

**SPURRING INNOVATION IN UGANDA: STRATEGIES TO
ASSIST DEVELOPING COUNTRIES IN DRAFTING
TRIPS-COMPLIANT PATENT LEGISLATION THAT
FOSTERS UNIVERSITY RESEARCH AND INNOVATION**

MATT RICHTER^{*}

ABSTRACT

This article investigates developing countries' patent legislation enacted in response to requirements stipulated in the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) (1994) and the effects of such legislation on university research and development—indicators of a country's ability to engage in innovation. This paper argues that by analyzing Uganda's patent legislation, which complies with TRIPs requirements, and the effects of strong IP legislation on university research and development in general, we can identify benchmarks for policy that other developing countries can use to assess their national intellectual property legislation. Developing countries can, in turn, draft patent legislation that will spur innovation by facilitating university research and development similar to what has happened in Uganda: a developing country which has achieved continued growth in university research and development as well as research registration.

I. Introduction	230
II. TRIPs.....	233
A. The Great Conventions.....	233
1. Paris Convention.....	233
2. Berne Convention	234

^{*} M.A. University of Wisconsin Milwaukee, 2009; J.D., University of Wisconsin Law School, 2012. The author would like to thank his wife Jennifer for her support throughout the development of this paper.

3. Universal Copyright Convention and Rome	
Convention.....	234
B. GATT & the World Trade Organization.....	235
C. TRIPs Sections.....	236
1. Part I.....	237
2. Minimum standards for IP protection.....	237
3. Patents.....	238
III. Anticipated Impact of Stronger IP Regimes on Innovation and	
Research.....	240
A. Scholarship Suggesting Negative Impact of Strong IP	
Regimes on Innovation.....	243
B. Scholarship Suggesting Positive Impact of Strong IP	
Regimes on Innovation.....	244
C. Anticipated Impact of TRIPs.....	246
IV. Uganda's Patents Act and TRIPs.....	246
A. The Patents Act.....	246
B. IP Management Policy.....	249
V. The Intersection of Uganda Patent Laws and University Research.....	250
A. Research Registrations and R&D Expenditures in Uganda.....	251
B. Impact of Uganda's Patents Act on Research and	
Innovation.....	251
VI. Benchmarks for Developing Countries: Strategies to Spur	
Innovation through IP Legislation.....	255
VII. Conclusion.....	256

I. INTRODUCTION

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs)¹ (1994) transformed international intellectual property (IP) rights protection by implementing high international IP standards that countries must meet in order to join the World Trade Organization.² While some scholars anticipated TRIPs would have a beneficial impact on developing countries,³ other scholars asserted that TRIPs would be detrimental to developing countries' abilities to develop

¹ See *infra* p. 5 and note 7.

² Peter K. Yu, *Currents and Crosscurrents in the International Intellectual Property Regime*, 38 *LOY. L.A. L. REV.* 323, 364–65 (2004).

³ Douglas Lippoldt, Policy Brief *Institutions and Intellectual Property Reform in Developing Countries*, SCIENCES PRO, Apr. 2008, at 2, 4.

IP regimes best suited to their economies.⁴ Moreover, research provides conflicting information on the effects of stronger IP rights protection on innovation in general.⁵ Few studies have specifically considered the effects of TRIPs on innovation in developing countries by using the impact of IP legislation in response to TRIPs as an indicator of a country's ability to innovate.

In order to understand the impact of TRIPs and resulting IP legislation on innovation in developing countries, this article analyzes Uganda's IP legislation and how such legislation has affected university research and development, as well as research registration. Uganda has enacted patent legislation that complies with TRIPs requirements while increasing research and development expenditures and research registrations.⁶ In 1994, Uganda signed the agreement that created the World Trade Organization, thereby subjecting itself to the membership requirements, including TRIPs.⁷ As a least developed country,⁸ Uganda was allowed a transition period to conform to patent law standards imposed by the TRIPs Agreement.⁹ However, Uganda had already passed new patent legislation in 1991 that complied with the Paris Convention.¹⁰ Because the patent requirements in TRIPs were borrowed

⁴ See Peter K. Yu, *Trips and Its Discontents*, 10 MARQ. INTELL. PROP. L. REV. 370, 383 (2006).

⁵ See Benjamin K. Sovacool, *Placing a Glove on the Invisible Hand: How Intellectual Property Rights May Impede Innovation in Energy Research and Development (R&D)*, 18 ALB. L.J. SCI. & TECH. 381, 383 (2008); Robert M. Sherwood, *Human Creativity for Economic Development: Patents Propel Technology*, 33 AKRON L. REV. 351, 358 (2000); See W. LESSER, WORLD INTELLECTUAL PROP. ORG., THE EFFECTS OF TRIPS-MANDATED INTELLECTUAL PROPERTY RIGHTS ON ECONOMIC ACTIVITIES IN DEVELOPING COUNTRIES 21 (Apr. 17, 2001) (on file with author).

⁶ Patents Act, 1993, c. 216 (Uganda); JULIUS ECURU ET AL., UGANDA NAT'L COUNCIL FOR SCI. & TECH., RESEARCH IN UGANDA: STATUS AND IMPLICATIONS FOR PUBLIC POLICY 3 (2008) (on file with author).

⁷ Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, 33 I.L.M. 1197 [hereinafter TRIPs].

⁸ Article 66 of the TRIPs Agreement recognizes that not all countries applying for membership to the World Trade Organization have the same level of economic development. Therefore, the Agreement provides varying time periods for compliance according to the level of development of a country's economy: least developed countries, developing countries, and developed countries. See *id.* at 1222.

⁹ *Least Developed Countries' Priority Needs in Intellectual Property*, WORLD TRADE ORGANIZATION (last updated Nov. 4, 2011), http://www.wto.org/english/tratop_e/trips_e/ldc_e.htm.

¹⁰ Patents Act, 1993, c. 216 (Uganda).

largely from the Paris Convention, Uganda already met the majority of TRIPs requirements before the TRIPs Agreement was reached.¹¹

Although some research suggests stronger IP protection may hinder innovation,¹² the effect of Uganda's stronger patent legislation on innovation and university research suggest otherwise. Over the past ten years, Uganda has achieved tremendous growth in research activity.¹³ Stemming from reform in the early 1990s, Ugandan universities and research institutions collaborate internationally and look outside the country's borders for sponsorship to achieve increases in research activity.¹⁴ New research projects tracked by the Uganda National Council for Science and Technology (UNCST) nearly tripled between 1997 and 2007, with similar increases in research and development.¹⁵ Because there have been consistent gains in research and development expenditures and in the registration of new research studies in Uganda over the past decade,¹⁶ the country presents a unique case study to investigate the effects of stronger IP rights protection on a developing country's university research. By better understanding Uganda's patent legislation, it is possible to create policy that other developing countries nearing the end of their transitional periods can use as a guide in assessing their own IP legislation, and to inform lawmakers on how best to draft patent legislation that will spur innovation by fostering a TRIPs-compliant IP regime to facilitate university research and development.

This paper fills a gap in current research by suggesting policy implications to guide developing countries in drafting IP legislation that will strengthen university research. First, this paper analyzes the TRIPs Agreement and the high standards it imposes on member countries. Second, this paper reviews recent literature anticipating the effects of stronger IP regimes on innovation and research and on developing countries in general. Third, Uganda's patent legislation in response to TRIPs is examined in depth. Fourth, this paper considers the effects of Uganda's IP regime on university research and development as indicators of the country's ability to innovate. Lastly, this paper suggests

¹¹ See J.H. Reichman, *Universal Minimum Standards of Intellectual Property Protection Under the TRIPS Component of the WTO Agreement*, in *INTELLECTUAL PROPERTY AND INTERNATIONAL TRADE: THE TRIPS AGREEMENT* 29 (Carlos M. Correa & Abdulqawi A. Yusuf eds., 1998).

¹² Sovacool, *supra* note 5, at 383.

¹³ ECURU ET AL., *supra* note 6, at 10.

¹⁴ *Id.* at 3.

¹⁵ *Id.* at 10.

¹⁶ *Id.*

policy implications for developing countries as strategies to spur innovation through TRIPs-conforming IP legislation.

II. TRIPS

Foundations of IP date as far back as the fifteenth century, when the Venetian Republic's efforts to protect inventors and authors led to the first-ever development of patent and copyright law.¹⁷ However, it was not until the nineteenth century that countries realized the limits of then existing national IP protection and the overall lack of international IP protection for a country's inventors and authors in another part of the world.¹⁸ The need for international IP rights protection arose during the Industrial Revolution when more intellectual goods were produced than ever before, and countries began participating heavily in international markets.¹⁹ Early efforts to ensure protection for intellectual goods were focused on copyright and patent areas, giving rise to key international conventions that make up the foundation of the TRIPs Agreement.²⁰

A. THE GREAT CONVENTIONS

1. PARIS CONVENTION

Prior to any organized international efforts, individual nations sought to protect inventors and their intellectual goods through bilateral treaties, which offered some protection but at the expense of inconsistency as these treaties did not provide uniformity among the countries that were loosely tied together in the network of these agreements.²¹ Due in part to this inconsistency, the early bilateral treaties between countries proved inadequate in the wake of the IP boom during the Industrial Revolution which led to a push for international patent protection.²² The Paris Convention—the first-ever multilateral patent treaty, ratified in 1884 by fourteen countries—established a protective Union and stipulated that members establish national treatment.²³ The

¹⁷ Yu, *supra* note 2, at 330–32.

¹⁸ *Id.* at 333–34.

¹⁹ *Id.*

²⁰ *Id.* at 334–36.

²¹ *Id.* at 334–35.

²² *Id.* at 345–47.

²³ *Id.* at 351–52.

Paris Convention established rights of priority that “enabled applicants to claim the earlier dates of applications submitted in their home countries and avoid objections made on those applications based on prior publication, application, or use.”²⁴ It also established the independence of patents doctrine, which recognizes the independence of a patent granted in a country from patents in other countries.²⁵

2. BERNE CONVENTION

Development of the first ever multi-lateral copyright treaty—the Berne Convention—followed much the same path as the development of the Paris Convention.²⁶ By the early 1880s, European authors and artists, who had begun discussing international protection of their rights three decades earlier, resolved to form an international association of authors and artists with the goal to protect their intellectual property.²⁷ This ultimately led to a series of intergovernmental conferences held over the course of three years and culminated in the Berne Convention.²⁸ Signed in 1887 by ten nations—Belgium, France, Germany, Great Britain, Haiti, Italy, Liberia, Spain, Switzerland, and Tunisia—the Berne Convention was the first multilateral copyright treaty and created the foundation for modern copyright law.²⁹

3. UNIVERSAL COPYRIGHT CONVENTION AND ROME CONVENTION

After the Berne and Paris Conventions laid the foundation for modern intellectual property law in copyright and patent areas, the Universal Copyright Convention of 1952 and the Rome Convention of 1961 further strengthened the protection of intellectual property rights.³⁰ Focused on protecting intellectual property in performances, music, and broadcasts, these conventions, together with the Berne and Paris

²⁴ *Id.* at 352.

²⁵ *Id.*

²⁶ *Id.* at 337–39.

²⁷ *Id.* at 336–39.

²⁸ *Id.*

²⁹ *Id.* at 339. (citing Barbara A. Ringer, *The Role of the United States in International Copyright—Past, Present, and Future*, 56 GEO. L.J. 1050, 1053 (1968)).

³⁰ M.B. RAO & MANJULA GURU, UNDERSTANDING TRIPS: MANAGING KNOWLEDGE IN DEVELOPING COUNTRIES 19 (2003).

Conventions, provided for the key IP protections which later formed the basis of the TRIPs Agreement.³¹

B. GATT & THE WORLD TRADE ORGANIZATION

A lack of adequate enforcement procedures within the Paris and Berne Conventions coupled with the growing importance of intellectual property to developed countries' economies post-WWII led developed countries to push for stronger international IP rights protection linked with international trade.³² Some developed countries like the United States began advocating for inclusion of IP rights protection in the General Agreement on Tariffs and Trade (GATT).³³ At the same time, developing countries began to voice their concern over the potential detrimental impact which heightened international IP standards could have on their own developing economies and pushed for more flexible IP rights protection based on lower international standards.³⁴

Succumbing to pressure from the United States to include IP issues in the GATT, developing countries joined developed countries at the Uruguay Round.³⁵ The Uruguay Round called for adopting stronger IP rights protection coupled with a multilateral trade system, an international tool on trade-related aspects of intellectual property rights (TRIPs).³⁶ During negotiations between developing countries and developed countries regarding the terms of this international agreement, developed countries pushed for linking IP rights protection with GATT as the solution to inadequate enforcement provisions within the Great Conventions governing international IP protection in the past.³⁷ At the same time, developing countries voiced their concern over utilizing a trade-focused instrument (GATT) to foster stronger IP rights protection, which had been the domain of the World Intellectual Property Organization (WIPO).³⁸ Developing countries eventually acquiesced to

³¹ *Id.* at 30.

³² Yu, *supra* note 2, at 356–57.

³³ *Id.*

³⁴ *Id.*

³⁵ *See id.* at 360–62.

³⁶ *Id.* at 360–61; Abdulqawi A. Yusuf, *TRIPS: Background, Principles and General Provisions*, in *INTELLECTUAL PROPERTY AND INTERNATIONAL TRADE: THE TRIPS AGREEMENT*, *supra* note 11, at 6.

³⁷ Yusuf, *supra* note 36, at 8.

³⁸ *Id.*

the GATT-based approach, again due to pressure from the United States, and provided TRIPs proposals of their own concerning standards and principles of IP rights prompted by the insistence of these countries for recognition of the link between IP rights protection and “the promotion of social and economic welfare.”³⁹

As developed and developing countries negotiated the terms of TRIPs, Canada proposed establishing a new organization to incorporate the results of the Uruguay Round, which led to the creation of the World Trade Organization.⁴⁰ Membership in the World Trade Organization required countries to meet the minimum IP rights standards stipulated in the TRIPs Agreement, much like membership in the Great Conventions, which required countries to meet minimum IP rights standards as well. In fact, TRIPs was built on the foundation of IP rights provided in these conventions, most heavily on the Berne and Paris conventions.⁴¹

C. TRIPs SECTIONS

TRIPs, described as “the biggest innovation in the international intellectual property arena since the creation of the Berne and Paris Conventions,”⁴² combined intellectual property with international trade and transformed international IP rights protection.⁴³ Reached in 1994, the TRIPs Agreement imposed IP legislation standards on countries as a requirement for membership to the World Trade Organization (WTO).⁴⁴ Part I of the agreement articulated the objectives and principles of TRIPs, as well as the basic conditions of the agreement.⁴⁵ Part II established high international standards for IP law in eight categories including copyrights, patents, and trademarks.⁴⁶ Part III laid down enforcement measures for IP rights, and Part V provided for required dispute settlement procedures through the WTO.⁴⁷ Because less developed countries and least developed countries lacked the resources to comply immediately with TRIPs requirements, Part VI of the agreement

³⁹ *Id.* at 9–10.

⁴⁰ Yu, *supra* note 2, at 362.

⁴¹ Reichman, *supra* note 11, at 29.

⁴² Yu, *supra* note 2, at 364.

⁴³ *Id.*

⁴⁴ *Id.* at 362–63.

⁴⁵ *Id.* at 365.

⁴⁶ *Id.*

⁴⁷ *Id.* at 366.

provided transitional periods for such member countries.⁴⁸ Least developed countries, such as Uganda, were provided with a ten-year period to comply with the copyright provisions of the agreement.⁴⁹

1. PART I

Part I of the TRIPs Agreement laid down the general provisions, basic objectives,⁵⁰ and principles,⁵¹ beginning with the nature and scope of members' obligations.⁵² This introductory part states that member countries must meet the minimum standards provided in the agreement, but are "free to determine the appropriate method of implementing the provisions of this Agreement within their own legal system and practice."⁵³ The agreement adopted many of the standards stipulated in the Paris and Berne conventions, and articulates principles of national treatment and most-favored-nation treatment.⁵⁴

2. MINIMUM STANDARDS FOR IP PROTECTION

In Part II, the TRIPs Agreement lays down heightened standards for IP regimes that countries must meet in order to comply with the

⁴⁸ *Id.* at 367.

⁴⁹ TRIPs, *supra* note 7, at 1222.

⁵⁰ *Id.* at 1200. Article 7 of Part I states, "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." *Id.*

⁵¹ *Id.* at 1201. Article 8 of Part I states, "1. Members may, in formulating or amending their laws and regulations, adopt measures necessary to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their socio-economic and technological development, provided that such measures are consistent with the provisions of this Agreement. 2. 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.*

⁵² *Id.* at 1198–99.

⁵³ *Id.* at 1198.

⁵⁴ *Id.* at 1199–1200. The principle of national treatment stipulates, "Each Member shall accord to the nationals of other Members treatment no less favourable than that it accords to its own nationals with regard to the protection of intellectual property..." *Id.* The principle of most-favoured nation treatment stipulates, "With regard to the protection of intellectual property, any advantage, favour, privilege or immunity granted by a Member to the nationals of any other country shall be accorded immediately and unconditionally to the nationals of all other Members." *Id.* at 1200.

agreement and become members of the WTO.⁵⁵ The agreement prescribes standards in copyright, trademark, and patent areas of IP, as well as industrial designs, layout-designs of integrated circuits, protection of undisclosed information, and control of anti-competitive practices in contractual licenses.⁵⁶ For the purposes of this paper, analysis of TRIPs is restricted to the patent provisions of the Agreement.

3. PATENTS

TRIPs structured heightened patent protection by borrowing from the Paris Convention, much as it did for structuring heightened copyright protection by borrowing from the Berne Convention;⁵⁷ however, unlike copyright standards, TRIPs negotiations led to decidedly one-sided patent protection that reflected developed countries' practices without real consideration of developing countries' different treatment of patent rights and different needs regarding patent protection.⁵⁸ Developed countries succeeded in raising the uniform level of minimum standards for patent protection in eligibility, duration, and in other areas not addressed by the Paris Convention.⁵⁹ TRIPs prohibits Member States from excluding certain technologies from patentability or from discriminating against the place of invention and requires patent protection to extend twenty years from the filing date, requirements that reflect developed countries' then-existing patent protection systems.⁶⁰ TRIPs permits Member States to exclude from patentability those inventions for which commercial exploitation would damage the morality of the Member State as long as such exclusions are justified as being in the best interests of the Member State.⁶¹ In addition, TRIPs provides that patent holders' rights include the right to supply the market with imported products that are patented.⁶² It is suggested that TRIPs-imposed patent legislation requirements could be a catalyst for increased

⁵⁵ *Id.* at 1201–13.

⁵⁶ *Id.*

⁵⁷ Reichman, *supra* note 11, at 31.

⁵⁸ *Id.*

⁵⁹ *Id.* at 30.

⁶⁰ *Id.*

⁶¹ TRIPs, *supra* note 7, at 1208.

⁶² Reichman, *supra* note 11, at 31.

investment in domestic research and development, possibly incentivizing local development of intellectual property.⁶³

The process of obtaining patent protection closely mirrored developed countries' then-existing patent protection systems.⁶⁴ Applicants are required to disclose inventions clearly and completely in order for a person of ordinary skill in the art to carry out the invention.⁶⁵ Applicants also must prove that their invention does not already exist in prior art.⁶⁶ Furthermore, any Member State can require a party alleging patent infringement to carry the burden of proof that the alleged infringement voids the defendant patent-holder's legal rights to patent protection.⁶⁷

TRIPs adhered to, and somewhat refined, the remedial actions provided in the Paris Convention;⁶⁸ compulsory licensing is the standard form of remedial action.⁶⁹ Under Article 8 in Part I of TRIPs, Member States can adopt measures necessary to protect the public interest or prevent abuse of intellectual property rights by right holders who "resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology."⁷⁰ Either of these flexibilities could justify a Member State resorting to compulsory licensing under Article 8, without having to negotiate with the rights holder to obtain reasonable license terms, as required under Article 31.⁷¹ While the idea of "abuse" among certain developed countries such as the United States was narrowly interpreted to anti-competitive practices, TRIPs adopted a more widely recognized, broader notion of abuse that includes instances where

⁶³ *Id.* at 32–33.

⁶⁴ TRIPs, *supra* note 7, at 1209.

⁶⁵ *Id.*

⁶⁶ *Id.* at 1208.

⁶⁷ *Id.* at 1211.

⁶⁸ Reichman, *supra* note 11, at 34.

⁶⁹ *Id.*

⁷⁰ TRIPs, *supra* note 7, at 1201. Article 8 of Part I states, "1. Members may, in formulating or amending their laws and regulations, adopt measures necessary to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their socio-economic and technological development, provided that such measures are consistent with the provisions of this Agreement. 2. 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.*

⁷¹ TRIPs, *supra* note 7, at 1201, 1209–10. If a party seeking to obtain a compulsory license chooses to pursue judicial action as permitted under Article 8 of TRIPs, then that party is still subject to the provisions under Article 31 but does not have to negotiate with the patent holder as required under Article 31. Reichman, *supra* note 28, at 36–37.

a patent holder hinders industrial development either by failure to utilize the patent locally or by refusing to grant licenses with reasonable terms.⁷² In Article 31 of the subsection on patent protection, TRIPs merged this wider notion of abuse with the exception for public interest purposes and stipulates that, “so long as the grounds for triggering a non-exclusive compulsory license are rooted either [in] public interest considerations or in the broad notion of ‘abuse’ under article 8(1). . .article 31 requires the would-be licensee to seek a negotiated license from the right holder, and failing this, to pay equitable compensation.”⁷³ Therefore, developing countries enjoy a greater ability to protect national economic development strategies by preventing conduct that would compromise such strategies.⁷⁴ Requiring would-be licensees to negotiate with the rights holder may put increased pressure on foreign patent holders to structure their pricing according to the local market.⁷⁵ Along with compulsory licenses under Article 31, other provisions like Article 7 and Article 8 exemplify the broader notion of the public interest exception adopted in TRIPs and illustrate a small victory for developing countries.⁷⁶ While the patent protection standards imposed in the agreement largely stem from developed countries’ interests, the focus on promoting innovation and dissemination of technology to benefit social and economic welfare reflects the ideals developing countries stressed during the negotiations which led to the TRIPs Agreement.⁷⁷

III. ANTICIPATED IMPACT OF STRONGER IP REGIMES ON INNOVATION AND RESEARCH

One way governments try to stimulate innovation is by enacting laws which guarantee inventors profit from their innovations.⁷⁸ Empirical analysis shows that academic research made possible by public funding

⁷² Reichman, *supra* note 11, at 35.

⁷³ *Id.*

⁷⁴ *Id.* at 36.

⁷⁵ *Id.*

⁷⁶ *Id.* at 36–37. Article 7 of TRIPs states, “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, *supra* note 7, at 1200.

⁷⁷ Reichman, *supra* note 11, at 36–37.

⁷⁸ David M. Gould & William C. Gruben, *The Role of Intellectual Property Rights in Economic Growth*, 48 J. DEV. ECON. 323, 325 (1996).

in universities and other institutions substantially contributes to a country's innovation.⁷⁹ Scholars question whether TRIPs specifically, and stronger IP rights protection in general, will increase or inhibit developing countries' ability to innovate.⁸⁰ Some policymakers point to strengthened IP protection as a way to boost innovation because individuals innovate partly in order to realize commercial gain from their invention, and to gain or retain control of a share of the market.⁸¹ Other scholars argue that overly stringent IP protections may inhibit the dissemination of new ideas and possibly hinder economic growth.⁸² Schneider, in her study that used high-technology trade, IP rights, and foreign direct investment to determine a country's economic growth and rate of innovation, concluded that IP rights have an impact on domestic innovation for both developing countries and developed countries, with a stronger impact on innovation for developed countries.⁸³ Sherwood suggests stronger IP rights encourage innovation and creation, which will in turn benefit the public welfare.⁸⁴ Lesser concluded that stronger IP rights provide domestic benefits to developing nations.⁸⁵

Although scholars disagree over whether stronger IP rights protection encourages or hinders innovation, scholarship does indicate a link between IP rights protection and economic growth,⁸⁶ in which innovation is a key indicator of economic growth.⁸⁷ One study of fifty-eight countries showed that countries that increase the number of patents issued see an increase in economic growth.⁸⁸ Research indicates that inventors may benefit from imports to their country because imports often include innovations not available locally, thereby allowing

⁷⁹ Iftekhar Hasan & Christopher L. Tucci, *The Innovation-Economic Growth Nexus: Global Evidence*, 39 RES. POL'Y 1264, 1265 (2010).

⁸⁰ See Sovacool, *supra* note 5; see also Sherwood, *supra* note 5; see also LESSER, *supra* note 5, at 21; see also Gould & Gruben, *supra* note 78; see also Yu, *supra* note 2.

⁸¹ Gould & Gruben, *supra* note 78, at 323–24.

⁸² *Id.* at 325.

⁸³ Patricia H. Schneider, *International Trade, Economic Growth and Intellectual Property Rights: A Panel Data Study of Developed and Developing Countries*, 78 J. DEV. ECON. 529, 539 (2005).

⁸⁴ Sherwood, *supra* note 5.

⁸⁵ LESSER, *supra* note 5, at 16.

⁸⁶ Compare Hasan & Tucci, *supra* note 79 with Schneider, *supra* note 83.

⁸⁷ Hasan & Tucci, *supra* note 79, at 1264–65.

⁸⁸ *Id.* at 1264.

university researchers to develop new innovations based on imported innovations.⁸⁹

In its 1998/1999 Development Report, the World Bank stressed how important openness, stronger IP rights, and foreign direct investment are as mediums for developing countries to acquire imported knowledge.⁹⁰ The report described how knowledge has value, that “today’s most technologically advanced economies are truly knowledge-based,” and that innovations are engines for creating knowledge-related jobs.⁹¹ One study that examined how institutions shape economic growth found that the quality of institutions like IP rights is key while another study taking a similar examination of how institutions shape economic growth found that the quality of IP protection affects the ability of a country to attract foreign direct investment, where better-quality institutions almost always result in increased investment.⁹²

Research focused on the role of IP rights in economic growth indicates that IP protection (measured by the degree of patent protection) is “an important determinant of economic growth,” where the effect is stronger in open economies than in closed economies.⁹³ In their empirical study of the role of intellectual property rights in economic growth, Gould and Gruben found that “the more open the economy, the greater the role of intellectual property rights protection and innovation in economic growth.”⁹⁴

⁸⁹ Schneider, *supra* note 83, at 530. As Hasan and Tucci state, “The accumulation of technological advancement enlarges the knowledge base and makes sequential innovations available.” Hasan & Tucci, *supra* note 79, at 1265.

⁹⁰ Schneider, *supra* note 83, at 530.

⁹¹ Sherwood, *supra* note 5, at 357.

⁹² Lippoldt, *supra* note 3, at 3–4.

⁹³ Gould & Gruben, *supra* note 78, at 324.

⁹⁴ *Id.* at 341. Here, an open economy refers to a country that is open to trade with other countries, which provides foreign competition to domestic innovation. In a closed economy, a country does not import foreign goods and therefore is not subject to the same competition as country with an open economy. Keith E. Maskus, *Intellectual Property Challenges for Developing Countries: An Economic Perspective*, 2001 U. ILL. L. REV. 457, 471 (2001); Keith E. Maskus, *Intellectual Property Rights and Economic Development*, 32 CASE W. RES. J. INT’L L. 471, 498 (2000). Gould & Gruben observe that this lack of competition may stifle innovation. Gould & Gruben, *supra* note 78, at 341.

A. SCHOLARSHIP SUGGESTING NEGATIVE IMPACT OF STRONG IP REGIMES ON INNOVATION

Some scholars suggest that stronger IP regimes will have a negative impact on innovation in Member States to the TRIPs agreement and that strong IP rights protection in general may actually create barriers to innovation.⁹⁵ For instance, research suggests industry-government-university partnerships can be impeded by IP rights barriers.⁹⁶ A stronger IP regime that allows industry and university partners to “own” publicly funded research may hinder distribution of innovations in technology because the public pays twice for a single innovation: First through taxes that fund the research behind the invention, and second through high commercial prices on the market.⁹⁷ The technology transfer firm that commercializes the invention will be able to structure its prices for maximum profit because it holds a monopoly over the product and can restrict supply.⁹⁸ In addition, it can be argued that strong IP protection impoverishes the public domain of research, a vital resource for university researchers, by incentivizing patents and ultimately restricting access to innovations.⁹⁹ Furthermore, a complex patent environment can create a maze of IP rights a company must navigate to commercialize new technology.¹⁰⁰

Because most higher education institutions are restricted in resources for available high IP transaction costs and lack experience in “market bargaining,” it can be difficult for universities and research institutions to encourage the translation of innovations into products available on the domestic market.¹⁰¹ High transaction costs may also impede innovation by discouraging firms from researching follow-up inventions to already patented discoveries.¹⁰² The effects of high up-front costs can, and often do, deflate inventions especially in developing countries where a weak patent system discourages venture capital.¹⁰³ In addition, the high costs of commercializing new technologies discourage

⁹⁵ Sovacool, *supra* note 5, at 383.

⁹⁶ *Id.* at 424.

⁹⁷ *Id.* at 396.

⁹⁸ *Id.*

⁹⁹ *Id.* at 397.

¹⁰⁰ *Id.* at 399.

¹⁰¹ *Id.* at 401.

¹⁰² *Id.* at 405.

¹⁰³ Sherwood, *supra* note 5, at 361.

people from innovating, and those who do innovate spend considerable time and funding securing rights and negotiating licenses and royalties instead of focusing on the technology itself.¹⁰⁴ Other scholars argue that strong IP protection allows monopolistic behavior, where a monopoly can accumulate patents and, by refusing to act on them and hiding the technology from competitors, prevent competition within a specific industry.¹⁰⁵

Research also discusses how one-sided strong IP rights can discourage international collaboration.¹⁰⁶ In the United States, with strong IP rights, technological firms may refuse to collaborate with partners from countries with weak IP rights protection because firms may see themselves as disadvantaged in distributing their technology and may believe their projects would attract foreign partners with much to gain and little to offer.¹⁰⁷ Evidence indicates that foreign technology firms often refuse to license their innovations to firms in countries with weak IP protection because they fear any licensing contract may not be enforceable.¹⁰⁸ In one study of one hundred major US firms, results indicated that weak IP rights in a country deterred joint ventures in research and development facilities, along with discouraging foreign direct investment.¹⁰⁹

B. SCHOLARSHIP SUGGESTING POSITIVE IMPACT OF STRONG IP REGIMES ON INNOVATION

Other scholars suggest that stronger IP regimes will have a positive impact on innovation in Member States and that strong IP rights protection in general will increase innovation overall.¹¹⁰ Stronger IP protection in developing countries may boost innovation like it has in developed countries, resulting in increased economic growth as well as public benefit.¹¹¹ In analyzing IP protection, innovation, and imports, it is suggested that innovation is related to import levels and that importation

¹⁰⁴ Sovacool, *supra* note 5, at 408–09.

¹⁰⁵ Gould & Gruben, *supra* note 78, at 325.

¹⁰⁶ See Sovacool, *supra* note 5, at 428.

¹⁰⁷ *Id.*

¹⁰⁸ Gould & Gruben, *supra* note 78, at 324.

¹⁰⁹ *Id.*

¹¹⁰ See *infra* pp. 22–24 and notes 106–114.

¹¹¹ Sherwood, *supra* note 5, at 358.

to a country is one key to domestic innovation.¹¹² One scholar argues that private investment in research and development only materializes when a country achieves high levels of IP rights protection, which in turn incentivizes innovation and makes the inventor a valuable resource to his or her country.¹¹³ Looking inward to US IP protection, scholarship points to evidence suggesting that the US IP regime stimulates innovation.¹¹⁴

Some empirical studies have linked stronger IP laws in developing countries with increases in technology transfer and domestic innovation in those countries.¹¹⁵ Several developing countries have attempted to exploit stronger IP rights in order to encourage domestic innovation and investment.¹¹⁶ Other scholars have found a strong, positive association between strong IP rights and technology transfer and licensing to developing countries.¹¹⁷ Studies of developing countries which lack strong IP regimes suggest more domestic innovation would occur if the IP regime were strengthened. In a study of 377 firms in Brazil, 80 percent of firms surveyed reported they would engage in more innovation if they had better IP protection.¹¹⁸ Furthermore, research indicates that firms from countries with stronger IP regimes tend to limit their investment in countries with weak IP regimes.¹¹⁹ Without foreign investment and without interest in partnerships from countries with strong IP regimes, countries with weak IP regimes will not have access to the latest technological innovations and will therefore be restricted in their ability to engage in domestic innovation.¹²⁰

¹¹² Schneider, *supra* note 83, at 533.

¹¹³ Sherwood, *supra* note 5, at 359.

¹¹⁴ Gould & Gruben, *supra* note 78, at 326.

¹¹⁵ Lippoldt, *supra* note 3, at 2.

¹¹⁶ *Id.* at 5. Lippoldt states, "While security of property rights may constitute a fundamental building block for the economy, the interaction of competition policy and IPR strengthening can be important in balancing interests and promoting innovation." *Id.* at 8.

¹¹⁷ *Id.* at 10.

¹¹⁸ Gould & Gruben, *supra* note 78, at 326.

¹¹⁹ *Id.* at 327. "Mansfield (1994) finds that US firms, particularly in the chemical and pharmaceutical industries, limit foreign direct investment in countries with weak intellectual property rights protection." *Id.*

¹²⁰ *Id.*

C. ANTICIPATED IMPACT OF TRIPS

While scholars disagree about the effect of stronger IP rights on developing countries' ability to innovate,¹²¹ if innovation depends on access to technology, then developing countries may be able to utilize IP policy to increase inflows of trade, foreign direct investment, and licensing to bolster technology transfer, which fuels innovation.¹²² Research indicates that stronger IP laws in developing countries, specifically patents, correspond to increased technological development through trade and investment; as well as increased innovation as measured by domestic patent filings.¹²³ This finding parallels the intention of the TRIPs Agreement as stated in Article 6, which in effect illustrates that developing countries' voices were heard during the Uruguay Round negotiations that resulted in TRIPs.¹²⁴ Furthermore, the TRIPs Agreement permits WTO member countries to develop IP rights protection which exceeds the minimum required.¹²⁵

IV. UGANDA'S PATENTS ACT AND TRIPS

A. THE PATENTS ACT

Enacted in 1991, Uganda's Patents Act replaced the country's previous patent legislation, enacted in 1962, with a comparatively robust patent system.¹²⁶ The Act, although created several years prior to the TRIPs Agreement, met all requirements in TRIPs because it complied with the Paris Convention, from which the TRIPs Agreement borrowed heavily.¹²⁷ The Act defines an invention as "a solution to a specific

¹²¹ See Sovacool, *supra* note 5; see also Sherwood, *supra* note 5; see also LESSER, *supra* note 5, at 21; see also Gould & Gruben, *supra* note 78; see also Yu, *supra* note 2.

¹²² Lippoldt, *supra* note 3, at 4.

¹²³ *Id.* According to Lippoldt, literature indicates that strong IPRs in developing countries, especially strong patent protection, "is associated with increased technology transfer via trade and investment and with increased domestic innovative activity as measured by domestic patent filings." *Id.*

¹²⁴ *Id.* Article 7 of the TRIPs Agreement states, "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, *supra* note 7, at 1200.

¹²⁵ Lippoldt, *supra* note 3, at 7.

¹²⁶ Patents Act, 1993, c. 216 (Uganda).

¹²⁷ See *supra* text accompanying note 11.

technological problem and may be or may relate to a product or process”¹²⁸ and stipulates that several types of innovations are not considered inventions, including scientific and mathematical theories, plant and animal varieties or other biological processes, and methods for doing business.¹²⁹ An invention is patentable if “it is new, involves an inventive step and is industrially applicable.”¹³⁰ Novelty is determined by examining prior art, and an invention is industrially applicable if “it can technologically be made or used in any kind of industry.”¹³¹ An inventor obtains a patent by filing an application with the Register of Patents which must include sections similar to a US patent application with the United States Patent and Trademark Office.¹³²

Uganda’s Patents Act largely does not extend beyond the minimum requirements stipulated by TRIPs. The term of protection granted by a patent under Ugandan law is fifteen years, plus a five-year extension option,¹³³ which complies with TRIPs-mandated twenty-year protection term but does not extend the term of protection beyond what TRIPs requires.¹³⁴ A patent holder is granted the same rights in Uganda as required by TRIPs: protection from a third party’s “making, importing, offering for sale, selling and using the product” or process¹³⁵ and “stocking the product for the purposes of offering for sale, selling or using the product,” which is in compliance with Article 28 of the TRIPs Agreement.¹³⁶ Uganda’s Patents Act grants no additional rights beyond those described in TRIPs. The Patents Act stipulates that a patent owner can license the patent to another party,¹³⁷ which also complies with TRIPs Article 28.¹³⁸ Lastly, Uganda’s Patents Act provides protection to the patent holder against infringement by third parties as required under

¹²⁸ Patents Act, 1993, c. 216, § 7.1 (Uganda).

¹²⁹ Patents Act, 1993, c. 216, § 7.2 (Uganda).

¹³⁰ Patents Act, 1993, c. 216, § 8 (Uganda).

¹³¹ Patents Act, 1993, c. 216, §§ 9–11 (Uganda).

¹³² See Patents Act, 1993, c. 216, § 13 (Uganda); see also *A Guide to Filing A Non-Provisional (Utility) Patent Application*, UNITED STATES PATENT AND TRADEMARK OFFICE, <http://www.uspto.gov/patents/resources/types/utility.jsp> (describing the most typical application for a US patent—a utility patent application).

¹³³ Patents Act, 1993, c. 216, §§ 31.1–31.2 (Uganda).

¹³⁴ TRIPs, *supra* note 7, at 1210. Article 33, Term of Protection, states, “The term of protection available shall not end before the expiration of a period of twenty years counted from the filing date.” *Id.*

¹³⁵ Patents Act, 1993, c. 216, § 25.1(a) (Uganda).

¹³⁶ TRIPs, *supra* note 7, at 1208.

¹³⁷ Patents Act, 1993, c. 216, § 25.3 (Uganda).

¹³⁸ TRIPs, *supra* note 7, at 1208.

Part III of the TRIPs agreement.¹³⁹ The Patents Act allows a patent holder subject to infringement to institute proceedings in Uganda's High Court for damages, an injunction to prevent further infringement, and other civil remedies.¹⁴⁰ TRIPs requires that member countries provide "fair and equitable" procedures for enforcing intellectual property rights and specifically describes injunctions, damages, and other remedies.¹⁴¹ Uganda does not provide additional procedures or penalties for enforcing intellectual property rights that go beyond those described in the TRIPs Agreement.

Uganda's Patents Act exceeds TRIPs requirements in two notable areas. First, the Patents Act provides for compulsory licenses, which are allowed under Article 8 and under Article 31 of the TRIPs Agreement but not required.¹⁴² According to the Patents Act, if, after four years from the filing date of a patent application or three years from the date the patent was granted, a person can show that a patent holder hasn't "worked" the invention in Uganda to a reasonable extent; that the extent of the patent holder's working of the patented invention in Uganda fails to meet domestic market demand in the country; that the importation of the patented product is hindering its "working" in Uganda; or that the patent holder is refusing to grant reasonable licenses, then a person may request a compulsory license in court.¹⁴³

Second, Uganda's Patents Act exceeds TRIPs requirements by allowing utility certificates.¹⁴⁴ Under Part VIII of the Patents Act, if an individual has an invention that does not involve an "inventive step" but is "new" and "industrially applicable," the individual may seek a utility certificate in lieu of a patent.¹⁴⁵ The utility certificate grants the certificate holder seven years of protection from infringement similar to the protection a patent holder receives, with no option for renewal.¹⁴⁶ While utility certificates are not explicitly provided for in the TRIPs Agreement, Article 1 of TRIPs does state that members may implement

¹³⁹ Patents Act, 1993, c. 216, § 26 (Uganda); TRIPs, *supra* note 7, at 1213–14. Article 41, § 1 of Part III in TRIPs states, "Members shall ensure that enforcement procedures as specified in this Part are available under their law so as to permit effective action against any act of infringement of intellectual property rights covered by this Agreement..." *Id.*

¹⁴⁰ Patents Act, 1993, c. 216, § 26.2 (Uganda).

¹⁴¹ TRIPs, *supra* note 7, at 1214.

¹⁴² Patents Act, 1993, c. 216, § 30 (Uganda); TRIPs, *supra* note 7, at 1201, 1209.

¹⁴³ Patents Act, 1993, c. 216, § 30 (Uganda).

¹⁴⁴ Patents Act, 1993, c. 216, §§ 41–43 (Uganda); *see* TRIPs, *supra* note 7.

¹⁴⁵ Patents Act, 1993, c. 216, § 42 (Uganda).

¹⁴⁶ Patents Act, 1993, c. 216, §§ 41, 43 (Uganda).

more extensive protection than the Agreement requires as long as the protection does not conflict with the Agreement.¹⁴⁷ TRIPs does not expressly forbid utility certificates.¹⁴⁸ Although Uganda's patent law exceeds TRIPs requirements in these areas, these more stringent requirements are not excessive in the way that some scholars suggest could hinder Uganda's ability to engage in innovation.¹⁴⁹

B. IP MANAGEMENT POLICY

Uganda has recognized that facilitating the translation of research into innovations and commercialization requires not only strengthened IP rights but also an IP rights management policy.¹⁵⁰ In response, Uganda created the Uganda National Council for Science and Technology (UNCST) that is charged with facilitating university research and innovations in Uganda.¹⁵¹ The UNCST acknowledged Uganda's lack of a national IP rights management policy and recommended universities and research institutions develop independent IP rights management policies.¹⁵²

Makerere University, a prominent Ugandan research institution and the oldest East African university, has already formulated such a policy.¹⁵³ The university states that part of the purpose of its IP rights management policy is to commercialize government and university-funded research for public benefit, to facilitate collaboration between the university and industry, and to encourage economic gains from research and innovation.¹⁵⁴ The guidelines under Makerere University's policy stipulate that research findings should be recognized as assets to be protected under IP laws.¹⁵⁵ The guidelines further require researchers to report possible intellectual assets they may have discovered and / or developed from their research prior to publishing their research findings

¹⁴⁷ TRIPs, *supra* note 7, at 1198.

¹⁴⁸ *See generally* TRIPs, *supra* note 7.

¹⁴⁹ *See* Sovacool, *supra* note 5, at 383; Gould & Gruben, *supra* note 78, at 325.

¹⁵⁰ David J. Bakibinga, Intellectual Property Rights in Uganda: Reform and Institutional Management Policy Formulation, Paper delivered at the Network of Academies of Sciences in Organisation of Islamic Countries (NASIC) 15 (Dec. 12–14, 2006).

¹⁵¹ *Id.*

¹⁵² *Id.*

¹⁵³ *Id.*

¹⁵⁴ *Id.* at 15–16.

¹⁵⁵ *Id.* at 16.

or disclosing their findings in another way.¹⁵⁶ The guidelines also advise researchers to work with an IP manager at the university to commercialize innovations.¹⁵⁷ Furthermore, the guidelines state that it is the university's responsibility to manage university-born inventions in a way that produces the greatest public benefit.¹⁵⁸

V. THE INTERSECTION OF UGANDA PATENT LAWS AND UNIVERSITY RESEARCH

As researchers have generally agreed, with a growing global economy and heightened international IP standards through such agreements as TRIPs, "conformity with the minimum global IPR [intellectual property rights] standards has become, in effect, a prerequisite for developing countries wishing to access and exploit the full range of global technologies and know-how."¹⁵⁹ Uganda's response to TRIPs requirements regarding patent law and the country's recognition of the broader need for an IP rights policy illustrates how Uganda is focused on the practical management of IP that translates research findings into innovations, which can be commercialized for economic growth.¹⁶⁰ Furthermore, Uganda recognized in its national development strategy the role of innovation, science, and technology as drivers of economic growth, which in part led to the creation of the UNCST.¹⁶¹ As previously described, the UNCST supports the creation of a national IP rights management policy.¹⁶² However, the function of the UNCST extends beyond policy recommendations.¹⁶³ It functions as the "clearing house" for research registrations in Uganda and is charged with developing strategies and programs to advance innovation and to facilitate research and development.¹⁶⁴

¹⁵⁶ *Id.* at 15–16.

¹⁵⁷ *Id.* at 16.

¹⁵⁸ *Id.* at 17.

¹⁵⁹ Lippoldt, *supra* note 3, at 2.

¹⁶⁰ Bakibinga, *supra* note 150, at 2.

¹⁶¹ ECURU ET AL., *supra* note 6, at 1–4.

¹⁶² See *supra* text accompanying notes 133–34.

¹⁶³ ECURU ET AL., *supra* note 6, at 4.

¹⁶⁴ *Id.*

A. RESEARCH REGISTRATIONS AND R&D EXPENDITURES IN UGANDA

According to a December 2008 report by the UNCST, research in Uganda has steadily grown between 1996/97 and 2006/07; especially in health, social science, agriculture, and natural science fields.¹⁶⁵ Carried out largely by public research institutions and universities, much of the research stems from international collaborations and sponsorship from outside Uganda.¹⁶⁶ The number of registered research projects nearly tripled between 1997/1998 and 2006/2007, from 109 project registrations to 335.¹⁶⁷ Research and development (R&D) in Uganda is financed mainly by government and foreign or international agencies.¹⁶⁸ As with research registrations, R&D expenditures nearly tripled between 2003/04 (Ushs. 31,870 million) and 2007/08 (Ushs. 82,249 million).¹⁶⁹

B. IMPACT OF UGANDA'S PATENTS ACT ON RESEARCH AND INNOVATION

It is possible to extrapolate how Uganda's patent law has contributed to the country's consistent growth in research and innovation by examining Uganda's Patents Act in the context of recent research of the possible impact of stronger IP regimes on innovation and research in a country. First, by strengthening its patent law, it appears Uganda has engendered confidence in other countries and in international agencies that their contributions to joint projects will be protected and will result in innovations that can be commercialized to aid local and international economies, as indicated by increasing foreign investment in Uganda's R&D.¹⁷⁰ Second, because Uganda largely did not exceed minimum requirements in TRIPs except for two minor provisions which encourage economic growth and aim to stimulate rather than stifle innovation, the country may have avoided the pitfall of an overly stringent patent system that hinders rather than encourages innovation.¹⁷¹ Third, by not extending the patent protection term beyond the minimum required in TRIPs,

¹⁶⁵ *Id.* at 1.

¹⁶⁶ *Id.* at 3–7.

¹⁶⁷ *Id.* at 10.

¹⁶⁸ *Id.* at 15.

¹⁶⁹ *Id.* at 16.

¹⁷⁰ *See id.* at 15–17.

¹⁷¹ Sovacool, *supra* note 5, at 399; Patents Act, 1993, c. 216, §§ 30, 41–43 (Uganda); *See generally* TRIPs, *supra* note 7.

Uganda may have mitigated the impoverishment of its public domain.¹⁷² Fourth, Uganda does not require excessive up-front costs for patent protection that could deflate innovations.¹⁷³

The fact that the majority of investment in R&D in Uganda comes from foreign or international sources possibly indicates that Uganda's stronger, TRIPs-compliant patent laws have made other countries confident in Uganda's IP regime.¹⁷⁴ It is argued that one-sided strong IP rights can discourage international collaboration because technological firms in countries with strong IP regimes may refuse to collaborate with partners from countries with weak IP rights: they may believe their projects would attract foreign partners who would benefit greatly but would offer little to the collaboration.¹⁷⁵ Although the majority of foreign sources of investment in Uganda's R&D are foreign governments and international agencies,¹⁷⁶ it may be argued that Uganda's stronger patent laws meeting international standards stipulated in TRIPs has engendered confidence in other countries that their contribution to joint projects will be protected rather than copied and distributed without consequence.¹⁷⁷ Uganda's growth in R&D expenditures, combined with the fact that R&D investment in Uganda comes largely from foreign or international sources may indicate its patent law, together with other TRIPs-compliant laws, has engendered confidence in Uganda's ability to protect the importation of inventions and innovations into the country.¹⁷⁸

Although Uganda enacted stronger patent laws, it did not exceed the minimum requirements stipulated in TRIPs except for two areas.¹⁷⁹ By legislating the minimum-required protection under its Patents Act, Uganda did not create an overly stringent patent system that hinders rather than encourages innovation but instead met base-level

¹⁷² Patents Act, 1993, c. 216, § 31 (Uganda); Sovacool, *supra* note 5, at 397; TRIPs, *supra* note 7, at 1210.

¹⁷³ SAMUEL WANGWE ET AL., ECONOMIC AND SOCIAL RESEARCH FOUNDATION, COUNTRY CASE STUDY FOR STUDY 9: INSTITUTIONAL ISSUES FOR DEVELOPING COUNTRIES IN IP POLICY-MAKING, ADMINISTRATION AND ENFORCEMENT 16 (2001).

¹⁷⁴ ECURU ET AL., *supra* note 6, at 15.

¹⁷⁵ Sovacool, *supra* note 5, at 428–29.

¹⁷⁶ See ECURU ET AL., *supra* note 6, at 30–31.

¹⁷⁷ See Sovacool, *supra* note 5, at 428–29 (discussing how weak protection of intellectual property rights on an international level may impede technological diffusion in both supply and demand).

¹⁷⁸ See *id.*; See ECURU ET AL., *supra* note 6, at 15–17.

¹⁷⁹ Patents Act, 1993, c. 216, §§ 30, 41–43 (Uganda).

international standards.¹⁸⁰ Research indicates that effective IPRs balance the rights of an intellectual property owner with limitations to the protection afforded them.¹⁸¹ It is argued that a complex patent environment creates unnecessary complexity—a maze of IP rights—that one must navigate to commercialize innovations achieved through university research.¹⁸² By adhering to TRIPs minimum requirements, including the extent of rights granted to a patent holder, a patent holder's ability to license a patent to another party, and requiring a standard application procedure that mirrors patent applications required in other countries, Uganda does not overly complicate its patent process or create a maze of IP rights that could discourage commercialization of innovations made by universities and research institutions.¹⁸³ Furthermore, by complying with minimum patent requirements stipulated in TRIPs, Uganda does not create additional, unnecessary hurdles to innovation, and inventors may spend less time navigating the patent application process, securing rights, and negotiating licenses, and spend more time developing the technology or some other form of innovation so it is ready for production and commercialization.¹⁸⁴

The requirements in Uganda's Patents Act that do exceed TRIPs appear to be designed to encourage economic growth and stimulate Uganda's domestic market rather than stifle innovation.¹⁸⁵ Uganda's Patents Act exceeds the minimum requirements in TRIPs in two notable ways: the Act provides for compulsory licenses and it allows utility patents, both of which are permitted by the TRIPs Agreement but are not required.¹⁸⁶ Compulsory licenses, permitted under Article 8 and Article 31 of TRIPs, permit a person to compel a patent holder to license the patent to the individual.¹⁸⁷ Uganda stipulates in its Patents Act that compulsory licenses may be granted on limited grounds, including for uses that supply the country's domestic market.¹⁸⁸ It appears that Uganda

¹⁸⁰ See generally TRIPs, *supra* note 7; see generally Patents Act, 1993, c. 216 (Uganda).

¹⁸¹ Lippoldt, *supra* note 3, at 4–5. Lippoldt states, “Seen from an economic perspective, the incentives for innovators need to provide for an appropriate degree of protection without conferring excessive market power.” *Id.*

¹⁸² Sovacool, *supra* note 5, at 399.

¹⁸³ *Id.*; see generally Patents Act, 1993, c. 216 (Uganda); see generally TRIPs, *supra* note 7, at 1208–09.

¹⁸⁴ Sovacool, *supra* note 5, at 408–09.

¹⁸⁵ TRIPs, *supra* note 7; Patents Act, 1993, c. 216, §§ 30, 41–43 (Uganda).

¹⁸⁶ TRIPs, *supra* note 7; Patents Act, 1993, c. 216, §§ 30, 41–43 (Uganda).

¹⁸⁷ TRIPs, *supra* note 7, at 1201, 1210.

¹⁸⁸ Patents Act, 1993, c. 216, § 30 (Uganda).

means to prevent the type of monopolistic behavior researchers have cautioned may result from strong IP protection, where a monopoly can accumulate patents and refuse to act on them, thereby hiding the technology from competitors and stifling the domestic market.¹⁸⁹ Utility patents, permitted under Article 1 of TRIPs, are meant to provide minimal protection to an innovator who conceives of an invention that meets most requirements for patentability but falls short because the invention does not involve an inventive step.¹⁹⁰ By providing a way to circumvent the patent process if an invention could be commercialized but doesn't meet *all* requirements for patentability,¹⁹¹ Uganda has created another avenue for encouraging innovation and commercialization. Both compulsory licenses and utility patents illustrate Uganda's focus on facilitating innovation and encouraging economic growth.¹⁹²

By not extending the patent protection term beyond the minimum twenty years required in TRIPs, Uganda does not overly incentivize patents and ultimately restrict access to innovations, which could impoverish its public domain.¹⁹³ Meeting the minimum term of protection protects an invention for a period sufficient to realize economic gains through commercialization, but also allows the invention to become open to public use by letting the patent protection lapse. By only extending protection of an inventor's rights for the minimum twenty years stipulated in TRIPs,¹⁹⁴ Uganda appears to preserve the richness of its public domain, a vital resource for university researchers.¹⁹⁵

Uganda also does not require excessive up-front costs for patent protection, which if imposed on inventors and researchers, could deflate innovations.¹⁹⁶ High IP transaction costs may deter higher education institutions from facilitating innovation because they frequently have limited resources.¹⁹⁷ Uganda maintains low to average up-front patent

¹⁸⁹ Gould & Gruben, *supra* note 78, at 325.

¹⁹⁰ TRIPs, *supra* note 7, at 1198; Patents Act, 1993, c. 216, § 42 (Uganda).

¹⁹¹ Patents Act, 1993, c. 216, § 42 (Uganda).

¹⁹² See Gould & Gruben, *supra* note 78, at 325; see Patents Act, 1993, c. 216, §§ 30, 41–43 (Uganda).

¹⁹³ Patents Act, 1993, c. 216, § 31 (Uganda); TRIPs, *supra* note 7, at 1210; see Sovacool, *supra* note 5, at 397.

¹⁹⁴ Patents Act, 1993, c. 216, § 31 (Uganda); TRIPs, *supra* note 7, at 1210.

¹⁹⁵ Sovacool, *supra* note 5, at 397.

¹⁹⁶ WANGWE ET AL., *supra* note 173, at 16; see Sovacool, *supra* note 5, at 397–98. Patent application fees in Uganda are much lower than patent application fees in the U.S. Compare WANGWE ET AL., *supra* note 173, at 16 with Sovacool, *supra* note 5, at 398.

¹⁹⁷ Sovacool, *supra* note 5, at 401.

fees when compared internationally.¹⁹⁸ By maintaining reasonable transaction costs,¹⁹⁹ Uganda ensures patent protection is within financial reach of its research institutions and universities.

VI. BENCHMARKS FOR DEVELOPING COUNTRIES: STRATEGIES TO SPUR INNOVATION THROUGH IP LEGISLATION

From the analysis of Uganda's Patent Law in relation to its growth in research, it is possible to discern best practices that can serve as benchmarks for other developing countries in legislating stronger patent laws that will encourage innovation.

First, stronger patent laws may encourage foreign investment in a country's research and development.²⁰⁰ With the ability to increase research and development expenditures, a country will have greater financial support to encourage innovation, as indicated by Uganda's increased foreign investment in its R&D and, in turn, its increased research registrations and R&D expenditures.²⁰¹ Furthermore, when other countries are confident that their contributions to joint projects with a developing country will be protected under a strong IP regime, the developing country may enjoy an inflow of technology and other innovations from their foreign partners that, in turn, can contribute to their ability to generate new innovations.²⁰²

Second, although stronger patent laws may encourage collaboration with other countries and provide increased financial support for innovation through foreign investment,²⁰³ patent law should not exceed the minimum requirements stipulated in the TRIPs Agreement. By adhering to the minimum standards for patent protection, a country can avoid hindering innovation under an overly stringent patent system that creates a maze of IP rights too complicated for researchers to

¹⁹⁸ Erwin F. Berrier, Jr., *Global Patent Costs Must Be Reduced*, 36 IDEA: J. L. & TECH. 473, 491, 501-505 (1996); WANGWE ET AL., *supra* note 173, at 16.

¹⁹⁹ Erwin F. Berrier, Jr., *Global Patent Costs Must Be Reduced*, 36 IDEA: J. L. & TECH. 473, 491, 501-505 (1996); WANGWE ET AL., *supra* note 173, at 16.

²⁰⁰ See Gould & Gruben, *supra* note 78, at 324; Lippoldt, *supra* note 3, at 11.

²⁰¹ See ECURU ET AL., *supra* note 6.

²⁰² See Gould & Gruben, *supra* note 78, at 327. Without strong intellectual property rights protection, foreign innovators may exercise more caution in selling their products to a country because foreign firms may fear their purchase agreements would be violated. *Id.*

²⁰³ See *id.*

navigate.²⁰⁴ If a country does add provisions in its patent legislation that extend beyond the minimum required standards for TRIPs compliance, it should focus drafting such provisions for the benefit of the domestic market and economic growth. For instance, by providing for compulsory licenses, a country may protect its domestic market and mitigate monopolistic behavior by companies seeking patents to keep certain advancements from commercialization.²⁰⁵

Third, limiting the term of protection granted under a patent to the minimum required will help ensure the country's public domain remains rich for researchers to rely on for their own innovations.²⁰⁶ Lastly, by keeping transaction costs low, a country may avoid discouraging innovation by keeping patent protection and other forms of IP protection within reach of resource-limited research institutions and universities.²⁰⁷ In addition, by creating an IP rights management policy at the university level, a country can encourage universities to participate in the national dialogue about optimal IP rights to facilitate innovation. This in turn may foster research institutions and universities that are more aware of the incentives to engage in innovation and to better guide individual researchers to seek the different forms of protection available to them.

VII. CONCLUSION

By fostering an environment that encourages the accumulation of knowledge, IP rights will increase innovation.²⁰⁸ The key to creating such an environment is to strike a balance between strong protection for researchers and their innovations, as well as foreign and international partners, and simple, effective patent laws that do not rob a country of its public domain or the ability of its research institutions and universities to afford and to secure protection for innovations.²⁰⁹ By analyzing how

²⁰⁴ See Sovacool, *supra* note 5, at 399. As Lippoldt states, "Conformity with the minimum global IPR standards has become, in effect, a prerequisite for developing countries to access and exploit the full range of global technologies and know-how." Lippoldt, *supra* note 3, at 11.

²⁰⁵ See Gould & Gruben, *supra* note 78, at 326–27.

²⁰⁶ Patents Act, 1993, c. 216, § 31 (Uganda); TRIPs, *supra* note 7, at 1210; see Sovacool, *supra* note 5, at 397.

²⁰⁷ See Sovacool, *supra* note 5, at 397, 401.

²⁰⁸ Gould & Gruben, *supra* note 78, at 328.

²⁰⁹ Lippoldt, *supra* note 3, at 4. Lippoldt states, "IPRs provide the owners of intellectual property with legal means to prevent abuse of their rights, thereby enabling them to better capitalize on their innovations. At the same time, under the various systems governing IPRs, the rights of the

Uganda's patent legislation complies with TRIPs requirements and the effects of strong IP legislation in general on university research and development, benchmarks can be identified that other developing countries can use to assess their national IP legislation. Stronger IP rights combined with an IP rights management policy at the university level have allowed Uganda to articulate its focus on using IP rights to encourage university research, facilitating the development of innovations as intellectual property, and achieving economic growth through commercialization made possible by its robust, TRIPs-compliant patent law. Using these benchmarks as policy guidelines—which include adhering to minimum requirements, maintaining low transaction costs, and granting reasonable terms of patent protection—in combination with an IP management policy that involves universities and research institutions in the national dialogue concerning IP protection, developing countries can draft patent legislation that will achieve a balance of protection and flexibility, which in turn will spur innovation by facilitating university research and development.

owner are balanced against certain obligations (e.g. the public disclosure of certain information related to patents), limits on the extent of protection (e.g. in terms of duration of patents or copyrights, granting of research exemptions, or public health waivers) and some other constraints (e.g. with respect to anti-competitive practices in contractual licenses)." *Id.*