union to take action against Switzerland for failing to extend patents to German applicants who were threatening to compete with the Swiss dyestuff industry.⁵⁷ The claim alleged that the Swiss discrimination against German applicants was inconsistent with the Union's requirement of equal treatment between nationals and foreigners.⁵⁸ Suffice to say that even before developing countries emerged from de-colonization after World War II, the international patent regime not only sanctified patents as private property rights, but also entrenched these rights through "tightly coordinated" tariffs and restrictive business practices.⁵⁹ This state of affairs is analogous to the gridlock economy in the contemporary period discussed at the very beginning of Part III, Section *B* of this Article.

⁵⁴ According to Stephen P. Ladas:

[C]olonies, possessions, protectorates, dominions, and the like, are not deemed to be included in the Union by the mere fact of accession of the mother country. There must be a declaration to this effect by the latter, or a distinct act of accession for the dominion, colony, and so forth which is to be considered as forming part of the territory of the Union.

STEPHEN P. LADAS, *THE INTERNATIONAL PROTECTION OF INDUSTRIAL PROPERTY* 182 (1930).

⁵⁵ Kronstein & Till, *supra* note 36, at 777.

⁵⁶ *Id.* at 777–78.

⁵⁷ *Id.* at 778–79.

⁵⁸ *Id.*

⁵⁹ *Id.* at 780–81. For an evaluation of the costs of this system relative to its proclaimed benefits, see PENROSE, *supra* note 3, at 110–36.

B. The Paris Convention, Non-Industrialized Members and the Development Question

As a result of the Paris Convention's insensitivity towards the interests of developing countries—particularly in the post-colonial period—the relationship between this regime and the developing countries' national development goals became a major concern. These countries, primarily those of Latin America, Asia, and Africa, used their majorities in the U.N. General Assembly rather than going through the mechanisms of the Union for the Protection of Industrial Property.⁶⁰ For example, in 1961 Brazil introduced a draft resolution into the General Assembly entitled "The Role of Patents in the Transfer of Technology to Underdeveloped Countries."⁶¹ This Resolution sought, among other things, to spur revision of patent legislation in the respective countries in order to serve national economic development goals.

Brazil's draft resolution also called for a revision of the Paris Convention with a view to adding provisions that would enable developing countries to have access to technical knowledge. In particular, it sought to remove barriers hindering developing countries' access to technical knowledge in three ways: First, by revising Convention provisions that inhibited patents being taken out by foreigners without the intention of local exploitation; second, by revising provisions that permitted license contracts with restrictive clauses; finally, by addressing the manner in which royalty payments on foreign IP rights had become a heavy burden on balance of payments. Additionally, the resolution proposed a conference to effect these and other changes.⁶²

Developed countries opposed the draft resolution, claiming it would encroach on the exclusive mandate of the Paris Union. The final resolution of the United Nations did not address the question of holding a conference to resolve developing country concerns.⁶³ Therefore, it implicitly endorsed the Paris Convention. It was not until the 1977 UNCTAD proposal to revise the Paris Convention that developing countries' position was endorsed—again

⁶⁰ SUSAN K. SELL, *POWER AND IDEAS: NORTH SOUTH POLITICS OF INTELLECTUAL PROPERTY AND ANTITRUST* 107–40 (1998). Besides merely the U.N., developing countries relied also on WIPO to try and reform the international patent system. *Id.*

⁶¹ See Jayagovind, *supra* note 42, at 57. This was a classic example of regime shifting.

⁶² *Id.*

⁶³ U.N. Dep't of Economic & Social Affairs, *The Role of Patents in the Transfer of Technology to Developing Countries*, U.N. Doc. E/3681/Rev.1, U.N. Sales No. 65.II.B.1 (1964).

outside the framework of the Paris Convention.⁶⁴ This proposal sought to make compulsory licensing a positive instrument to promote industrialization rather than as a mere sanction for the failure to work a patent.⁶⁵ Hence, developing countries in the 1960s and 1970s sought to transform the international patent system into an

[E]ffective medium for the transfer of technology from developed to developing countries. Just as the national patent system presupposes free competition among a large number of firms of similar size and capabilities . . . [these countries argued that the concepts of] equity and distributive justice [were] alien to the very scheme of the system.⁶⁶

Therefore, it is noteworthy that for developing countries the international protection of patents ought to be predicated on the ability to work patents and prevent their abuse. France did that in the nineteenth century, the developing countries of Asia, Africa, Latin America, and the Caribbean did it in the 1950s and '60s; and developing countries do it today.⁶⁷ So, while the debate historically was—unlike today—defined by the issues such as access to essential medicines and the protection of traditional knowledge, the issue of encouraging the transfer of technology was no less present, as evidenced by the debate surrounding compulsory licensing and forfeiture, and the appropriate balance between protection of rights of IP producing and consuming countries.

While the principle of balancing between the interests of producers and consumers of IP rights is recognized in some domestic IP regimes,⁶⁸ it seems curiously absent in the international system especially with regard to the balance between IP-producing and -consuming countries. In the United States, the Constitution—it has been argued—strikes a balance between intellectual property and an intellectual commons, and if the balance tilts too heavily in one direction the public loses its constitutionally protected rights to a vigorous public domain.⁶⁹

⁶⁴ UNCTAD, Paris Revision, *supra* note 49.

⁶⁵ See generally Constantine V. Vaitsos, *The Revision of the International Patent System: Legal Considerations for Third World Position*, 4 WORLD DEVELOPMENT 85, 94 (1976).

⁶⁶ Jayagovind, *supra* note 42, at 56.

⁶⁷ *Id.* at 58.

⁶⁸ See *id.* at 60.

⁶⁹ See, e.g., John C. Stedman, *Invention and Public Policy*, 12 LAW & CONTEMP. PROBS. 649, 649 (1947) (arguing that “Despite an occasional mystic who persists in viewing our

C. From the Paris Convention to the TRIPS Agreement

The foregoing discussion regarding developments within the Paris Convention demonstrates the historically fractious nature of the place of public policy within the international patent protection system. Like the 1995 TRIPS Agreement which is discussed in this section, the Paris Convention has therefore been argued to reflect

[A]n asymmetry between, on the one hand, the obligations for countries spelled out in considerable detail via the provisions which secure private rights, and, on the other, the minimal and feeble reference to possible methods of control in the public interest. This imbalance between the strong emphasis on private rights and the virtual elimination of both the concept of private obligation and the concept of public interest is a main feature of the Paris Convention.⁷⁰

For these reasons, developing countries sought to revise the Paris Convention throughout the 1960s and through to the early 1980s. However, these revision efforts came to a deadlock because developed countries, led by the United States, opposed these revision initiatives.⁷¹

In the 1980s, the United States forged a new approach to negotiating international patent agreements. Rather than pursuing the deadlocked Paris Convention path, the United States began a policy of negotiating bilateral IP agreements,⁷² thereby breaking up the solidarity among developing countries

patent system as a sacred cow, not to be touched, much less slaughtered, I take it there is no serious challenge today of the proposition that the patent system has for its primary purpose the advancement of the public interest and that it must be evaluated in the light of that interest—and, if necessary, changed to promote it.”). See also James Boyle, *The Second Enclosure Movement and the Construction of the Public Domain*, 66 LAW & CONTEMP. PROBS. 33 (2003); Michael Heller, *The Tragedy of the Anticommons: Property in the Transition From Marx to Markets*, 111 HARV. L. REV. 621 (1998); Stephen Breyer, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281 (1970).

⁷⁰ UNCTAD, Paris Revision, *supra* note 49, para. 15 on p. 5.

⁷¹ SELL, *supra* note 60, at 130.

⁷² *Id.* at 132. Sell notes that the shift to bilateral intellectual property agreements was an important step in the U.S.’ International IP approach, because it invited the participation of trade officials instead of IP administrators into the negotiations. Sell asserts that this shift increased the likelihood of successfully changing laws in targeted countries, because trade policymakers have more clout than IP officials in developing countries. Consequently, the

in the Paris Convention revision meetings.⁷³ This policy of bilateral agreements was accompanied by a legal and policy shift in U.S. foreign trade policy towards enhanced protection of its IP rights abroad.

This is particularly reflected in the 1984 and 1988 amendments to the Trade Act of 1974, which added § 301 and super § 301 respectively.⁷⁴ Super § 301 requires the U.S. Trade Representative to unilaterally—without resorting to the binding and compulsory dispute settlement body of the WTO—impose retaliatory trade sanctions on any country in violation of U.S. IP rights.⁷⁵ This reflects the acknowledgment by the industries that supported the adoption of the TRIPS Agreement and industrial economies such as the U.S. government that

any robust level of intellectual property protection is dependent on (i) one time . . . fixed-cost lobbying expenditures to generate the initial set of legal entitlements, [the TRIPS Agreement], followed by (ii) continuing variable-cost expenditures of several billions of dollars annually by entitlement holders, [e.g. Super 301 actions as well as the availability of enforcement through dispute settlement at the WTO], who consume legal

U.S. was unable to leverage itself better since trade officials would be able to influence legislative change once they reached an agreement with the U.S. *See also* James Thuo Gathii, *The Neo Liberal Turn in Regional Trade Agreements*, 86 WASH. L. REV. 421, 429 (2011).

⁷³ Developing countries tended to vote as a block within a coalition labeled the Group of 77. *See* SELL, *supra* note 60, at 119–29.

⁷⁴ Omnibus Trade and Competitiveness Act of 1988, Pub. L. No. 100-418, 102 Stat. 1107, 1301, 1303 (1988) [hereinafter Special 301] (amending the Trade Act of 1974, Pub. L. No. 93-316, §§ 302(b), 182). Under this section, the U.S. Trade Representative (USTR) is required, within 180 days after the submission of the annual National Trade Estimates (foreign trade barriers), to report to Congress those foreign countries that (1) deny adequate and effective protection of U.S. intellectual property rights and (2) those countries under subsection (1) that are determined by the USTR to be priority foreign countries. The USTR identifies as priorities only those countries that have the most onerous or egregious acts, policies, or practices that have the greatest adverse impact on the relevant U.S. products and that are not entering good faith negotiations or making significant progress in bilateral and multilateral negotiations to provide adequate and effective intellectual property rights protection. *Id.* In a challenge at the WTO, this notorious legal provision of U.S. law was sustained. *See* Panel Report, *United States—Sections 301–310 of the Trade Act of 1974*, ¶ 7.22, WT/DS152/R (Jan. 27, 2000).

⁷⁵ Special 301, *supra* note 74.

entitlements as determined by marginal private cost-benefit valuations.⁷⁶

This new policy of enhanced international protection of U.S. IPR further sought to link trade to IPR. This link would achieve two further U.S. aims. First, it would steer away from WIPO, which was increasingly becoming a center of gravity for the revision of the Paris Convention for developing countries.⁷⁷ Second, and most importantly, such a move would give the U.S. an additional mechanism, the international trading system, through which to crank up support and observance of its IP rights; particularly through the legally binding and compulsory dispute settlement system established by the Uruguay Round.⁷⁸

Of course, these policy shifts did not occur in a political vacuum. A group of high technology multinational corporations known as the Intellectual Property Committee (IPC)⁷⁹ played a critical role in influencing these policy shifts.⁸⁰ Links between the IPC and the U.S. federal government resulted in a powerful private/public sector collaboration. For example, Edmund Pratt Jr., then chairman and CEO of Pfizer, had been a member of President Carter's Advisory Committee on Trade and Policy Negotiations (ACTPN) since 1979, which was created under the 1974 Trade Act.⁸¹ The

⁷⁶ See Jonathan Barnett, *Property as Process: How Innovation Markets Select Innovation Regimes*, 119 YALE L.J. 384, 397 (2009).

⁷⁷ Laurence Helfer, *Regime Shifting: The TRIPS Agreement and New Dynamics of Intellectual Property Lawmaking*, 29 YALE J. INT'L L. 1, 57 (2004). Helfer refers to such shifts as "regime shifting." Regime shifting diverts attention and resources from one treaty regime to another and in this case is done with a view to serve the interests of developed countries while appearing to address the needs of developing countries. *Id.*

⁷⁸ The U.S. also linked its participation in the Generalized System of Payments (GSP) to observance of its intellectual property rights. See SELL, *supra* note 60, at 134–35.

⁷⁹ Its members included Pfizer, General Electric, Merck, IBM, Dupont, Warner Communications, Hewlett-Packard, Bristol-Myers, FMC Communications, General Motors, Johnson and Johnson, Monsanto, and Rockwell International.

⁸⁰ Susan Sell, *TRIPS and the Access to Medicines Campaign*, 20 WIS. INT'L L.J. 481, 487 (2002).

⁸¹ See 19 U.S.C. § 2155 (2000). Under the 1974 Trade Act, as amended by the Trade Act of 2002, the ACTPN was established alongside other advisory committees to ensure that U.S. trade policy and trade negotiation objectives adequately reflect U.S. commercial and economic interests. Congress subsequently enhanced the role of this system by authorizing the advisory committees to provide advice on the priorities and direction of U.S. trade policy. The three-tiered committee structure established under the 1974 Trade Act contemplates that the ACTPN would have the most senior membership appointed by the President from diverse groups including the government, labor, industry, agriculture, small business, service industries, retailers, consumer interests, and the general public. The second tier is composed

role of this private sector advisory group is and was to advise the U.S. Trade Representative's Office (USTR) on trade policy, as well as to review and report to Congress on the work of the USTR.⁸² Pratt and IBM chairman John Opel jointly chaired the IP task force of the ACTPN.⁸³

This successful private/public collaboration is not surprising in part because it was and still is entrenched within the federal government's trade policy and negotiating apparatus as mandated by law.⁸⁴ Businesses also play a central role in shaping U.S. foreign trade policy, particularly because favoring the political process as the primary forum for resolving the interlocking trade concerns through Congressional control over trade policy provides these businesses with "continuous and unlimited opportunities for business lobbying."⁸⁵ These private sector groups also had (and continue to have) a huge stake in the direction of U.S. trade policy, and therefore employ large numbers of lobbyists to seek legislation on their behalf. For example, the pharmaceutical industry, which is one of the most profitable industries in the United States, employs at least two lobbyists for every member of Congress.⁸⁶

As a result of the efforts of the IPC and other related groups, the United States supported inclusion of IP rights within the international trade agenda during the Uruguay Round of talks of the General Agreement on Tariffs and

of policy advisory committees representing sectors of the economy such as industry, agriculture, labor and services. Policy advisory committees advise the government regarding the impact of various trade measures on their respective sectors. The third tier is composed of industry sector advisory committees consisting of experts from various fields. Their role is to provide specific technical information and advice on trade issues involving their particular sector. The USTR and the Secretary of the relevant department or agency appoint members of the second and third tier.

⁸² *Id.*

⁸³ James Thuo Gathii, *Construing Intellectual Property Rights and Competition Policy Consistently With Facilitating Access to Affordable Aids Drugs to Low-End Consumers*, 53 FLA. L. REV. 727, 754–57 (2001).

⁸⁴ *Id.* See also GREGORY SHAFFER, DEFENDING INTERESTS: PUBLIC PRIVATE PARTNERSHIPS IN W.T.O. LITIGATION 46 (2003).

⁸⁵ Jeffrey E. Garten, *Business and Foreign Policy*, 76 FOREIGN AFFAIRS 67, 69 (1997).

⁸⁶ Oxfam Int'l, Pfizer: Preventing the Cure: Corporate Lobbying and Fair Access to Medicines (Oxfam Briefing Paper No. 2, July 5, 2001), available at <http://policy-practice.oxfam.org.uk/publications/formula-for-fairness-patient-rights-before-patent-rights-114031>; see also DEE MAHAN, PROFITING FROM PAIN: WHERE PRESCRIPTION DRUG DOLLARS GO (2002) (claiming that, contrary to pharmaceutical company claims that an overwhelming amount of their returns go to research and development, most of it goes to lucrative executive compensation packages, marketing, advertising and administration).

Trade particularly in the early 1990s.⁸⁷ As a result of the way in which this group lobbied for support, both within the United States and among U.S. allies, as well as through the pressure of unilateral trade sanctions under super § 301, the TRIPS Agreement was formulated very consistently with U.S. interests.⁸⁸ For example, the right of a WTO member country to engage in compulsory licensing, with the exception of emergency situations or in cases of public, non-commercial use, is subject to a multitude of exceptions, making it virtually impossible to “break” patents.⁸⁹ Additionally, although the TRIPS Agreement refers to technology transfers, it does not place equally rigorous requirements on technology transfer as a precondition for receiving patent protection unlike in prior versions of the Paris Convention.⁹⁰

⁸⁷ Sell, *supra* note 80, at 489, 493.

⁸⁸ Gathii, *supra* note 83, at 754–57.

⁸⁹ An excerpt of Article 31 of the TRIPS Agreement demonstrates some of the rigid requirements for deviating from patent protection:

Where the law of a Member allows for other use of the subject matter of a patent without the authorization of the right holder, including use by the government or third parties authorized by the government, the following provisions shall be respected: (a) authorization of such use shall be considered on its individual merits; (b) such use may only be permitted if, prior to such use the proposed user has made efforts to obtain authorization from the right holder on reasonable commercial terms and conditions and that such efforts have not been successful within a reasonable period of time. . . . (c) the scope and duration of such use shall be limited to the purpose for which it was authorized, and in the case of semi-conductor technology shall only be for public non-commercial use or to remedy a practice determined after judicial or administrative process to be anti-competitive; (d) such use shall be non-exclusive; (e) such use shall be non-assignable, except with that part of the enterprise or goodwill which enjoys such use; (f) any such use shall be authorized predominantly for the supply of the domestic market of the Member authorizing such use; (g) authorization for such use shall be liable, subject to adequate protection of the legitimate interests of the persons so authorized, to be terminated if and when the circumstances which led to it cease to exist and are unlikely to recur. The competent authority shall have the authority to review, upon motivated request, the continued existence of those circumstances.

TRIPS Agreements, *supra* note 36, art. 31.

An amendment to the TRIPS Agreement allowing countries with pharmaceutical manufacturing capacity to manufacture drugs for countries without such capacity as under a compulsory license came into effect in January 2017. This modifies Article 31(g) of the TRIPS Agreement, see https://www.wto.org/English/news_e/news17_e/trip_23jan17_e.htm.

⁹⁰ There is only one direct reference to technology transfer in the TRIPS Agreement. Article 7, which is an Objectives Clause (and not therefore a substantive commitment) provides:

For process patents, the TRIPS Agreement puts the burden of proof in an infringement suit on the defendant.⁹¹ In the developing country and the LDC context, ill-financed defendants will potentially come face to face with “well-financed” developed country accusers who could much more easily bear the burden of proving infringement.⁹² Thus, the TRIPS Agreement contains a number of thoroughly watered down protections of the public interest. It affords a heightened level of protection of patents.⁹³

The upshot of the foregoing analysis yields several observations regarding how the TRIPS Agreement transformed the system set in place by the Paris Convention. First, it did so by having the WTO, an international institution backed by a binding and compulsory dispute settlement system, become a major international IP law player.⁹⁴ Second, the TRIPS Agreement

The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to the social and economic welfare, and to a balance of rights and obligations.

Id. art. 7.

⁹¹ *Id.* art. 34.

⁹² Mark Ritchie, Kristin Dawkins & Mark Vallianatos, *Intellectual Property Rights and Bio-Diversity: The Industrialization of Natural Resources and Traditional Knowledge*, 11 ST. JOHN'S J. LEGAL COMMENT. 431, 438 (1996).

⁹³ Article 7 of TRIPS notes:

The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.

TRIPS Agreement, *supra* note 36, art. 7. The Agreement further provides in Article 8(2) that “Appropriate measures, provided that they are consistent with the provisions of this Agreement, may be needed to prevent the abuse of intellectual property rights by right holders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology.” *Id.* art. 8(2). Technology transfer is further referred to under Article 66(2) with reference to least-developed countries and under Article 67, which encourages technical cooperation in technology transfer between developing and developed countries. Pursuant to these provisions Brazil enacted a working requirement in its patent law. The U.S. filed but withdrew a WTO complaint against Brazil on the basis that the Brazilian working requirement was illegal pursuant to the TRIPS Agreement. See Peter Capella, *Brazil Wins HIV Drug Concession From US*, THE GUARDIAN (June 26, 2001, 5:26 PM), <http://www.theguardian.com/business/2001/jun/26/internationaleducationnews.medicalscience>; see also Paul Champ & Amir Attaran, *Patent Rights and Local Working Under the WTO TRIPS Agreement: An Analysis of the U.S.-Brazil Patent Dispute*, 27 YALE J. INT'L L. 365, 380 (2002).

⁹⁴ The WIPO was thought of as ineffective and is now seen or regarded to have become re-energized since the emergence of the WTO in 1995. Graeme B. Dinwoodie, *The Architecture of the International Intellectual Property System*, 77 CHI.-KENT L. REV. 993, 1005 (2002).

departed from the norm of regulatory diversity which underpinned the Paris Convention model. Under the Paris Convention model, patent rights were regarded as a national prerogative rather than having international scope which they acquired under TRIPS.

Under the TRIPS Agreement, there is now a minimum international substantive regime of IP rights protections countries should adopt. The requirements of the TRIPS Agreement give countries little choice regarding the scope and extent of the patent rights they can grant since the Agreement aims at deep integration rather than the regulatory diversity which was characteristic of the pre-TRIPS period.⁹⁵ For example, the flexibility to exclude certain inventions in the public interest, such as pharmaceuticals, from patent protection was discontinued under the TRIPS Agreement. The TRIPS Agreement also put in place judicial and administrative institutions, procedures, safeguards, and remedies that countries must adopt to further secure the rights protected under the treaty. With regard to patents, only those that are capable of industrial application are protected.⁹⁶ Further, the TRIPS Agreement is non-derogable—countries cannot make reservations without the consent of all signatory state parties, which would seem rather hard to attain.⁹⁷

As LDCs have achieved progress at the WTO in putting the brakes on the rapid expansion of the TRIPS Agreement, developed countries have resorted to bilateral trade agreements to introduce strengthened IP protections. A critical challenge for LDCs in such bilateral agreements is that they lack an effective mechanism to do the job that institutions in developed states do at the domestic level—to manage the “tensions between competing interests in access and exclusion, change and stability, wealth inequality, liberty and security” in property rights.⁹⁸ Hence, while the South African Customs Union has the economic clout to successfully resist a typical U.S. Free Trade Agreement (FTA) that comes loaded with TRIPS-PLUS provisions, less economically powerful groups cannot resist these measures. For example, in the U.S.-Morocco FTA, Morocco agreed to extremely broad protections of IP rights beyond those it had committed to under the TRIPS Agreement.⁹⁹

⁹⁵ Gathii, *supra* note 83, at 761.

⁹⁶ TRIPS Agreement, *supra* note 36, art. 27(1).

⁹⁷ *Id.* art. 72.

⁹⁸ JOSEPH WILLIAM SINGER, *THE EDGES OF THE FIELD: LESSONS ON THE OBLIGATION OF OWNERSHIP* 36 (2001).

⁹⁹ James Thuo Gathii, *The Neo-Liberal Turn in Regional Trade Agreements*, 86 WASH. L. REV. 421, 466–67 (2011).

Examples of such WTO-Plus protections in the U.S.-Morocco FTA include data exclusivity protections that prevent generic competitors from using clinical trial data, prohibitions on registration of competing generics prior to the expiration of the patent protection period, ensuring extended terms of protection for copyrighted works, requiring governments to take steps to prohibit the marketing of pharmaceutical products that infringe patents, and notification requirements for when the infringement is to be challenged, and criminalizing software piracy.¹⁰⁰ Little wonder Pharma has referred to this agreement as “the most advanced . . . in any FTA negotiated so far” and a benchmark for future agreements.¹⁰¹

The ongoing contestation about the role of IP rights in developing countries resulted in a 2007 WIPO General Assembly Development Agenda.¹⁰² This agenda notes the importance of ensuring that IP-related activities promote the transfer and dissemination of technology to developing countries.¹⁰³ This is particularly important since many of the patents protected in developing countries, including LDC’s, are foreign owned and are held by multinational corporations who rarely use their technology in developing countries, or even LDCs.¹⁰⁴

IV. EXAMINING CLAIMS OF STRONG IP PROTECTION WITH STRENGTH IN ATTRACTING FDI

A. *A Literature Survey*

The claim that strong IP protection will attract FDI in LDCs is weak. To the extent that studies have sought to examine this relationship, there is little data that specifically isolates LDCs from higher income developing countries. Yet, LDCs do not share the same characteristics of vulnerability as low or lower-middle income developing countries. In Part II, we saw that an LDC is an economy with a gross national income per capita of below \$750. LDCs are extremely poor countries. Notably, as of July 1, 2014, the World Bank classifies countries with an average gross national income per

¹⁰⁰ See James Thuo Gathii, AFRICAN REGIONAL TRADE AGREEMENTS AS LEGAL REGIMES (2013); Gathii, *supra* note 99, at 464–67.

¹⁰¹ *Frequently Asked Questions*, EXPORT.GOV, http://www.export.gov/faq/eg_main_017504.

¹⁰² THE 45 ADOPTED RECOMMENDATIONS UNDER THE WIPO DEVELOPMENT AGENDA, WIPO, <http://www.wipo.int/export/sites/www/ip-development/en/agenda/recommendations.pdf>.

¹⁰³ *Id.* at 4.

¹⁰⁴ Vaitsos, *supra* note 65, at 9.

capita of \$1,045 USD or less in 2013 as low-income countries. Countries with an average gross national income per capita of \$1,045–\$4,125 USD as of July 1, 2014 are classified as lower middle-income countries.¹⁰⁵ The World Bank categorizes both low and lower middle-income countries as developing countries.

Clearly, the category of developing countries is rather broad—spanning from LDCs that have a lower than \$750 gross national income per capita at the lower end, to lower-middle countries with as high as \$3,975 gross national income per capita. Given that there are significant income gaps between LDCs and developing countries in general, data on the strength of IP protection in attracting greater FDI in “developing countries” cannot be representative of a typical LDC. In addition to differences in gross national income per capita, LDCs differ from other developing countries in technical capacity and capability as well as resource constraints. A good illustration of this difference is amply demonstrated by the fact that for purposes of the WTO, South Korea has self-designated itself as a developing country.¹⁰⁶ There is a huge gap in the levels of technical capacity and capability as well as in resources between South Korea and an LDC like Haiti.

That said, let me begin by summarizing a variety of studies that have linked IPR protection of one kind or another to economic growth or technology or skills transfer. Strong patent protection by itself, without high threshold levels of secondary education attainment in a particular country, does not correlate to a positive impact on growth.¹⁰⁷ Further, high levels of technical expertise in making a strong IP regime work against abuse—e.g., to check broad grants of patents, impose stringent criteria on novelty, and other criteria on patentability—are crucial to facilitate local learning and innovation; without which, recipients of foreign technology become platforms for foreign exporters without added benefits to their technical progress.¹⁰⁸ Unlike upper middle-income countries—which have a gross

¹⁰⁵ Updated Income Classifications, WORLD BANK (July 3, 2014), <http://data.worldbank.org/news/2015-country-classifications>.

¹⁰⁶ Countries self-designate as developing countries in the WTO. GROUPS IN THE WTO, WTO, http://www.wto.org/english/tratop_e/dda_e/negotiating_groups_e.pdf (last updated July 7, 2014).

¹⁰⁷ E. Borensztein et al., *How Does Foreign Direct Investment Affect Economic Growth*, 45 J. INT'L ECON. 115, 127 (1998).

¹⁰⁸ See Maskus, *supra* note 6, at 476, for a statement that the central element of an intellectual property system is enforcement which entails: (1) punishing infringement by free riders, and (2) disciplining enterprises that try to extend their rights beyond intended levels by acting in an anti-competitive manner; both tasks requiring the development of extensive legal

national income per capita of between \$4,125–\$12,746 as of July 1, 2014—LDCs do not have these high levels of expertise or the human capital to capitalize effectively on adopting imported technologies for local uses.

In addition, there are high costs to the implementation of IP regimes for LDCs. World Bank research demonstrates that the implementation of mandates such as the TRIPS Agreement impose expensive costs that undermine potential poverty reduction and economic growth, especially in least developed countries.¹⁰⁹ LDCs are unlikely to undertake these reforms without significant assistance or coercion. For these reasons, Jerome Reichman has noted that there are risks of sudden strengthening of patent rights among countries not yet able to harmonize their domestic regimes with international norms.¹¹⁰

Further, the predictions of positive economic outcomes that are claimed to be correlated with strong IP protection demonstrate net welfare losses in the short term before the dynamic benefits are realized in the longer term.¹¹¹ For example, in 1995, U.S. resident firms earned \$20.9 billion in net royalty and licensing fees.¹¹² The access to medicines debate in relation to patents was premised precisely on the imbalance between the net welfare gains in the North and the sheer inability of the indigent populations of developing and LDCs to afford life-saving drugs.¹¹³

and scientific expertise. However, it is necessary to emphasize that many LDCs simply do not have the capacity and institutions to fulfill such enforcement tasks. *See also* WILLIAM ALFORD, *TO STEAL A BOOK IS AN ELEGANT OFFENSE: INTELLECTUAL PROPERTY LAW IN CHINESE CIVILIZATION* (1995) (arguing that protecting IP rights in China before the protection of individual rights was fully realized was problematic).

¹⁰⁹ *See* J. Michael Finger & Philip Schuler, *Implementation of Uruguay Round Commitments: The Development Challenge*, World Bank Development Research Group (1991), <http://documents.worldbank.org/curated/en/457771468752978781/Implementatin-of-Uruguay-Round-commitments-the-development-challenge>.

¹¹⁰ Jerome Reichman, *The TRIPS Component of the GATT's Uruguay Round: Competitive Prospects for Intellectual Property Owners in an Integrated World Market*, 4 *FORDHAM INTELL. PROP. MEDIA & ENT. L.J.* 171, 255 (1993) (“The interests of states at different stages of development, and the absorption of intellectual property will have to accommodate these norms and . . . [p]remature efforts to accelerate the process of harmonization without due regard to these differences and to the social costs of overcoming them could boomerang against those countries pressing for rapid social change and could even widen the initial differences in the end.”).

¹¹¹ Maskus, *supra* note 6, at 489.

¹¹² *Id.* at 494.

¹¹³ *See, e.g.*, James Thuo Gathii, *The Structural Power of Strong Pharmaceutical Patent Protection in U.S. Foreign Policy*, 7 *IOWA J. GENDER, RACE & JUST.* 267 (2003); James Thuo Gathii, *The Legal Status of the Doha Declaration on TRIPS and Public Health Under the*

For these and other reasons, strong IP regimes are more beneficial for middle- and high-income countries with the appropriate conditions for maximizing the benefits of imported technologies. By contrast, the positive impact of strong IP regimes in LDCs is at best likely to be small, and such gains are likely to be overrun by the higher cost of implementing these commitments.¹¹⁴

There is evidence that increased machinery and equipment imports from OECD countries to developing countries “tended to raise total factor productivity” by about 0.03% on average.¹¹⁵ If this is so, then it is plausible to make the claim that economic assistance to LDCs to import machinery and equipment not only from OECD countries but also from cheaper sources such as India and China—which now compete very well with OECD machinery manufacturers—could help them not only to improve their productivity, but also alleviate problems such as food security that are directly related to low nutritional levels.

This Paper’s central claim is that LDCs are poorly equipped to implement Western-style strong IPR regimes from both an institutional and cultural perspective.¹¹⁶ An LDC’s sudden adoption of a strong IPR regime does not somehow wipe the slate clean and imbue the country’s citizenry with a newfound respect for IP rights.¹¹⁷ In addition to being adopted by a legislative body, a statutory regime must appeal to citizens’ inherent sense of fairness, equity, and legitimacy in order to gain broad acceptance.

Vienna Convention of the Law of Treaties, 15 HARV. J.L. & TECH. 291 (2002); Gathii, *supra* note 83.

¹¹⁴ Maskus, *supra* note 6, at 487.

¹¹⁵ *Id.* at 482 (citing David J. Coe et al., *North-South R&D Spillovers*, 107 ECON. J. 134, 147 (1997)).

¹¹⁶ By institutional perspective, I am speaking in terms of a lack of technical capability and proficiency, and weak human assets and resource constraints.

¹¹⁷ See ALFORD, *supra* note 108, at 112–23 (claiming efforts to introduce IP laws in China are deeply flawed due to a failing to reconcile their Western legal roots with China’s past and contemporary constraints). See also Ruth L. Gana, *Has Creativity Died in the Third World?: Some Implications of the Internationalization of Intellectual Property*, 24 DENV. J. INT’L L. & POL’Y 109, 132 (1995) (arguing in part that a Western “absolutist conception of property” rights defined in relation to the right to exclude does not take into account differing notions of property in the developing world); INTELLECTUAL PROPERTY RIGHTS: LEGAL AND ECONOMIC CHALLENGES FOR DEVELOPMENT 505 (Mario Cimoli et al. eds., 2014) [hereinafter INTELLECTUAL PROPERTY RIGHTS] (analyzing the impact of IPR regimes on the development process and making proposals for what would constitute an ideal IPR regime in both advanced and developing countries).

A strong IPR regime on its own will not be sufficient to overcome long-standing legal and cultural norms that have not given the same level of deference to the rights of IP owners. “[A] country’s system of intellectual property protection is inextricably bound up with its entire legal and social system and its attitudes toward private property; it involves much more than the passage of a patent or copyright law.”¹¹⁸ According to this view, an LDC’s wholesale adoption of Western-styled IPRs, without allowing for a period of industrial, institutional, and cultural development, puts the proverbial cart before the horse. Therefore, investors and policymakers should not anticipate adoption of IPRs at the governmental level to have meaningful impact among a populace that has not been acculturated to view IPR rights and obligations as legitimate.

Finally, there is evidence that licensing of IP goods was unrelated to the strength or weakness of IP regimes and further that FDI was highest among the mineral rich war-torn LDCs in Africa.¹¹⁹ This further undermines claims of a positive relationship between strong IP regimes and strength in attracting FDI.¹²⁰ In fact, many resource-rich LDCs—such as Angola and the Democratic Republic of Congo—that have a large share of FDI flows to developing countries are also war-torn and have extremely weak rule of law systems. This undermines claims linking strong IP protection regimes and strong FDI flows.

By contrast, my argument is that strong IP protection works best to raise growth in conjunction with trade openness, high levels of human capital accumulation, good infrastructure and a strong regulatory environment. Strengthening IP protection without simultaneously addressing the conditions correlated with low growth and productivity in least developed countries will not yield the benefits that accompany strengthening of IP regimes in economies where the right conditions for positive benefits do exist.¹²¹ In fact, the small market sizes, low gross national incomes, poor infrastructure, low educational attainments, high levels of sovereign indebtedness, regulatory barriers and political instability in some LDCs

¹¹⁸ Edwin Mansfield, *Intellectual Property Protection, Foreign Direct Investment, and Technology Transfer* p. 20, para. 7 (Int’l Fin. Corp., Discussion Paper 19, 1994).

¹¹⁹ INTELLECTUAL PROPERTY RIGHTS, *supra* note 117, at 505.

¹²⁰ See generally UNCTAD, WORLD INVESTMENT REPORT 2001: PROMOTING LINKAGES (2001). This trend has continued because of the boom in natural resources in recent times. UNCTAD, WORLD INVESTMENT REPORT: FDI FROM DEVELOPING AND TRANSITION ECONOMIES-IMPLICATIONS FOR DEVELOPMENT (2006). However as a share of global FDI flows, least developed countries still receives a miniscule percentage.

¹²¹ Maskus, *supra* note 6, at 498.

makes flows of FDI—even with strengthened IP protection—a challenge. Further, assuming strong patent regimes are nevertheless adopted in LDCs, they would discourage the costs of local enterprises and innovators to imitate, copy, and borrow from imported technologies in much the same way most developed economies began the early phase of their industrial development.¹²²

There are other arguments that counsel against adopting strong IP regimes. The next Part of this Article examines evidence from the U.S. and elsewhere that demonstrates some of the limits that a particularly strong IP protection regime may have. This examination provides another set of reasons to be cautious about adopting IP regimes that do not carefully balance between the rights of users and producers of IP rights.¹²³

B. Over-Abundance of IPR Rights and Economic Gridlock

Michael Heller has persuasively argued that an over-abundance of property rights recognition can cause economic “gridlock,” when economically productive uses and innovation become stifled by rights owners’ inability and/or unwillingness to reach mutually beneficial agreements.¹²⁴ Heller’s thesis is that excessive property rights can result in a *tragedy of the anti-commons*,¹²⁵ drawing on the familiar theory that demonstrates how common ownership leads to overuse of finite resources. For Heller, anti-commons “covers any setting in which too many people can block each other from creating or using a scarce resource . . . [T]he opposite of overuse in a commons is underuse in an anti-commons.”¹²⁶

For example, after examining the experience of the Italian pharmaceutical industry following the introduction of patents for medicines in 1978, Boldrin and Levine found that “a thriving pharmaceutical industry had existed in Italy for more than a century in the complete absence of patents.”¹²⁷ Firms

¹²² See Alice Amsden, *Why Isn't the Whole World Experimenting With the East Asian Model to Develop?*, 22 *WORLD DEV.* 627, 631 (1994).

¹²³ For more on the importance of a balanced IP regime, see Mark A. Lemley, *Property, Intellectual Property and Free Riding*, 83 *TEX. L. REV.* 1031 (2004) (likening IP rights to government subsidies rather than private property rights).

¹²⁴ See generally MICHAEL HELLER, *THE GRIDLOCK ECONOMY* (2008).

¹²⁵ See *id.* at 18–19 (“The anti-commons perspective shows that the *content* of property rights matters as much as the *clarity*. Gridlock arises when ownership rights and regulatory controls are too fragmented.”).

¹²⁶ *Id.* at 18.

¹²⁷ MICHELE BOLDRIN & DAVID K. LEVINE, *AGAINST INTELLECTUAL MONOPOLY* 223 (2010).

that imitated and “improved upon existing products” and sold them to Italian consumers at “much lower prices” characterized Italy’s pre-1978 pharmaceutical industry.¹²⁸ In addition to being affordable and efficient, the Italian pharmaceutical industry pre-1978 was recognized as a leader in innovation; accounting for 9.28% (108 out of 1282) of new active chemical compound discoveries.

However, after the introduction of stronger IP protections, Italy’s share of worldwide compound discoveries dipped to 7.5% (8 out of 108) from 1980–1983. The surge of foreign manufacturers enforcing their patents granted abroad not only ate away at local profits but also discouraged experimentation that led to the development of new useful medications.¹²⁹ Additionally, stronger patent protection in Italy did not lead to an increase in domestic or foreign direct investment.¹³⁰ It may well be that the dwindling fortunes and vibrancy of Italy’s pharmaceutical sector is exactly what global pharmaceutical industry had in mind when they advocated for the WTO’s adoption of the TRIPS agreement. According to Nobel Prize winning economist and World Bank economist Joseph Stiglitz, “one of the main reasons the pharmaceutical industry was pushing for TRIPS was that they wanted to reduce access to generic medicines”¹³¹ and thus force sick consumers to buy their expensive name brand drugs.

The experience of India’s pharmaceutical industry since 1978 offers further evidence that strong patent protection is not a necessary precondition for innovation or a local industry’s growth.¹³² As stated by Boldrin and Levine, “[s]ince 1978, India has taken over as the primary center of pharmaceutical production without patent protection.”¹³³ However, it is now thought that India may be losing this strong position as it begins to institute stronger IP protections as part of its obligations under the WTO-TRIPS agreements. A 2003 paper by Chaudhuri, Goldberger, and Jia calculated the impact of introducing a specific class of patented drugs (quinolones) on the

¹²⁸ *Id.*

¹²⁹ *Id.* at 222–23.

¹³⁰ Ho, *supra* note 18, at 257 (citing F.M. Scherer & S. Weisburst, *Economic Effects of Strengthening Pharmaceutical Patent Protection in Italy*, 26 INT’L REV. INDUS. PROP. & COPYRIGHT L. 1009 (1995)).

¹³¹ Joseph E. Stiglitz, *Economic Foundations of Intellectual Property Rights*, 57 DUKE L.J. 1693, 1701 (2008).

¹³² BOLDRIN & LEVINE, *supra* note 127, at 223.

¹³³ *Id.*

Indian economy to be \$305 million.¹³⁴ The authors state, “[t]he overwhelming portion of the total welfare loss . . . derives from the loss of consumer welfare. In contrast, the profit gains to foreign producers in the presence of price regulation are estimated to be only around \$19.6 million per year.”¹³⁵

Over-zealous pursuit and enforcement of patents can also bog down firms and inventors in litigation, diverting vital resources and creative energy from the research and development essential to innovation. The U.S. software industry is currently facing this challenge. The U.S. Patent and Trademark Office’s continued recognition of software patents that are overly broad and intentionally vague is increasing the risks of litigation at the expense of innovation.¹³⁶ Software was long considered copyrightable but was not regularly granted patent protection by the U.S. Patent and Trademark Office until several federal court decisions in the 1980s and 1990s dramatically expanded an inventor’s ability to obtain patents in software.¹³⁷

According to Nobel Prize winning economist Eric Maskin, “the increase in intellectual property [in the 1990s] was not accompanied by a corresponding increase in innovation [in the U.S. software industry],” and evidence suggests that the opposite may be true.¹³⁸ With thousands of expansive and ill-defined software patents in circulation, firms are increasingly at risk of inadvertently infringing another company’s supposed “property rights.”¹³⁹ According to Chris Sacca, a venture capitalist familiar

¹³⁴ *Id.* at 223–24 (citing S. Chaudhuri, P. Goldberger & P. Jia, *The Effects of Extending Intellectual Property Rights Protections to Developing Countries: A Case Study of the Indian Pharmaceutical Market* (NBER, Working Paper No. 10159, 2003)).

¹³⁵ *Id.* at 224.

¹³⁶ See Tony Bradley, *If Android Violates Patents, Shouldn't Microsoft Sue Google?*, PC WORLD (Mar. 22, 2011), http://www.peworld.com/businesscenter/article/222825/if_android_violates_patents_shouldnt_microsoft_sue_google.html (noting that “Tech patents are often too vague and broad and many probably should never have been granted in the first place”).

¹³⁷ See *Diamond v. Diehr*, 450 U.S. 175, 188 (1981) (recognizing a computer program was patentable if it met patentability requirements of novelty, nonobviousness and utility).

¹³⁸ Interview by Alex Blumberg with Eric Maskin, Adams University Professor, Harvard University, in National Public Radio Planet Money (Aug. 2, 2011), available at <http://www.npr.org/blogs/money/2011/08/05/138934689/the-tuesday-podcast-the-patent-war>. See also Alberto Galasso & Mark Schankerman, *Patents and Cumulative Innovation: Causal Evidence from the Courts*, 130 Q. J. ECON. 317 (studying how patent rights affect the process of cumulative innovation and specifically finding that patent rights owned by large firms block small innovators).

¹³⁹ “[I]f you’re selling online . . . there are 4,319 patents you could be violating. If you also planned to advertise, receive payments for or plan shipments of your goods, you would need

with the software industry, “[w]e’re at a point in the state of intellectual property where existing patents probably cover every single behavior that’s happening on the internet and our mobile phones today.”¹⁴⁰ Several opportunistic companies—many of which are run by lawyers, and not engineers—have taken advantage of this situation by collecting thousands of these ill-defined software patents without any intention of commercializing the underlying technology.

Instead, these aptly named “patent trolls” use their stockpile of IP rights to either extract licensing fees from or sue software firms who are legitimately trying to develop new businesses or products.¹⁴¹ This has resulted in what some in the industry have characterized as a “patent arms race,” where large technology firms spend billions for patent rights that they have no intention of bringing to market.¹⁴² For example, in July 2011, Google, Inc. attempted to spend over \$3 billion for patents being sold off by Nortel Networks Corp., for the sole purpose of warding off infringement lawsuits against its Android operating system.¹⁴³ Ultimately Google was outbid by a consortium of technology companies—among them Apple and Microsoft, strange bedfellows indeed—who spent over \$4 billion for Nortel’s largely worthless trove of patents. Dean Becker, chief executive officer of ICAP Patent Brokerage, the world’s largest patent seller stated, “[e]very operating company is in the market because of the expense, distraction and the potential financial risk of patent litigation.”¹⁴⁴

to be concerned with approximately 11,000.” JAMES BESSON & MICHAEL M. MEURER, *PATENT FAILURE* 213 (2008).

¹⁴⁰ Interview by Alex Blumberg with Chris Sacca, Proprietor, Lowercase Capital, in *This American Life* (July 22, 2011), available at <http://www.thisamericanlife.org/radio-archives/episode/441/transcript>.

¹⁴¹ Rob Goodier, *Patent Trolls: How Bad Is The Problem*, *POPULAR MECHANICS* (Oct. 25, 2011), <http://www.popularmechanics.com/technology/gadgets/a7213/patent-trolls-how-bad-is-the-problem/>.

¹⁴² *Id.*

¹⁴³ Susan Decker, *Google Left Searching for New Patent Assets After Nortel Loss*, *BLOOMBERG* (July 5, 2011), <http://www.bloomberg.com/news/2011-07-05/google-left-searching-for-new-patent-assets-after-nortel-loss.html>.

¹⁴⁴ *Id.* See also Henry Chesbrough, *Microsoft Should Welcome Piracy in India and China*, *BLOOMBERG* (July 25, 2007), <http://www.bloomberg.com/bw/stories/2007-07-25/microsoft-should-welcome-piracy-in-india-and-chinabusinessweek-business-news-stock-market-and-financial-advice> (arguing technology companies should not take a strong position on IP enforcement in developing countries where openness may allow such companies to become the dominant design used by consumers and thus win market share).

C. *Strong IPR Protection Not an Overriding Factor in FDI Flows*

Strong IPR regimes alone are not sufficient to increase technology transfer in developing countries.¹⁴⁵ A strengthened IPR regime can be advantageous for countries that have “a certain degree of absorptive capacity and strong technological infrastructures,” whereas in poorer countries a strong IPR regime will usually increase costs and reduce technology transfer.¹⁴⁶ Thus, a “one-size fits all” approach to IPRs will not generate consistently beneficial results for economies that are yet to develop the infrastructure, skilled labor force, and solid technological base necessary for IPRs to attract increased foreign direct investment or stimulate widespread homegrown innovation.¹⁴⁷ Proponents promising an influx of foreign investment following the strengthening of IPR protections overlook the economic and institutional prerequisites that typically must be in place in order for a corporation to seriously consider making investments abroad.¹⁴⁸

¹⁴⁵ See Ho, *supra* note 18, at 256 (noting macroeconomic factors such as tax incentives, infrastructure and skills are more relevant than intellectual property laws when multinational companies choose to invest in countries); see also Mila Kashcheeva, *The Role of Foreign Direct Investment in the Relation Between Intellectual Property Rights and Growth*, 65 OXFORD ECON. PAPERS 699, 701–02, 718 (2013) (finding strong IPR regimes mitigate the growth effect of FDI in developing economies and that more lax IPR may even increase the growth rate).

¹⁴⁶ Daniele Archibugi & Andrea Filippetti, *The Globalisation of Intellectual Property Rights*, 1 GLOBAL POL'Y 137, 145 (2010).

¹⁴⁷ See Carlos A. Primo Braga & Carsten Fink, *The Relationship between Intellectual Property Rights and Foreign Direct Investment*, 9 DUKE J. COMP. & INT'L L. 163, 168 (1998) (“Strengthened IPR protection will have different welfare implications depending on the characteristics of each country. Generalizations can only be made if strong assumptions are adopted.”). See also Claudio R. Frischtak, *Harmonization Versus Differentiation in Intellectual Property Right Regimes*, in GLOBAL DIMENSIONS OF INTELLECTUAL PROPERTY RIGHTS IN SCIENCE AND TECHNOLOGY 89, 103–05 (Mitchel B. Wallerstein et al. eds., 1993) (arguing the benefits of pressuring weaker countries towards tighter IP protection standards are unlikely to outweigh the costs, and that countries should tailor their IPR systems rather than adopting a one-size fits all approach); Caroline B. Ncube, *Harnessing Intellectual Property for Development: Some Thoughts on an Appropriate Theoretical Framework*, 16 POTCHESTROOM ELECTRONIC L.J. 369 (2013) (proposing a theoretical framework for intellectual property regimes such that IP rights are formulated and enforced to “meet societal goals or serve the public, be responsive to the economic environment, and take cognizance of the human rights claims of both creators and users”).

¹⁴⁸ See generally John H. Dunning, *Explaining Changing Patterns of International Production: In Defense of Eclectic Theory*, 41 OXFORD BULL. ECON. & STAT. 269 (1979) (identifying three areas that are determinative in a corporation’s decision to invest in operations abroad: ownership of intangible assets, location advantages, and internalization of production). See also Carsten Fink, *Intellectual Property Rights and U.S. and German*

Specifically in regards to patents, Professor Cynthia Ho finds there is no robust empirical evidence to support the claim that stronger patent rights promote foreign direct investment.¹⁴⁹

Besides ownership of high-value IP rights products or services, economists and businesses have identified two additional conditions that must be met in order for companies to consider investing overseas. The first condition necessary for foreign investment is the country's so-called "location advantages," which include "high transportation costs and tariffs, low input prices, access to distribution networks, and local regulatory environments."¹⁵⁰ A country that offers a low cost of doing business, minor or at least predictable regulatory burdens, and a means to reliably deliver products and receive inputs via transportation and communication networks would be said to possess "location advantages." Additionally, a decision to locate manufacturing or research and development abroad would likely be affected by "the level of education and training of the local workforce, the condition of its financial sector, the health of its legal system, and the transparency of governmental procedures."¹⁵¹

Second, not only must a country's legal regime and physical infrastructure be conducive to outside investment, but the business itself must also believe it profitable to "internalize production [in the foreign country] rather than to sell or license their intellectual assets to independent local firms"¹⁵² Businesses must weigh the costs and benefits of shifting

International Transactions in Manufacturing Industries, in INTELLECTUAL PROPERTY AND DEVELOPMENT: LESSONS FROM RECENT ECONOMIC RESEARCH (Carsten Fink & Keith E. Maskus eds., 2005) (arguing IPRs do not play an important role in influencing total international transactions of U.S. firms and are irrelevant in explaining the direct investment stock of German firms in foreign countries); Jeong-Yeon Lee & Edwin Mansfield, *Intellectual Property Protection and U.S. Foreign Direct Investment*, 78 REV. ECON. & STAT. 181, 185–86 (1996) (arguing the mere passage of a law is insufficient to attract investment where there is a perception of weak enforcement due to social and cultural factors); Rajnish Kumar Rai, *Effect of the TRIPS-Mandated Intellectual Property Rights on Foreign Direct Investment in Developing Countries: A Case Study of the Indian Pharmaceutical Industry*, 11 J. WORLD INTELL. PROP. 404, 411 (2009) (noting IPR is only one factor in attracting FDI, which also depends on "skill availability, technology status, R&D capacity, enterprise-level competence and institutional and other supporting technological infrastructure").

¹⁴⁹ Ho, *supra* note 18, at 256.

¹⁵⁰ Primo Braga & Fink, *supra* note 147, at 170.

¹⁵¹ Peter Yu, *Intellectual Property, Foreign Direct Investment and the China Exception*, in THE GLOBAL CHALLENGE OF INTELLECTUAL PROPERTY RIGHTS 155 (quoting Paul J. Heald, *Mowing the Playing Field: Addressing Information Distortion and Asymmetry in the TRIPS Game*, 88 MINN. L. REV. 249, 259 (2003)).

¹⁵² Primo Braga & Fink, *supra* note 147, at 170.

operations to a foreign country against simply collecting royalties from licensing their IP to others, thus avoiding the difficulties of engaging in an unfamiliar market. Indeed, even Edwin Mansfield, a well-known proponent of the view that strong IPRs drive foreign direct investment, acknowledges that “most [Research and Development] intensive firms seem to regard intellectual property rights protection as an important fact, but only one of a number of important factors, influencing their investment decisions.”¹⁵³ The International Finance Corporation (IFC), which commissioned Mansfield’s study, is the largest source of multilateral loan and equity financing in the world.¹⁵⁴ Mansfield surveyed business leaders from major western corporations on the impact that a foreign country’s system of IPR protection had on their company’s decision to transfer technology and invest in research and development in that market. Although Mansfield’s results were not unequivocal, the report shows that IPR protections have a “substantial effect” on a company’s decision to invest abroad. The study has since been cited by proponents of IPR globalization as evidence that strong IPR protections increase overall social welfare regardless of the country’s stage of development. Despite his well-known thesis that IPRs have a positive impact on attracting foreign direct investment, Mansfield acknowledges that IPRs have differing levels of importance in terms of influencing investment decisions across various industries.¹⁵⁵

Several studies have shown that strong IPR protections have traditionally failed to serve as an overriding incentive for firms to carry out foreign direct investment activities because strong IPR regimes tend to favor licensing relationships over production internalization. Professor Peter Yu notes that “the strengthening of intellectual property protection may encourage firms to conduct more arm’s-length technology licensing, which in turn will result in a reduction of FDI.”¹⁵⁶ A body of economic and legal scholarship theorizes that while IPRs may encourage investment in markets where the company makes sales by deterring copyright infringement and “knock-offs,” this enhanced market power has a negligible if not inverse effect on a company’s decision to invest in R&D or manufacturing.

¹⁵³ Mansfield, *supra* note 118, at 25.

¹⁵⁴ *Overview*, INT’L FIN. CORP., http://www.ifc.org/wps/wcm/connect/corp_ext_content/ifc_external_corporate_site/about+ifc_new.

¹⁵⁵ Mansfield, *supra* note 118, at 28 (“It is important to note in this regard that patents are of much less importance in many industries than in pharmaceuticals and chemicals.”).

¹⁵⁶ Yu, *supra* note 151, at 155.

Companies are more willing to license their technology to local firms when the country's legal regime recognizes IP rights and provides IP owners some level of injunctive or punitive remedy against infringers. "[S]tronger protection may reduce investment by encouraging investors to conduct arm's-length transactions by licensing their products."¹⁵⁷ However, when firms decide to "internalize" R&D and manufacturing abroad, they are "unlikely to require more protection than needed to ensure the non-disclosure of technologies" from their in-house operations.¹⁵⁸ In the alternative, several economists argue that "firms prefer foreign investment over licensing in the case of *weak [IPR] protection* because internalized foreign production helps firms to maintain direct control over their proprietary assets."¹⁵⁹

Professor Peter Yu has argued that the experience of China in successfully attracting foreign direct investment demonstrates that instituting a strong IPR regime is not a necessary condition for these transactions to occur.¹⁶⁰ Although China's IPR protections remain "inadequate and ineffective" compared with western standards, the country's "location advantages," such as low labor costs, favorable regulatory treatment toward foreign investors, and the country's rapidly developing physical infrastructure, "easily make up for the losses incurred by ineffective intellectual property protection."¹⁶¹ Even though the Chinese market is somewhat notorious for ongoing IPR violations, the country's capacity to imitate and copy has proved to be an advantage for China in that it has produced capable local firms for outside investors to partner with and an

¹⁵⁷ *Id.* at 7.

¹⁵⁸ *Id.* at 2.

¹⁵⁹ Primo Braga & Fink, *supra* note 147, at 172 (emphasis added). See also W. Lesser, WIPO, *The Effects of TRIPS-Mandated Intellectual Property Rights on Economic Activities in Developing Countries* 7 (2001), available at http://www.wipo.int/export/sites/www/about-ip/en/studies/pdf/ssa_lesser_trips.pdf (arguing that it is the product market potential not the level of intellectual property rights protection that is the "principle issue for private firms when identifying developing country markets").

¹⁶⁰ Yu, *supra* note 151, at 157. See also Ho, *supra* note 18, at 255–56 (supporting this proposition and noting that in 2013 India had \$1 billion in foreign direct investment in three months despite controversial patent laws that have been noted as inadequate by many companies); Frederick Abbott, *Towards New Era of Objective Assessment in the Field of TRIPS and Variable Geometry for the Preservation of Multilateralism*, 8 J. INT'L ECON. L. 9, 77, 82 (2005) (arguing that Asia has seen the most significant growth in FDI, yet is a region where IP protection regimes have been weak); C.M. CORREA, INTELLECTUAL PROPERTY RIGHTS, THE WTO AND DEVELOPING COUNTRIES: THE TRIPS AGREEMENT AND POLICY OPTIONS (2000) (finding that Brazil and Thailand received substantial FDI in the 1970s and 1980s despite low levels of IP protection).

¹⁶¹ Yu, *supra* note 151, at 157.

experienced manufacturing workforce.¹⁶² Imitation and copying were major strategies of the East Asian tigers as well.¹⁶³ Another example where imitation and copying resulted in the margins of an economically significant industry is the Nollywood movie industry in Nigeria. Even though Nigeria has a well-established copyright regime, the lack of copyright enforcement was a key factor in the widespread dissemination of Nollywood films and the rapid growth of the industry, which generates approximately \$250 million USD annually.¹⁶⁴ As stated by Professor Olufunmilayo B. Arewa, “[a]s Nollywood illustrates, businesses in development stages may actually benefit and gain brand recognition and market share as a result of low levels of intellectual property protection.”¹⁶⁵

¹⁶² See *id.* (“Since reopening of its market to foreign trade in the late 1970s, China has developed a strong imitative capacity . . . such capacity explains China’s ability to produce a large amount of pirated and counterfeit products.”).

¹⁶³ ALICE AMSDEN, *ASIA’S NEXT GIANT: SOUTH KOREA AND LATE INDUSTRIALIZATION* 20–21 (1981) (arguing South Korea industrialized through a program of nationally owned firms that included massive imports of foreign licenses and assistance with a view to attaining “technological independence to avoid foreign control”). See also Arman S. Kirim, *Reconsidering Patents and Economic Development: A Case Study of the Turkish Pharmaceutical Industry*, 13 *WORLD DEV.* 219, 219–36 (1985) (finding that FDI increased in Korea’s pharmaceutical industry after IP protection of drugs was abolished).

¹⁶⁴ Olufunmilayo B. Arewa, *The Rise of Nollywood Creators, Entrepreneurs, and Pirates*, 4, 9, 23 (U.C. Irvine Sch. L. Research Paper No. 2012-11, 2012), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2011980.

¹⁶⁵ *Id.* at 24–25. Arewa notes that although low levels of IPR protection can benefit emerging industries, once these industries are established—as can be seen in the case of Nollywood—higher levels of copyright enforcement would actually benefit the further development of the industry. *Id.* See also Olufunmilayo B. Arewa, *Creativity, Improvisation, and Risk: Copyright and Musical Innovation*, 86 *NOTRE DAME L. REV.* 1829, 1829–30 (2011) (arguing copyright control mechanisms can pose a significant risk to creativity and innovation because they do not acknowledge the role that existing works can play as a stimulus for innovation); Roberta Rosenthal Kwall, *Inspiration and Innovation: The Intrinsic Dimension of the Artistic Soul*, 81 *NOTRE DAME L. REV.* 1945, 1947–49 (2006) (arguing people innovate for reasons other than economic reward and that creativity is characterized by motivations such as the desire for challenge, personal satisfaction, or the creation of works with a particular meaning or significance for the author); Nagla Rizk, *From de Facto Commons to Digital Commons? The Case of Egypt’s Independent Music Industry*, in *INNOVATION & INTELLECTUAL PROPERTY: COLLABORATIVE DYNAMICS IN AFRICA* 171, 179–81, 187–90 (Jeremy de Beer et al. eds., 2014) (finding Egypt’s independent musicians produce music for self-expression and voicing opinion more than for monetary benefit); Stewart E. Sterk, *Rhetoric and Reality in Copyright Law*, 94 *MICH. L. REV.* 1197, 1207 (1996) (arguing increased copyright protection for authors will reduce the supply of new works because the high cost of source material will deter marginal authors from creating).

The TRIPS Agreement obligates member states to adopt IPR standards that are similar to those enforced by the U.S. and Europe. As noted by Archibugi and Filippetti, “TRIPS constitutes the most important attempt to establish a global harmonisation of Intellectual Property . . . protection and enforcement . . .”¹⁶⁶ As a requirement of WTO accession, developing nations agree to enact baseline IP protections consistent with this goal of “upward harmonization.” This can pose a challenge for countries administering much weaker IP regimes or that—in some instances—have traditionally refused to recognize certain classes of IP rights at all. For example, prior to agreeing to abide by TRIPS, India prohibited “product patent” protection for the entire pharmaceutical industry.¹⁶⁷

Although India eventually passed a “TRIPS compliant” patent law in 2005, the statute contains a restriction on patent holders’ rights to extend the lifespan of their monopoly over already known chemical compounds. Section 3(d) of the statute restricts the practice of “ever-greening,” whereby patent holders are granted additional years of monopoly protection following the discovery of an “incremental innovation”—such as switching from a capsule to a tablet or finding a new use for a product—without a showing of enhanced efficacy.¹⁶⁸ At the time of its passage, the inclusion of Section 3(d) stirred controversy, representing a coup for India’s native pharmaceutical industry at the expense of foreign interests who had hoped India’s WTO accession would facilitate the importation of western products and patent practices into the Indian drug market.¹⁶⁹ Not to be outdone by India’s legislative mandate, Western interests sought to influence the implementation of the statute at the administrative level.

There have been some high profile denials of patent extensions under Section 3(d), demonstrating the efficacy of flexibilities that developing countries can use to achieve important policies such as access to essential

¹⁶⁶ Archibugi & Filippetti, *supra* note 146, at 138.

¹⁶⁷ Bhaven Sampat, WIPO, *Institutional Innovation or Institutional Imitation? The Impacts of TRIPs on India’s Patent Law and Practice* 3 (2010), available at http://www.wipo.int/edocs/mdocs/mdocs/en/wipo_ip_econ_ge_6_10/wipo_ip_econ_ge_6_10_ref_sampat.pdf.

¹⁶⁸ See Shalini Arora & Rekha Chaturvedi, *Section 3(d): Implications and Key Concerns For Pharmaceutical Sector*, 21 J. INTELL. PROP. RTS. 16 (2016), available at [http://nopr.niscair.res.in/bitstream/123456789/34013/1/JIPR%2012\(1\)%2016-26.pdf](http://nopr.niscair.res.in/bitstream/123456789/34013/1/JIPR%2012(1)%2016-26.pdf).

¹⁶⁹ The Patents (Amendment) Act, 2005, No. 15, § 3(d), Acts of Parliament, 2005 (India) (prohibiting patentability where “[t]he mere discovery of a new form of a known substance which does not result in the enhancement of the known efficacy of that substance . . .”).

medicines.¹⁷⁰ There have also been denials of patents based on pre-grant oppositions by a variety of stakeholders including NGOs and generic manufacturers under Section 3(d).¹⁷¹ Further, India's courts have used high standards for patent eligibility, consistent with Indian law as well as the flexibility that the TRIPS Agreement provides for countries to decide standards of patentability.¹⁷²

D. Examining the Historical Evidence

This strategy of looking at periods in which developed countries briefly abandoned IP protection seems appropriate, because today all industrialized countries have patent systems and therefore it is hard to find verifiable empirical evidence to support causal links between IP protection and

¹⁷⁰ For further analysis, see CYNTHIA HO, ACCESS TO MEDICINES IN THE GLOBAL ECONOMY: INTERNATIONAL AGREEMENTS ON PATENTS AND RELATED RIGHTS 89–124 (2011). See also Lisa Shuchman, *India Patent Authority Has Big Pharma*, CORP. COUNSEL (Oct. 15, 2012), <http://www.corpcounsel.com/id=1202574815027/India-Patent-Authority-Has-Big-Pharma-Worried>.

¹⁷¹ *Id.* at 16–17. Notably, some scholars have argued that Indian patent examiners behave much like patent examiners in the West who tend to approve most patent applications. See, e.g., Sampat, *supra* note 167, at 13–16. According to Sampat, first, the developing country's patent office will “rubber-stamp [the prior patent decisions of other TRIPS countries] rather than subjecting them to national patent standards,” either due to a lack of comfort with the subject matter, a lack of resources, or both. Sampat, *supra* note 167, at 16–17. Second, Sampat argues that staff from patent offices in the U.S. and Europe “provid[e] technical assistance to developing-country counterparts,” which may result in a “diffusion of [Western] standards” into the patent oversight of a country like India. *Id.*

¹⁷² For a high profile denial of a western pharmaceutical patent, see Gardiner Harris & Katie Thomas, *Low-Cost Drugs in Poor Nations Get a Lift in Indian Court*, N.Y. TIMES (Apr. 1, 2013), http://www.nytimes.com/2013/04/02/business/global/top-court-in-india-rejects-novartis-drug-patent.html?pagewanted=1&_r=1&smid=tw-share. Notably, the Supreme Court of India stated:

[I]n this country the law of patent, after the introduction of product patent for all kinds of substances in the patent regime, is in its infancy. We certainly do not wish the law of patent in this country to develop on lines where there may be a vast gap between the coverage and the disclosure under the patent; where the scope of the patent is determined not on the intrinsic worth of the invention but by the artful drafting of its claims by skillful lawyers, and where patents are traded as a commodity not for production and marketing of the patented products but to search for someone who may be sued for infringement of the patent.

Novartis AG v. Union of India, 2007 A.I.R. 24759 (2013) para. 156. *But see* Rai, *supra* note 148, at 423–24 (arguing IPR protection is relevant in technologically strong industries and that there is a positive relation between the strength of an IPR regime and FDI decisions).

industrialization. In fact, anything we could say about causality is simply hypothetical and conjectural.¹⁷³ After all, the fact that both patent protection and industrial development occurred at the same time does not necessarily support the contention that that patent protection was instrumental in creating industrial development or that development had an impact on patent protection.¹⁷⁴

The contemporary examples examined in the previous section from Italy, China, and India are further corroborated by a study of periods during which the Netherlands (1869–1912) and Switzerland (1850–1907) had no patent protection. This study further undermines the view that patents played an unambiguous role as an incentive for innovation and industrialization.¹⁷⁵ This study demonstrates that industrial growth in the Netherlands in the patent period was relatively moderate and importantly not any much higher in the non-patent period.¹⁷⁶ In short, this evidence from the Netherlands and Switzerland in their non-patent periods undermines claims that there is a causal connection between the existence of a patent system and the pace of industrialization.¹⁷⁷

If it is in fact true that the lack of patents did not depress growth in Switzerland and the Netherlands during the non-patent periods, and that growth instead accelerated (though there was decline in some sectors during the non-patent period), how could we really justify extending strong IP regimes in LDCs today? The crucial question is whether it is plausible to argue that less protection of IPRs in a LDC will result in less investment, especially if the share of sales of IP-protected goods in such LDCs is miniscule as a share of global sales.¹⁷⁸

¹⁷³ ERIC SCHIFF, *INDUSTRIALIZATION WITHOUT NATIONAL PATENTS: NETHERLANDS, 1869–1912, SWITZERLAND, 1850–1907*, at 8 (1971).

¹⁷⁴ *Id.* at 122.

¹⁷⁵ *Id.* at 51, 112, 123–24.

¹⁷⁶ *Id.* at 67–68.

¹⁷⁷ *Id.* at 14. Notably, in the nineteenth century, the U.S. refused to provide copyright protection particularly to English authors, and in essence was regarded as a notorious pirate. Susan Sell, *Intellectual Property and Public Policy in Historical Perspective: Contestation and Settlement*, 38 *LOY. L.A. L. REV.* 267, 286 (2004). In fact, many developed economies were not strong protectors of IP rights in the early days of their industrial development. HA-JOON CHANG, *KICKING AWAY THE LADDER: DEVELOPMENT STRATEGY IN HISTORICAL PERSPECTIVE* 57–58 (2002).

¹⁷⁸ For example, we know that sales of pharmaceutical products in Africa as a percentage of global sales is less than two percent. See Susan Warner, *The Quandary For Drug Giants Amid Aids Epidemic*, *PHILLY NEWS* (Mar. 6, 2001), http://articles.philly.com/2001-03-06/news/25327564_1_aids-drugs-azt-combivir.

In my view, the foregoing evidence makes it plausible to question the adoption or imposition of strong IP regimes in LDCs while still supporting strengthened IP protection in developed and middle-income countries where there is stronger evidence to show strong causal links between economic growth and increases in productivity.¹⁷⁹

In his study of the economics of patents, E.T. Penrose noted that:

Any country must lose if it grants monopoly privileges in the domestic market which neither improve nor cheapen the goods available, develop its own productive capacity nor obtain for its producers at least equivalent privileges in other markets. No amount of talk about the “economic unity of the world: can hide the fact that some countries with little export trade in industrial goods and few, if any inventions for sale having nothing to gain from granting patents on inventions worked and patented abroad except the avoidance of unpleasant foreign retaliation in other directions.¹⁸⁰

This economic truism was written in 1951, prior to the adoption of many international IP treaties. Today, we have the TRIPS Agreement, which makes the globalization of a strong regime of IP rights inevitable for all countries except LDCs—which have until July 1, 2021 to comply with the TRIPS Agreement, and until 2016 to fully protect pharmaceutical patents.

V. LDC VIEWS ON PROTECTING INTELLECTUAL PROPERTY TODAY

It is important to examine exactly what kind of IP protection LDCs desire. At the Sixth LDC Trade Ministers' Meeting held in Dar es Salaam, Tanzania in October 2009, the final communiqué devoted only six of its eighty-four paragraphs to IP rights. None of these six paragraphs called for strengthening IP protection.¹⁸¹ The Fifth LDC Trade Ministers' Meeting in

¹⁷⁹ See generally Ha-Joon Chang, *Intellectual Property Rights and Economic Development—Historical Lessons and Emerging Issues* (2001).

¹⁸⁰ PENROSE, *supra* note 3, at 116–17.

¹⁸¹ See Sixth LDC Trade Ministers' Meeting, *Dar es Salaam Declaration*, WT/MIN(09)/2 (Oct. 20, 2009), available at http://www.wto.org/english/thewto_e/minist_e/min09_e/official_doc_e.htm. Two paragraphs focused on traditional knowledge and benefit sharing arising from the exploitation of genetic resources and traditional knowledge from LDCs. *Id.* ¶¶ 46–47. Two paragraphs focused on effective technology transfer from developed countries to LDCs to help them create a viable technological base. *Id.* ¶¶ 48–49. Finally, one paragraph

Maseru, Lesotho also devoted six of its seventy-four paragraphs to IP rights, yet none of these paragraphs called for strengthening IP rights protection. Instead, like in the 2009 Dar es Salaam meeting, LDCs at the Maseru meeting focused on issues of traditional knowledge, benefit sharing in the exploitation of their genetic resources, traditional knowledge and importantly on effective technology transfer from developed countries to enable them to create a viable industrial base.¹⁸²

In fact, it is fair to say that implementing the TRIPS Agreement as currently written has not been as major a concern for LDCs as it has been for developed economies and their firms. Instead, as evidenced by the IPoA, LDCs have worked with other countries to successfully lobby to have the TRIPS Agreement limited. These countries have lobbied to have the TRIPS Agreement be read to not preclude access to life saving medicines for those suffering with HIV/AIDS, Tuberculosis, and Malaria. Additionally, these countries have lobbied for better benefit sharing schemes for their natural resources as well as the recognition of their traditional knowledge. Finally, LDCs have sought to put in place a mechanism under Article 66(6) of the TRIPS Agreement, to ensure that developed countries meet their obligations to promote and encourage technology transfer in an effort to create a viable technological base.¹⁸³

LDCs see the role of IPRs and FDI as helping them to develop a technological base so that they are able to diversify their exports. In fact, the IPoA identifies increasing productive capacities as one of the first priority areas for LDCs to the year 2020.¹⁸⁴ LDCs are lagging behind in science, technology and innovation, yet these areas are “key drivers for transformation and have great potentials to change the development landscape of least developed countries if developed and harnessed properly.”¹⁸⁵ Some of the strategies to achieve these goals for developed country partners include “mutually beneficial investment agreements,” encouraging investment in LDCs through a variety of lending instruments as

focused on seeking financial and technical assistance to help LDCs implement their TRIPS obligations. *Id.* ¶ 50.

¹⁸² See LDC Trade Ministers’ Meeting, Maseru *Declaration*, WT/L/719 (March 14, 2008). For an extensive examination of the concerns of African countries in the international IP regime, see TSHIMANGA KONGOLO, *AFRICAN CONTRIBUTIONS IN SHAPING WORLDWIDE INTELLECTUAL PROPERTY SYSTEM* (2013).

¹⁸³ 2011–2020 Programme of Action, *supra* note 28, ¶¶ 40–41.

¹⁸⁴ *Id.* ¶ 42 (noting that this includes infrastructure, energy, science, technology and innovation as well as private sector development).

¹⁸⁵ Request for an Extension, *supra* note 10, ¶ 3.

well as business development services and strengthening technology transfer programs under “mutually agreed terms by fostering linkages between foreign and domestic firms.”¹⁸⁶

Finally, as I noted at the beginning of this Article, in November 2012, LDCs applied for the extension of their obligation to implement the TRIPS Agreement, which was granted. The application for extension argued that until LDCs have developed productive capacities and graduated out of their LDC status, they should not be required to implement the TRIPS Agreement.¹⁸⁷ These countries made the argument that being required to protect IP rights would prevent them from developing a technological base in their economies. The arguments made by LDCs are consistent with those of leading academics who have argued that patent protections in particular are only significant for economic growth when a country has reached a high threshold of development.¹⁸⁸

Article 66.1 of the TRIPS Agreement provides LDCs with extensions to the periods within which they must implement their TRIPS Agreement obligations due to their economic, financial, and administrative constraints; as well as the need to develop a technology base. As noted earlier, the Marrakesh Agreement similarly acknowledges the impediments LDCs face in implementing trade agreements and their need for flexibility.¹⁸⁹ The

¹⁸⁶ UN-OHRLLS, THE LEAST DEVELOPED COUNTRIES: THINGS TO KNOW, THINGS TO DO 32 (2012), available at <http://www.unohrlls.org/UserFiles/File/LATEST%20IPoA.pdf>. See also 2011–2020 Programme of Action, *supra* note 28, ¶¶ 88–91.

¹⁸⁷ See Request for Extension, *supra* note 10, ¶ 11. See also Frederick M. Abbott, INT'L CEN. FOR TRADE AND SUS. DEV., *Technical Note: The LDC TRIPS Transition Extension and the Question of Rollback* 8–9 (POLICY BRIEF No. 15, 2013), available at <http://www.ictsd.org/themes/innovation-and-ip/research/technical-note-the-ldc-trips-transition-extension-and-the-question> (noting the institutional capacity argument of LDCs has substantial merit and does not imply these countries are entirely “avoiding the implementation of TRIPS-compatible IP systems” or that it will lead to a reduced respect for IP obligations”).

¹⁸⁸ See Keith Maskus & Jerome Reichman, *The Globalization of Private Knowledge Goods and the Privatization of Global Public Goods*, 7 J. INT'L ECON. L. 298 (2004). See also Yee Kyoung Kim et al., *Appropriate Intellectual Property Protection and Economic Growth in Countries at Different Levels of Development*, 41 RES. POL'Y 359 (2012); Kristie Briggs, *Does Patent Harmonization Impact the Decision of Volume of High Technology Trade?*, 25 IREF 35–51 (2012).

¹⁸⁹ Marrakesh Agreement, *supra* note 19, art. XI, ¶ 2 (“The least-developed countries recognized as such by the United Nations will only be required to undertake commitments and concessions to the extent consistent with their individual development, financial and trade needs or their administrative and institutional capabilities.”). See also Ruth L. Okediji, *Public Welfare and the International Patent System*, in PATENT LAW IN GLOBAL PERSPECTIVE (Ruth L. Okediji & Margo A. Bagley eds., 2014) (arguing that patent harmonization must take into

Preamble of the TRIPS Agreement also recognizes the need for LDCs to have flexibility in their implementation of trade agreements to help them “create a sound and viable technological base.”¹⁹⁰

In the 2005 extension of the transition period for LDC implementation of the TRIPS Agreement, LDCs were required to ensure that during the additional transition period, they would not provide lower levels of IPR protection than those in the TRIPS Agreement.¹⁹¹ LDCs did not want to carry forward this stay-put provision in the 2012 extension application since a primary justification for the second extension was that LDCs needed an extended period of time to develop technological and other capacities for transformation of their economies. While LDCs, civil society groups,¹⁹² and academics¹⁹³ sought to have no conditions imposed on a new indefinite extension, some developed countries like those in the European Union and the U.S. were considering a highly conditional extension that would commit LDCs to take steps to comply with IP rights.¹⁹⁴ The United States and European Union insisted on the desirability of having a provision to prevent rollbacks of current IP laws in LDCs as well as a needs assessment to establish LDC needs so that assistance to implement the TRIPS Agreement can be provided.¹⁹⁵ A “non-rollback” commitment was of significance because more than half of all LDCs have enacted or amended their IP laws in the areas of patents, copyrights, and trademarks since 1995.¹⁹⁶ However, the 2013 decision by the Council for TRIPS to extend the transition period did

account local needs and the administration of the patent system must reflect the socioeconomic realities of the protecting country).

¹⁹⁰ TRIPS Agreement, *supra* note 36, art. XI, ¶ 2 (“The least-developed countries recognized as such by the United Nations will only be required to undertake commitments and concessions to the extent consistent with their individual development, financial and trade needs or their administrative and institutional capabilities.”). *See also* Okediji, *supra* note 189 (arguing that patent harmonization must take into account local needs and the administration of the patent system must reflect the socioeconomic realities of the protecting country).

¹⁹¹ *Extension Decision*, *supra* note 11, ¶ 5.

¹⁹² Letter from Civil Society to the Members of the WTO Concerning a Further Extension of the Transition Period Under Article 66.1 of the TRIPS Agreement (Feb. 21, 2013), *available at* <http://infojustice.org/wp-content/uploads/2015/06/LDC-extension-letter.pdf>.

¹⁹³ Letter from Global Academics’ Expert on LDCs’ TRIPs Extension Request (Apr. 27, 2013), *available at* <http://infojustice.org/wp-content/uploads/2013/04/Global-Academics%C2%B9-Expert-Letter-on-LDC-Extension.pdf>.

¹⁹⁴ *WTO: US and EU Demand TRIPS Plus Concession From Poorest Countries*, THIRD WORLD NETWORK (Apr. 30, 2013), <http://www.twm.my/title2/wto.info/2013/twninfo130407.htm>.

¹⁹⁵ *Id.*

¹⁹⁶ *See infra* APPENDIX TWO.

not include “non-rollback.” Rather is included a new compromise, which stated “[r]ecognizing the progress that least developed country Members have already made towards implementing the TRIPS Agreement, including in accordance with paragraph 5 of IP/C/40, least developed country Members express their determination to preserve and continue the progress towards implementation of the TRIPS Agreement.”¹⁹⁷

VI. CONCLUSION

In this Paper, I have tried to demonstrate that the history of extending strong IP protection—with a particular focus on patents—in least-developed economies is unlikely to yield the positive economic benefits of stronger FDI flows or higher growth. LDCs face a challenge. On the one hand, weak protection of IP rights—like that offered by China—provides space for innovative activity because there is accessibility of knowledge goods that are not encumbered by IP protection. However, the availability of knowledge goods in the public sphere means that technology transfers may be discouraged because IP holders, especially in R&D intensive fields like pharmaceuticals, may fear that low levels of IP protection make it easy for their innovations to be copied and mimicked. Investors may fear that innovations from new research and development efforts would not be protected under a regime of low IP protection. By contrast, as this Article explored, strong IP regimes have other consequences—not least of which is a diversion of resources from other critical needs such as access to essential medicines that may very well be necessary to enable LDCs to fully protect IP rights.

As such, this Paper argues that without the broad range of preconditions for increasing FDI flows, strong IP protection in LDCs by itself is unlikely to attract stronger flows of FDI. FDI flows continue to be weak in LDCs—except those with rich mineral resources. The late industrializers of East Asia did not achieve rapid and sustained economic progress simply because they adopted strong regimes of IP. Rather, as Paul Krugman and others have demonstrated, massive increases in inputs such as capital, technology and

¹⁹⁷ Council for Trade-Related Aspects of Intellectual Property Rights, *Decision of the Council for TRIPS*, IP/C/64 (June 11–12, 2013), available at https://www.wto.org/english/tratop_e/trips_e/ldc_e.htm. See also *Extension Decision*, *supra* note 11, ¶2; World Trade Organization News, *The Least Developed Get Eight Years More Leeway on Protecting Intellectual Property* (June 11–12, 2013), available at https://www.wto.org/english/news_e/news13_e/trip_11jun13_e.htm.

education were much more consequential in spurring sustained exponential growth rates.¹⁹⁸ Further, these economies adopted a model of late industrialization that was heavily supported by the government.¹⁹⁹ It was these types of economic reforms, rather than merely strong IP regimes, that were consequential in the industrialization of economies like South Korea contrary to the free market governance prescriptions of the World Bank.²⁰⁰

Further, China's astonishing growth towards industrialization has occurred largely in an era where the protection of IP rights has been less than satisfying to foreign investors. This growth seems to further contradict the view that strong IP protection is a prerequisite for strong flows of FDI. The fact that China is the leading destination of FDI, while also being a leading source of anxiety for owners of IP rights, undermines the positive correlation between strong IP protection and strength in attracting FDI. There are certainly many other determinants of strength attracting FDI in China, including the massive capital investments being made in infrastructure and manufacturing capacity. Perhaps China's growth shows that strong IP protection is crucial for maintaining the competitive advantages of early industrializers but may not be a crucial determinant for the emergence of new ones.

If the question is to what extent a patent system stimulates the propensity or eagerness to innovate, the evidence available so far does not strongly show causal links between strong IP protection and innovation for LDCs. On the separate issue of a correlation or causal link between strong IP protection and strength in attracting FDI, the evidence is even weaker as we have seen with regard to China and LDCs. FDI flows are higher in resource conflict countries like Angola and Mozambique than in more stable economies with relatively stronger IP protection. Furthermore, while strong IPR protections may indeed be a factor encouraging foreign investment, the China example demonstrates that it may not be one of the most important considerations. For example, the vice president of a major medical products firm interviewed in Edwin Mansfield's IFC study cited four factors that are equally, if not more important than IPR protections, in his company's foreign investment decisions: (1) the size of the market for the company's "key products," (2) the preference of local customers for imported products, (3) health care costs and reimbursement policies of the country in question, and

¹⁹⁸ Paul Krugman, *The Myth of Asia's Miracle*, 73 FOREIGN AFFAIRS 62 (1994).

¹⁹⁹ AMSDEN, *supra* note 163.

²⁰⁰ NANCY M. BIRDSALL ET AL., World Bank, *THE EAST ASIAN MIRACLE: ECONOMIC GROWTH AND PUBLIC POLICY* (1993). For a critical review, see Amsden, *supra* note 122, at 622.

(4) the need to educate national leadership and customer markets on the use/importance of the company's products.²⁰¹ Clearly investors are interested in a broader set of considerations in addition to IP protection or its strength in deciding where to invest.

Claims of strong causal links between strength in attracting FDI and strong IP regimes are not only overstated, but also underemphasize the importance and availability of public goods like access to knowledge or education. Perversely, knowledge and education may become increasingly inaccessible and expensive if resources are exclusively spent strengthening IP regimes.²⁰² For example, lack of access to essential medicines in LDCs demonstrates how strong IP regimes might operate to the detriment of building the human capital necessary to address the developmental challenges LDCs face. Yet, addressing those challenges is necessary to attract FDI.

Over the last two decades, the largest source of controversy in this area has been the TRIPS agreement, which binds signatory nations to adopt Western-style IP regimes. However, it is important to recognize that even within the TRIPS Agreement, there are built-in exceptions that allow signatory countries a measure of flexibility in order to meet their obligations in a manner that does not undermine arguably higher-order development needs.²⁰³ For example, Article 8 of the TRIPS Agreement allows signatories to “adopt measures necessary to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their socioeconomic and technological development.”²⁰⁴

Although it favors Western-style IP protections as a default, the language of TRIPS permits poorer countries to balance the competing interests of development with its obligations to enforce monopoly rights. This is appropriate, considering that the very motivation behind granting IP

²⁰¹ Mansfield, *supra* note 118, at 25.

²⁰² *See generally* Heald, *supra* note 151, at 249; Maskus, *supra* note 6, at 498 (suggesting strong IP rights might create higher local prices that could be cost prohibitive in developing countries).

²⁰³ “[T]he basic goals safeguarded by a robust public domain—such as encouraging user-based innovation, facilitating scientific research, education and scholarship, and supporting access to less expensive knowledge goods . . . are an essential aspect of the policy balance within intellectual property governance.” Margaret Chon, *Global Intellectual Property Governance (Under Construction)*, 12 THEORETICAL INQUIRIES L. 349, 362 (2011).

²⁰⁴ TRIPS Agreement, *supra* note 36, art. 8. *See also* Margaret Chon, *Intellectual Property Equality*, 9 SEATTLE J. SOC. JUST. 259, 263 (2010).

monopolies is to incentivize innovation for the betterment of society *writ large* not to merely enrich the owners of IPRs.

In addition to designing a more balanced IP regime, an LDC may also disregard TRIPS' stringent IP standards upon demonstration of some domestic policy imperative. Despite being infused with "formal equality,"²⁰⁵ the TRIPS agreement expressly permits LDCs to invoke conditions that allow for deviation from the Treaty's obligations to treat all rights holders equally. For instance, Article 30 of the TRIPS Agreement "may provide limited exceptions to the patentee's exclusive rights, as long as these exceptions do not unreasonably conflict with the normal exploitation of the patent and do not unreasonably prejudice the legitimate interests of the patent owner" which is often read to allow for "private noncommercial uses."²⁰⁶ Further, in order to assist LDCs needing access to life-saving patented medications, Article 31 of the TRIPS Agreement, as read together with the Doha Declaration on TRIPS and Public Health and subsequent developments in the WTO on access to essential medicines, contains rules for governments to set up "compulsory licenses" with patent owners.²⁰⁷ This allows LDCs to access essential medicines in exchange for paying "adequate remuneration" to the rights holder or to request countries with manufacturing capacity to produce for them.²⁰⁸ In addition to flexibilities provided by the TRIPS Agreement, donation programs are one of the ways in which people in developing countries have been able to access essential medicines that would otherwise be cost prohibitive. The Mectizan Donation Program—a public-private partnership between Merck & Co., the World Health Organization, the World Bank, and several NGOs—is an example of a successful initiative not driven by the classic profit-making motives of the pharmaceutical industry. Since 1978, the Mectizan Donation Program has provided more

²⁰⁵ The TRIPS Agreement embodies the WTO's two principles of formal equality: (1) "most favored nation" status, which requires non-discrimination among foreign nationals, and (2) "national treatment," which bars favoring domestic entities over foreign entities. Denis Borges Barbosa et al., *Slouching Towards Development in International Intellectual Property*, 2007 MICH. ST. L. REV. 71, 114.

²⁰⁶ Thomas F. Cotter, *Market Fundamentalism and the TRIPS Agreement*, 22 CARDOZO ARTS & ENT. L.J. 307, 315 (2004).

²⁰⁷ Applicants must seek out these agreements with the rights holder on "reasonable commercial terms" except in the case of national emergency or other extreme urgency. The licenses are limited in scope and duration and may only be used to supply the domestic market. TRIPS Agreement, *supra* note 36, art. 31. See also Cotter, *supra* note 206, at 315.

²⁰⁸ Cotter, *supra* note 206, at 315–16.

than one billion treatments for river blindness in thirty African countries, six Latin American countries, and Yemen.²⁰⁹

Thus, LDCs obligated to TRIPS have the policy space to stake out a middle-ground policy, which would in turn create the space to allow them to address domestic priorities while meeting their IPR protection commitments under TRIPS. These flexibilities not only provide much needed access to the neediest population groups, but also expand markets served by pharmaceutical manufacturers. For instance, Thailand's implementation of compulsory licenses for a variety of cancer treatments not only enables "more Thai citizens to have access to essential drugs" but also is opening a new market for pharmaceutical companies because Thai citizens "who can afford the retail price will continue to pay that price [to] the patent owner."²¹⁰ Under its current iteration, TRIPS allows the least developed countries until 2016 to conform their patent laws with TRIPS for pharmaceutical products and until 2021 to comply with the TRIPS Agreement in its entirety. As the WTO Doha Rounds of negotiation continue to proceed, LDCs should press to allow TRIPS flexibilities to promote additional domestic development priorities, such as facilitating the use of patented inventions by researchers.²¹¹

As I noted at the beginning, another strategy LDCs are pursuing at the moment is extending their obligation to implement the TRIPS Agreement until they graduate from their status as an LDC. Many of the issues raised in this paper will be debated in the discussion of the merits of this extension application. For many LDCs, fully implementing the TRIPS Agreement even with its flexibilities would constitute a significant strengthening of the IP laws a majority of them have on the books. This Paper argued that there is hardly any empirical evidence to support the need for strengthened IP regimes in LDCs, especially if such strengthening was unaccompanied by other initiatives to build the productive capacities of these economies. There are significant resource and capacity constraints that limit the implementation and enforcement of these laws in an LDC.

To justify strengthening these laws would presuppose that the high costs that would be accompanied by enacting, implementing, and enforcing them would be paid for by the economic benefits that would flow from these new

²⁰⁹ Elaisha Stokes, *Merck continues campaign against river blindness in the DRC*, GLOBAL POST (Sept. 29, 2014), <http://www.globalpost.com/dispatch/news/health/140919/merck-river-blindness-drc-ppp-branding-health>.

²¹⁰ Cynthia M. Ho, *Unveiling Competing Patent Perspectives*, 46 HOUS. L. REV. 1047, 1067-68 (2009).

²¹¹ *Id.* at 1054.

laws. Until such benefits can be gained, strengthening IP regimes in LDCs will continue to be regarded as a one-sided agenda of the owners of IP rights in the industrial north. It is notable that there are joint ventures being developed in the South-South context that are not preconditioned on strengthening IP protection that may contribute significantly to technology and know-how transfers.²¹² Such modest efforts are indications of the possible paths that technology transfers could play for firms in LDCs like Uganda.

Ultimately, LDCs must figure out ways in which to attract FDI flows. As I have demonstrated throughout this Paper, the causal connection between strengthening IP protections and attracting FDI flows is more tenuous than once believed. Perhaps then, LDCs should invest time, energy, and money into other methods of attracting FDI flows.

²¹² For example, the Indian generics drug manufacturer, Cipla, has engaged in a “knowledge platform” sharing arrangement with a Ugandan firm, Quality Chemicals Limited (QCL). Previously, QCL was a local distributor of imported pharmaceuticals. Its agreement with Cipla is facilitating its acquisition of a pharmaceutical technology capability with the training necessary to enable it to become a generics manufacturer. BISWAJIT DHAR & REJI JOSEPH, FOREIGN DIRECT INVESTMENT, INTELLECTUAL PROPERTY RIGHTS AND TECHNOLOGY TRANSFER: THE NORTH-SOUTH AND THE SOUTH-SOUTH DIMENSION 20 (2012). Cipla’s relationship to QCL has enabled it to consider plans to open a second manufacturing facility that would serve the East African market. *Making Drugs Into Profit in Uganda*, BBC (Apr. 9, 2012), <http://www.bbc.co.uk/news/world-africa-17639822>.

APPENDIX ONE²¹³**LIST OF LEAST DEVELOPED COUNTRIES****Africa (33)**

1	Angola	18	Madagascar
2	Benin	19	Malawi #
3	Burkina Faso #	20	Mali #
4	Burundi #	21	Mauritania
5	Central African Republic #	22	Mozambique
6	Chad #	23	Niger #
7	Comoros *	24	Rwanda #
8	Democratic Republic of the Congo	25	São Tomé and Príncipe*
9	Djibouti	26	Senegal
10	Equatorial Guinea	27	Sierra Leone
11	Eritrea	28	Somalia
12	Ethiopia #	29	Sudan
13	Gambia	30	Togo
14	Guinea	31	Uganda #
15	Guinea-Bissau *	32	United Republic of Tanzania
16	Lesotho #	33	Zambia #
17	Liberia		

Asia (14)

1	Afghanistan #	8	Nepal #
2	Bangladesh	9	Samoa *
3	Bhutan #	10	Solomon Islands *
4	Cambodia	11	Timor-Leste *
5	Kiribati *	12	Tuvalu *
6	Lao People's Democratic Republic #	13	Vanuatu *
7	Myanmar	14	Yemen

Latin America and the Caribbean (1)

1	Haiti *
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²¹³ This information was gathered from *List of Least Developed Countries*, UN-OHRLLS http://www.un.org/en/development/desa/policy/cdp/ldc/ldc_list.pdf (last visited May 3, 2015).

APPENDIX TWO

IP COVERAGE IN LDCs

Least Developed Country	Patents	Copyright	Trademark	Plant Varieties
Afghanistan	No	Yes	Yes	Yes
Angola	Yes	Yes	Yes	No
Bangladesh	Yes	Yes	Yes	Draft
Benin	Yes	Yes	Yes	Yes
Bhutan	Yes	Yes	Yes	Yes
Burkina Faso	Yes	Yes	Yes	Yes
Burundi	Yes	Yes	Yes	No
Cambodia	Yes	Yes	Yes	No
Central African Republic	Yes	Yes	Yes	Yes
Chad	Yes	Yes	Yes	Yes
Comoros	No	Yes	Yes	No
Democratic Republic of the Congo	Yes	Yes	Yes	No
Djibouti	Draft	Yes	Draft	No
Equatorial Guinea	Yes	Yes	Yes	No
Eritrea	Yes	Yes	Yes	No
Ethiopia	Yes	Yes	Yes	Yes
Gambia	Yes	Yes	Yes	No
Guinea	No	Yes	No	No
Guinea-Bissau	Yes	Yes	Yes	No
Haiti	Yes	Yes	Yes	No
Kiribati	Yes	Yes	Yes	No
Lao People's Democratic Republic	Yes	Yes	Yes	Yes
Lesotho	Yes	Yes	Yes	Draft
Liberia	Yes	Yes	Yes	No
Madagascar	Yes	Yes	Yes	No
Malawi	Yes	Yes	Yes	Draft
Mali	Yes	Yes	Yes	Yes
Mauritania	No	No	No	No
Mozambique	Yes	Yes	Yes	No
Myanmar	Draft	Draft	Draft	Draft
Nepal	Yes	Yes	Yes	No
Niger	Yes	Yes	Yes	Yes
Rwanda	Yes	Yes	Yes	No
Samoa	Yes	Yes	Yes	No

São Tomé and Príncipe	Yes	Yes	Yes	No
Senegal	Yes	Yes	Yes	Yes
Sierra Leone	Yes	Yes	Yes	Draft
Solomon Islands	Yes	Yes	Yes	No
Somalia	No	No	No	No
Sudan	Yes	Yes	Yes	No
Timor-Leste	No	No	No	No
Togo	Yes	Yes	Yes	Yes
Tuvalu	Yes	Yes	Yes	No
Uganda	Yes	Yes	Yes	No
United Republic of Tanzania	Yes	Yes	Yes	No
Vanuatu	Yes	Yes	Yes	No
Yemen	Yes	Yes	Yes	Yes
Zambia	Yes	Yes	Yes	No
Totals	42/48 = 87.5%	45/48 = 93.75%	44/48 = 91.66%	18/48 = 37.5%

APPENDIX THREE

IP LAWS PASSED BY LDCs SINCE 1995

Country	Patents	Copyright	Trademark	Plant Varieties
Afghanistan	No	Yes	No	Yes
Angola	Yes	Yes	No	No
Bangladesh	Yes	Yes	No	Yes
Benin	Yes	Yes	Yes	Yes
Bhutan	Yes	Yes	Yes	Yes
Burkina Faso	Yes	Yes	Yes	Yes
Burundi	No	No	No	No
Cambodia	Yes	Yes	Yes	No
Central African Republic	Yes	Yes	Yes	Yes
Chad	Yes	Yes	Yes	Yes
Comoros	No	No	No	No
Democratic Republic of the Congo	No	No	No	No
Djibouti	Yes	Yes	Yes	No
Equatorial Guinea	Yes	Yes	Yes	No
Eritrea	No	No	No	No
Ethiopia	Yes	Yes	Yes	Yes
Gambia	Yes	Yes	Yes	No
Guinea	No	No	No	No
Guinea-Bissau	Yes	No	Yes	No
Haiti	No	No	No	No
Kiribati	No	Yes	No	No
Lao People's Democratic Republic	Yes	Yes	Yes	Yes
Lesotho	Yes	No	Yes	Yes
Liberia	Yes	Yes	Yes	No
Madagascar	No	No	No	No
Malawi	No	No	No	Yes
Mali	Yes	Yes	Yes	Yes
Mauritania	No	No	No	No
Mozambique	Yes	Yes	Yes	No
Myanmar	Yes	Yes	Yes	Yes
Nepal	No	Yes	No	No
Niger	Yes	Yes	Yes	Yes
Rwanda	Yes	No	Yes	No
Samoa	Yes	Yes	Yes	No

São Tomé and Príncipe	Yes	No	Yes	No
Senegal	Yes	Yes	Yes	Yes
Sierra Leone	No	No	No	No
Solomon Islands	No	No	No	No
Somalia	No	No	No	No
Sudan	No	Yes	No	No
Timor-Leste	No	No	No	No
Togo	Yes	Yes	Yes	Yes
Tuvalu	No	No	No	No
Uganda	No	Yes	No	No
United Republic of Tanzania	No	Yes	No	No
Vanuatu	Yes	Yes	Yes	No
Yemen	Yes	No	Yes	Yes
Zambia	No	No	No	No
	27/48 =	28/48 =	25/48 =	31/48 =
Totals	%56.25	%58.33	%52.08	%64.58