

AN ANALYSIS OF THE ECONOMIC/LEGAL LITERATURE ON THE EFFECTS
OF IP RIGHTS AS A BARRIER TO ENTRY

commissioned by the Secretariat

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I. RESEARCH MISSION

In connection with the World Intellectual Property Organization (WIPO) project on Intellectual Property and Competition Policy, WIPO commissioned the Center on Law and Information Policy at Fordham University School of Law (CLIP) to undertake a review of relevant literature in order to analyze the role of intellectual property (IP) rights as a barrier to entry. In particular, WIPO sought information on literature that addressed developing countries and that was empirical in nature. WIPO further hoped that the study would reveal literature that identified factors in the use of IP rights as exclusionary measures. And, lastly, WIPO sought information on whether additional empirical studies will be feasible and/or necessary to better understand how and how much IP rights can be used to bar or delay the entry of competitors.

A. Research Methodology

To conduct the literature review, CLIP developed a methodology to research the relevant literature as comprehensively as possible. CLIP used a search approach and search terms, described below, to provide consistent and thorough identification of relevant literature in the major academic reference databases. Once publications were identified, CLIP then reviewed these publications to determine if they were, in fact, appropriate for inclusion in the bibliography. From the bibliography constructed through this approach, CLIP then categorized the publications to identify trends in the literature.

B. Search Approach

CLIP began by selecting a number of broad search terms to use across the major academic reference databases. CLIP's research team was assisted in this selection process by Fordham competition law professors Mark Patterson and Barry Hawk, as well as Fordham Research Librarian, Todd Melnick. The search strategy was based on the idea that key words would be combined with types of IP (e.g. barriers to entry and copyrights, barriers to entry and patents, barriers to entry and trademarks) and then systematically used in searches in each of the major academic reference databases.

This approach was favored for a number of reasons. First, it is comprehensive. The strategy ensures that as long as the two search terms are mentioned in the publication, the publication will show up in the search results. While the search results would have many false positives, the approach assured that all possibly relevant publications would most likely be identified. Similarly, the omission of a relevant publication would be inadvertent and less likely to occur. Second, the searches are reproducible. The systematic nature of this approach ensures that any person can replicate the completeness of CLIP's work and can update the research as needed in the future.

In addition, a date filter was selected for two reasons. First, searches were generally limited to literature published subsequent to January 1, 2000, in order to have meaningful results capturing the current trends. Some of the research databases used by the CLIP team catalog a large number of journals and therefore would return an unmanageably large set of search results – e.g. some searches with the date limitation still yielded in excess of 5,000 results. For these large databases, the date filter helped

to target meaningful results for the actual trends. Second, seminal literature published prior to 2000 would emerge from the CLIP review of search results. CLIP determined that following the completion of the initial searches, the research team would thoroughly review a selection of the articles deemed most relevant. During this review, the team would pay close attention to the articles' references in order to identify any sources that might have been missed in the comprehensive searches. To the extent the more current literature relied on works published prior to 2000, such works would be referenced in the articles reviewed by the research team.

C. Selection of Search Terms

CLIP constructed two layer composite searches. As a first layer, each major field of IP was used as a search term: "patent", "copyright" and "trademark." In addition, CLIP used three other search terms for types of IP: "trade secret", "database right" and "TRIPS" (the common acronym for the WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights). The search query terms for the major fields of IP were meant to assure a wide-ranging result. The addition of the terms "trade secret" and "database right" were intended to yield publications that might involve industries where the other types of IP did not play a role. Finally, the addition of the term TRIPS was intended to uncover results that describe the international IP regime as a whole, rather than individual types of property rights in particular.

As a second layer, each of the first layer terms was then combined with a second term. The second layer terms were broken down into four groups. The first group addressed market entry (or the lack thereof) and consisted of the search terms: "entry barriers", "market entry", "entry cost." These search terms tracked the precise focus of this study. The second group targeted those articles relating to the use of IP as a means to divide a common market (such as the European Community) into separate areas. The third group consisted of the term "economic development." This term was included to assure that articles addressing the role of IP as a barrier to entry for (enterprises in) developing countries would be captured by the searches. The fourth group was intended to target the use of IP as a part of entrepreneurial activity and consisted of the search terms: "merger" and "start-up." These terms sought to identify literature that addressed the cost or benefit of IP in starting up and selling a business.

The research approach and the use of the search terms are best visualized as a matrix. See Table 1 below. Searches were conducted using the combination of terms reflected by each of the boxes in the matrix (e.g. "patent" was searched in combination with each of the second layer terms on the vertical axis of the matrix.)

Table 1

		Patent	Copyright	Trade secret	Trademark	Database rights	TRIPS
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I	Barrier(s) to entry						
	Entry barrier(s)						
	Market entry						
	Entry cost						
II	Market integration						
	Market segmentation						
III	Economic development						
IV	Merger						
	Joint venture						
	Start-up						

During the course of the research, some of the searches resulted in overwhelming volumes of false positives within possibly relevant literature—e.g. total yields exceeding 5,000 hits in some cases. For these cases, additional search query criteria were introduced to more accurately pinpoint the number of truly relevant publications. In some cases, the search queries included a condition that certain terms should appear more than 10 times in the publication for it to be considered relevant. In other cases, the search queries included a condition that the first and second layer terms should be found within a certain proximity to each other – e.g. “patent” had to be within 25 words of “merger” in order for the publication to be considered relevant.

D. Databases

CLIP selected a set of major reference databases of academic literature to assure a comprehensive set of sources for economic, legal and law-related periodicals.¹ The research covered the following reference databases:

1. ABI/Inform (ProQuest) – This is a database that offers full-text search in over 3,000 journals, including periodicals on business, economics and finance.
2. EconLit - This is an index that covers a wide range of world-wide economics literature, some of which is available for full-text search.

¹ CLIP limited its research to English language publications.

3. Index of Foreign Legal Periodicals - This is an index of foreign (i.e. non-US) legal periodicals that only includes publication titles and does not offer full-text search.
4. Index of Legal Periodicals - This is an index that covers the 500 most significant legal periodicals. Like the Index of Foreign Legal Periodicals, however, it only includes titles and does not allow full-text search.
5. JSTOR – This is a database that offers full-text search into more than a 1,000 journals across several disciplines, emphasizing law, economics and political science.
6. Legal Resources Index (LegalTrac) – This is a database that provides full-text search to over 875 legal periodicals and contains an additional 1,000 law-related articles from other fields.
7. LexisNexis & WestLaw - Together, these two databases offer full-text search for virtually every American legal periodical, as well as numerous foreign and international journals.
8. Social Sciences Research Network (SSRN) – This is a database containing final versions and drafts of articles that are often published in major academic law and economic journals. The database covers most of the social science disciplines and typically offers access to articles before they are published in print.
9. WorldCat - This index provides an overview of most publications available in the world's libraries. It's limited by the lack of a full-text search, although most entries have subject and keyword headings.

E. Review of Search Results

Each CLIP team member was assigned one or more specific databases to research according to the search protocol. The initial searches produced approximately 28,000 potentially relevant results.² These initial results, however, included a substantial number of false positives and duplicates, so an additional level of filtering was necessary. In the next round of filtering, the CLIP team members reviewed the citations and abstracts, when available, to filter out the false positives and duplicates. False positives were identified using the following methodology. First, publications that were clearly outside the scope of this literature review were marked as “not relevant.” When a search result included certain search terms, but did not focus on IP, competition, market entry or economic development as its subject matter, the publication was marked as “not relevant.” Second, publications were marked as “not relevant” when they contained only a casual or limited examination of IP as a barrier to market entry. For example, if a search term was found in the text of the article only once or twice, this indicated that the article was not focused on IP as a barrier to entry and was of low relevance. Similarly, if the search term was not found throughout the article, but was concentrated within a few paragraphs of the article, the article as a whole would typically be focusing on an unrelated matter and not be relevant. Lastly, an article in which the search term only appeared in the footnotes, rather than its body, was assumed to be of lower relevance. Third, towards the beginning of this review phase, a meeting was held to find common ground among the team members regarding which articles were relevant and which were not. Finally, the researchers were instructed to mark a publication “possibly

² These results were primarily journal articles, though they did include books and book chapters. Throughout this report, we refer to these results as “articles” and delineate in the footnotes and bibliography those that are books or book chapters.

relevant” when in doubt of the relevance. These possibly relevant articles were then reviewed by another team member and, if necessary, reviewed again in a research team meeting. Whenever an article was identified as relevant, its citation was stored for later review and categorization.

After this phase of filtering, the CLIP research team identified approximately 460 relevant publications for analysis. Once all the relevant citations were identified, the CLIP team members categorized them by type of IP and then by sub-category according to issues addressed by the literature.

II. FINDINGS

The literature review produced approximately 460 relevant publications that examine IP as a barrier to market entry. From this sample several large trends were noted.

First, the majority of the literature in this field is not truly empirical. Most of the literature is descriptive or theoretical. Empirical studies of IP as a barrier to market entry are rare, emerging mostly in the context of patent rights.

Second, the CLIP team noted that certain substantive rights were examined in the literature more frequently than others. A large number of articles focus exclusively on patent rights³ while a substantially smaller number examine copyright, trademark and trade secret.⁴ Another large group of articles examine IP rights generally rather than focus on a single specific substantive right.⁵

Third, a large number of articles discuss IP and competition issues generally without focusing on specific problems or issues. Notably, the CLIP team identified a number of publications that comment generally on how competition law and IP law overlap and impact each other without more specific focus.

Fourth, although much of the literature appears to be broad in scope and focus, some subject matter trends did appear.

All of these trends are identified below with respect to (A) literature generally discussing IP rights; (B) literature examining patent law; (C) literature focused on copyright law;

³ 206 articles focus exclusively on patent rights.

⁴ 34 articles examine copyright, 23 examine trademark and 8 examine trade secret.

⁵ 192 articles appear to focus on intellectual property rights generally.

(D) literature focused on trademark law; and (E) literature addressing trade secret doctrine.

A. IP Generally

The CLIP research team identified 192 publications that examine IP rights and market entry generally. These sources addressed broad IP issues associated with market access and development. These articles can be grouped and are analyzed below according to a set of trends: (1) IP rights scope and market entry barriers; (2) corporate IP strategies and markets; (3) licensing and markets; (4) IP litigation and its effects on market entry; (5) information, communications and technology sector (ICT); (6) geographic case studies; (7) IP protection as a barrier to international trade; and (8) linkage between international IP protection standards and economic development.

1. IP Rights Scope and Market Entry Barriers

A group of articles examine how a broad scope of IP rights may act as a barrier to market entry. This trend in the publications largely focuses on how the scope of IP rights can create antitrust problems in the contexts of market entry, innovation, and competition. Some authors specifically focus on high profile domestic cases such as the Microsoft antitrust litigation.

Most publications note the general tension between antitrust law and IP law. Both exist as separate regulatory regimes in most countries, but the articles emphasize that they share the same goal of fostering an efficient market for goods and services. Many observe, however, that the expanding scope of IP rights has the potential to create market barriers that are at odds with the antitrust laws. Many studies explore the appropriate scope of IP rights to balance the two legal regimes. They examine industry markets, structures, and processes from both legal and economic perspectives to determine how to strike the appropriate balance between facilitating competitive markets and developing IP rights regimes. Most publications agree that strong IP protection has the potential to be anticompetitive and hinder market entry. Some conclude that broad IP rights can create and maintain monopolies.⁶ Others suggest that IP and antitrust law are not fundamentally antagonistic, but that IP rights may be used to extend monopolies beyond the scope of IP protection.⁷ These authors emphasize error costs and note the anticompetitive harm that could result from a false ruling for a plaintiff in an IP dispute.

⁶ See, e.g., Rubin, Jonathan L., "The IP Grab: The Struggle between Intellectual Property Rights and Antitrust: Patents, Antitrust, And Rivalry In Standard-Setting," *Rutgers Law Journal* 38 (2007): 509; Ghosh, Shubha, "Decoding and Recoding Natural Monopoly, Deregulation, and Intellectual Property," *University of Illinois Law Review* (2008): 1125.

⁷ See, e.g., Cotter, Thomas F., "The Procompetitive Interest in Intellectual Property Law," *William & Mary Law Review* 48(2) (2006): 483; Williamson, Dean V., "Antitrust, Innovation, and Uncertain Property Rights: Some Practical Considerations," *Duke Law & Technology Review* (2010): 1.

These publications also examine patent thickets, anticompetitive agreements, joint ventures, and mergers to illustrate how IP rights holders can exploit monopolies obtained through IP rights. Despite this anticompetitive potential, most authors agree that IP rights remain critical for the efficient functioning of markets, although some authors argue that IP might promote competition in ways inconsistent with antitrust laws.

Many authors also examine the general appropriateness of applying antitrust principles to IP. A number of authors highlight the economic and political dimensions of this trend. Some remain critical of the presumption that IP rights automatically confer market power to their owner. Scholars remain divided on solutions to resolving the conflict between the two bodies of law. A few authors suggest removing IP commercialization from antitrust scrutiny altogether.⁸ They emphasize that innovation depends upon collaborative research and development and collaboration among competing entities produces innovation. Some note empirical research that has suggested parties with shared know-how and capabilities significantly contribute to such productive collaboration but may run afoul of antitrust laws.⁹ In contrast, other authors propose ways to reconcile both overlapping regimes. For instance, prominent antitrust scholar Herbert Hovenkamp, contends that courts can determine the legality of IP settlement agreements in most cases without inquiring into the merits of the dispute. He argues, however, that in the narrow set of cases where the merits of the IP dispute are relevant, antitrust's rule of reason is unhelpful and courts should instead inquire into the validity, enforceability, and infringement issues in the underlying case, with particular sensitivity to both the type of IP right at issue and the industrial context of the dispute.¹⁰

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⁹ See, e.g., Williamson, Dean V., "Antitrust, Innovation, and Uncertain Property Rights: Some Practical Considerations," *Duke Law & Technology Review* (2010): 1.

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2. Corporate IP Strategies and Markets

A trend exists in the literature with a group of articles that focus on how IP rights impact corporate business strategies in order to permit or restrict entry into new markets.

Some of these articles examine the impact of IP law regimes on the corporate activities of small innovative firms trying to enter markets.¹¹ These authors note that small firms have traditionally been important sources of research and development in technological industries, while larger firms gain advantages from economies of scale and knowledge accumulated from previous research and development. They note, however, that few IP law doctrines currently consider their needs or activities. Focusing on market structure and efficiency, some authors suggest that IP regimes should make greater efforts to provide small firms with some type of preferential treatment to encourage innovation. Scholars focus on both technology markets and capital markets. Overall, however, as one author notes, this area lacks empirical research.¹²

These articles also consider the role that IP rights have in corporate mergers and joint ventures.¹³ They examine how corporate decisions regarding IP may open or limit markets. In these discussions, the authors typically consider how antitrust regimes applicable to mergers and joint ventures impact corporate strategies involving IP. Authors note the recent expansion of merger enforcement worldwide.

Some scholars also explore the importance of IP rights in coordinating research joint ventures.¹⁴ These arrangements involve agreements among companies to collaborate in conducting research and development. These authors also consider the antitrust implications of sharing IP rights, particularly how joint ventures among competitors can risk antitrust violations. Some authors explore the notion of innovation markets. Most authors overall conclude that research fuels the engine of innovation and is integral in producing competitive industries.

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¹¹ Dilley, James, "The Effect of EC Competition Law on Intellectual Property Valuations: Implications for Corporate Strategies," *Oregon Review of International Law* (2002): 104; Klapper, L. L. L. R. R., "Business Environment and Firm Entry Evidence from International Data," NBER Working Paper Series, No._10380, (2004) available at <http://www.nber.org/papers/w10380>; Meurer, Michael J., "Inventors, Entrepreneurs, and Intellectual Property Law," *Houston Law Review* 45 (2008): 1201.

¹² Id.

¹³ Page, William H., "Antitrust Review of Mergers In Transition Economies; A Comment, With Some Lessons From Brazil," *University of Cincinnati Law Review* 66 (1998): 1113; Dilley, James, "The Effect of EC Competition Law on Intellectual Property Valuations: Implications for Corporate Strategies," *Oregon Review of International Law* (2002): 104; Eklund, William A., "Intellectual Property Rights in Joint Research Ventures with the National Laboratories," *Hastings Communications & Entertainment Law Journal* 17 (1995): 841.

¹⁴ See supra note 10.

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3. Licensing and Markets

This group of articles examines how exclusive rights and licensing can affect economic development and market entry. The articles in this subset explore licensing as a catalyst for economic development¹⁵, the antitrust implications associated with refusal to license IP,¹⁶ and international licensing as an enabler for strengthening IP rights in developing countries.¹⁷

Some articles in this subset use empirical data to explore the impact of licensing on market entry.¹⁸ For example, one paper studies technology transfer by analyzing data related to international licensing.¹⁹ The study uses four quantitative indices to analyze the strength of patent rights, copyrights, trademark rights, and the effectiveness of enforcement measures. It then uses firm-level data on licensing to explore the relationship between licensing and IP rights. Like other articles in this subset, this study provides support for the proposition that there is a positive correlation between the strength of IP rights and international licensing of technologies.

Many authors generally agree, therefore, that licensing has a positive effect on the economy of developing countries.²⁰ They argue that the technology transfer that accompanies licensing activity can serve as a valuable catalyst to economic development. As a result, licensing is generally encouraged in the literature and entities

¹⁵ Hovenkamp, Herbert, Mark Janis, and Mark A. Lemley, "Anticompetitive Settlement of Intellectual Property Disputes," *Minnesota Law Review* 87 (2003): 1719.

¹⁶ Coco, R., "Antitrust Liability for Refusal to License Intellectual Property: A Comparative Analysis and the International Setting," *Marquette Intellectual Property Law Review* 12(1) (2008): 1; Ong, Burton, "Building Brick Barricades and Other Barriers to Entry : Abusing a Dominant Position By Refusing to License Intellectual Property Rights," *European Competition Law Review* 26 (2005): 215.

¹⁷ Park, Walter G. and Douglas Lippoldt, "International Licensing and the Strengthening of Intellectual Property Rights in Developing Countries During the 1990s," *OECD Economic Studies* 40 (2005): 8.

¹⁸ See, e.g., *id.*

¹⁹ *Id.*

²⁰ See, e.g., Basalamah, Salah, "Compulsory Licensing for Translation: An Instrument of Development?" *IDEA* 40 (2000): 503; Coco, R., "Antitrust Liability for Refusal to License Intellectual Property: A Comparative Analysis and the International Setting," *Marquette Intellectual Property Law Review* 12(1) (2008): 1.

that refuse to license their IP rights are accused of behaving in an anti-competitive manner. Several articles specifically explore the imposition of antitrust liability, both in the United States and internationally, for a failure to license, but a consensus on the benefits of such proposals has not emerged.²¹

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4. IP Litigation and its Effects on Market Entry

A number of articles explore how the threat of IP litigation can act as a barrier to market entry and how the negative effects on market entry can have antitrust implications.

Particularly, the literature in this subset explores the potential for abuse of IP rights to limit competitors from entering the market.²² Articles in this group explore how IP

²² Hovenkamp, Herbert, Mark Janis, and Mark A. Lemley, “Anticompetitive Settlement of Intellectual Property Disputes,” *Minnesota Law Review* 87 (2003): 1719; Meurer, Michael J., “Controlling Opportunistic and Anti-competitive Intellectual Property Litigation,” *Boston College Law Review* 44 (2003): 509.

owners use threats of litigation to extract higher fees than otherwise negotiable and that consequently impose higher barriers to entry. Authors argue that the ease of acquiring IP rights, the broadness of many IP assets and the unpredictability of IP litigation can cause IP owners to abuse the legal system. Abuse will typically involve a rent-seeking party who attempts to stretch the scope of his or her rights.

The literature in this section also suggests that while IP rights essentially grant their owners a limited monopoly, courts can control abusive cases through the strategic administration of judicial proceedings.²³ Proposed methods of combating anti-competitive behavior include imposition of clearer demarcations of the boundaries of IP rights, and using procedural methods to mitigate the harm of frivolous IP litigation.

Other articles consider how many IP disputes are settled out of court in an anticompetitive matter.²⁴ One article suggests that while there are often competitive consequences linked to the settlement of IP disputes, many of these competitive consequences would exist regardless of the merit of the IP rights based arguments in the case.²⁵

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²³ See *supra* note 21.

²⁴ Hovenkamp, Herbert, Mark Janis, and Mark A. Lemley, "Anticompetitive Settlement of Intellectual Property Disputes," *Minnesota Law Review* 87 (2003): 1719.

²⁵ *Id.*

Romary, John M. "Protecting Intellectual Property Rights in the United States through Litigation, Arbitration and Mediation." In *Intellectual Property Rights in Central and Eastern Europe*, edited by Elmar Altvater and Kazimiera Prunskiene, 1. Amsterdam: IOS Press, 1998.

5. Information, Communications and Technology Industries

A small subset of articles focuses on how IP rights act as a barrier to market entry within the ICT industries. This subset of articles is largely focused on software and information technology.

These authors discuss the challenges of research and development financing and investment in the high tech industries. Some argue that effective enforcement is critical to facilitating financing and note that firms in areas with better systems of enforcement of IP rights invest more in research and development.²⁶ They conclude that IP rights enforcement in high tech industries fosters growth through financing and investments in research and development.

Other authors note how strong IP protection of technology can be used in an anticompetitive way to lock in consumers and exclude competitors.²⁷ They focus on how companies use such IP rights to prevent copying and interoperability with other products. These authors suggest that such practices exclude competition and foster market power and they examine how competition law can address anti-competitive conduct that results from the exercise of IP rights in the context of technology.

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Ang, James S., Yingmei Chen and Chaopeng Wu. "Does Enforcement of Intellectual Property Rights Matter? Evidence from Financing and Investment Choices in the High Tech Industry." FSU College of Law, Law, Business & Economics Paper No. 09-12. (2009) *available at* <http://ssrn.com/abstract=1357045>.

Blevins, J. "Death of the Revolution: The Legal War on Competitive Broadband Technologies." *Yale Journal of Law & Technology* 12 (2009): 85.

²⁶ See, e.g., Blevins, J., "Death of the Revolution: The Legal War on Competitive Broadband Technologies," *Yale Journal of Law & Technology* 12 (2009): 85.

²⁷ See, e.g., Clapperton, D. and S. G. Corones, "Locking in Customers, Locking Out Competitors: Anti-Circumvention Laws in Australia and Their Potential Effect on Competition in High Technology Markets," *Melbourne University Law Review* 30(3) (2006): 657.

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6. Geographic Case Studies

A number of articles examine how IP rights impact market entry in specific countries or geographical regions. Many of these studies focus on broad geographic regions, while others are more narrowly focused on individual countries. Regions with more robust coverage are Asia,²⁸ Europe generally,²⁹ and Central and Eastern Europe³⁰. Many of the regional studies compared IP rights between high-income and developing regions.

²⁸ World Intellectual Property Organization, *Intellectual Property in Asian Countries: Studies on Infrastructure and Economic Impact* (Geneva, Switzerland: World Intellectual Property Organization, 2009).

²⁹ Heimler, Alberto and Robert D. Anderson, "What Has Competition Done for Europe? An Inter-Disciplinary Answer," *Aussenwirtschaft* 4 (2007).

³⁰ See, generally, *Intellectual Property Rights in Central and Eastern Europe*, edited by Elmar Altvater and Kazimiera Prunskiene, 57 (Amsterdam: IOS Press, 1998).

Country-specific studies explored IP rights in Egypt,³¹ Brazil,³² Australia,³³ Argentina,³⁴ Japan,³⁵ Nigeria,³⁶ Vietnam,³⁷ and Taiwan,³⁸ among others.

These articles focus on specific geographic regions to test theories or demonstrate certain themes. Themes explored in this group include the TRIPS regime and its effects on developing countries, the impact of TRIPS on foreign direct investment (FDI), the role of IP rights in the transition of a country's economy to a service-based economy, and technological advancement as a catalyst for changes in IP regimes.

The articles related to TRIPS tend to focus on developing countries.³⁹ These articles point out that while the requirements set out under TRIPS may be optimal for Western countries, they may not be appropriate for developing countries for both economic and cultural reasons. Through specific country case studies, these articles suggest that in order for the promises of TRIPs to be realized in developing countries, IP laws should be narrowly tailored to each country based on its unique culture and characteristics. It is also noted in many of these articles that Western conceptions of IP rights may not be in line with the cultural and political circumstances of developing countries.⁴⁰

³¹ Rizk, Nagla and Lea Shaver, *Access to Knowledge in Egypt, New Research on Intellectual Property, Innovation and Development* (London: Bloombury, 2010).

³² Shaver, Lea Bishop, *Access to Knowledge in Brazil: New Research on Intellectual Property, Innovation and Development* (New York: A & C Black Publishers Limited, 2010).

³³ DeBoos, Rodney, "Australia: Licensing Opportunities in the Medical and Biotechnology Industry," in *Licensing Best Practices*, ed. Robert Goldscheider (New York: John Wiley & Sons, 2002), 429; Sanderson, J. and K. Adams, "Are Plant Breeder's Rights Outdated? A Descriptive and Empirical Assessment of Plant Breeder's Rights in Australia, 1987-200," *Melbourne University Law Review* 32(3) (2008): 980.

³⁴ Czub, Kimberly A., "Argentina's Emerging Standard of Intellectual Property Protection: A Case Study of the Underlying Conflicts between Developing Countries, TRIPS Standards, and the United States," *Case Western Reserve Journal of International Law* 33 (2001): 191.

³⁵ Schlicher, John W. "Antitrust and Competition Law Limits on Licensing Practices in Japan." *Computer & Internet Lawyer* (2006).

³⁶ Adeyinka, A. G., "Intellectual Property Rights in Developing Countries: Nigeria's Copyright Decree, 1988," in *The Law and Economic Development in the Third World*, ed. P. E. Bondzi-Simpson, (Westport, Conn. and London: Greenwood, Praeger, 1992) 43-81.

³⁷ Schlicher, John W., "Antitrust and *Competition* Law Limits on Licensing Practices in Japan," *Computer & Internet Lawyer* (2006).

³⁸ Chen, Tain-Jy and Cheng Li, *The New Knowledge Economy of Taiwan* (Northampton, MA, 2004).

³⁹ Schlicher, John W., "Antitrust and Competition Law Limits on Licensing Practices in Japan," *Computer & Internet Lawyer* (2006).

⁴⁰ *Id.*

Other articles use a geographic focus to explore the impact of TRIPS on foreign direct investment (FDI).⁴¹ Some of these articles study the interplay between TRIPS and FDI in the pharmaceutical industry within a specific geographic area.⁴² These articles explore how strong IP rights create a market-friendly enabling environment that will encourage FDI.⁴³ For example, one article finds that strengthening IP rights has a positive effect on FDI and that TRIPS increases the correlation between IP rights and FDI.⁴⁴ The article also points out, however, that while IP rights are a critical component of maximizing the appeal of FDI in developing countries, it is only one of many drivers.⁴⁵ It is notable that all of these articles focus their analysis on a specific country or geographic region in order to draw conclusions about the overall correlation between IP protection and FDI.

Another group of articles focus on the role of IP in the transformation of a country's economy from a labor-based to a service-based economy.⁴⁶ Specifically, these articles focus on how IP rights affect access to knowledge. Authors discuss what role government regulation should play in ensuring access to knowledge.⁴⁷ Many of these articles focus on how to promote access to biotechnology, copyrightable works, and medicines. They discuss what actions can be taken by the governments of developing countries to utilize IP as a tool for development.⁴⁸ Some articles also explore how

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- ⁴¹ Czub, Kimberly A., "Argentina's Emerging Standard of Intellectual Property Protection: A Case Study of the Underlying Conflicts between Developing Countries, TRIPS Standards, and the United States," *Case Western Reserve Journal of International Law* 33 (2001): 191; Kogan, Lawrence A. "Rediscovering the Value of Intellectual Property Rights: How Brazil's Recognition and Protection of Foreign IPRs Can Stimulate Domestic Innovation and Generate Economic Growth," *International Journal of Economic Development* 8(1-2) (2006): 15; Adams, S., "Intellectual Property Rights, Investment Climate and FDI in Developing Countries," *International Business Research* 3(3) (2010): 201-209.
- ⁴² Czub, Kimberly A. "Argentina's Emerging Standard of Intellectual Property Protection: A Case Study of the Underlying Conflicts between Developing Countries, TRIPS Standards, and the United States." *Case Western Reserve Journal of International Law* 33 (2001): 191.
- ⁴³ Kogan, Lawrence A., "Rediscovering the Value of Intellectual Property Rights: How Brazil's Recognition and Protection of Foreign IPRs Can Stimulate Domestic Innovation and Generate Economic Growth," *International Journal of Economic Development* 8(1-2) (2006): 15.
- ⁴⁴ Adams, S., "Intellectual Property Rights, Investment Climate and FDI in Developing Countries," *International Business Research* 3(3) (2010): 201-209.
- ⁴⁵ *Id.*
- ⁴⁶ Chen, Tain-Jy and Cheng Li, *The New Knowledge Economy of Taiwan* (Northampton, 2004).
- ⁴⁷ Shaver, Lea Bishop, *Access to Knowledge in Brazil: New Research on Intellectual Property, Innovation and Development* (New York: A & C Black Publishers Limited, 2010).
- ⁴⁸ Nurton, James, "Africa Turns to IP for Development," *Managing Intellectual Property* (2008).

government policies can serve as a counterweight to the anti-competitive practices of firms.⁴⁹

Another subset of articles explores how technological advancement acts as a catalyst for changes in IP law within specific geographic regions.⁵⁰ These articles note that IP laws tend to evolve as new technologies are introduced and create new legal challenges. While one author argues that IP laws in the U.S. have historically been very malleable, and have generally followed the needs of institutions,⁵¹ other articles suggest that allowing the legal structure of a country to evolve with the economic structure may not be appropriate for developing countries.⁵² This group of authors suggests that, before a "critical turning point," strengthening IP laws can actually have negative effects on the economic development of a country.⁵³ They note that developing countries struggle to balance their obligations under TRIPS with their need to maintain IP laws that are liberal and flexible enough to stimulate economic development. One author argues that, as a result, developing countries may enact Western style IP laws but fail to enforce them.⁵⁴

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⁴⁹ Heimler, Alberto and Robert D. Anderson, "What Has Competition Done for Europe? An Inter-Disciplinary Answer," *Aussenwirtschaft* 4 (2007).

⁵⁰ Khan, B. Z., "Technological Innovations and Endogenous Changes in U.S. Legal Institutions, 1790-1920," NBER working paper series no. 10346 (2004) available at <http://www.nber.org/papers/w10346>; Lapp, John S. C. C., C. M. Craig M. Newmark, et al. "A Study of Intellectual Property Rights Protection in Developing Countries," (2004) available at <http://www.lib.ncsu.edu/resolver/1840.16/201>; Sell, S. K., "Intellectual Property Protection and Antitrust in the Developing World: Crisis, Coercion, and Choice," *International Organization* 49(2) (1995): 315-349.

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⁵³ Id.

⁵⁴ Sell, S. K., "Intellectual Property Protection and Antitrust in the Developing World: Crisis, Coercion, and Choice," *International Organization* 49(2) (1995): 315-349.

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7. IP Protection as a Barrier to International Trade

There is a trend within the literature examining how IP rights generally impact access to markets through trade between two or more countries. These publications consider the impact of international treaties and agreements on international trade and generally examine IP rights in the context of robust international trade systems. They focus on multilateral and bilateral negotiations on IP rights.

A group of articles explores how IP rights have influenced bilateral trade flows and foreign direct investment.⁵⁵ They note that nations have tried to further regulate IP rights through bilateral regimes. Some conclude that these regimes will have significant

⁵⁵ Burrell, Robert and Kimberlee Weatherall, "Exporting Controversy? Reactions to the Copyright Provisions of the U.S.-Australia Free Trade Agreement: Lesson for U.S. Trade Policy," *University of Illinois Journal of Law, Technology & Policy* (2008): 259; Hicks, Matthew R., "Japanese-Auto Products V. BBS--A Threat to Exacerbate U.S.-Japanese Trade Relations?" *Loyola International & Comparative Law Review* 19 (1997): 479; Davis, Michael H. and Dana Neacsu, "Legitimacy, Globally: The Incoherence of Free Trade Practice, Global Economics and their Governing Principles of Political Economy," *University of Missouri Kansas City Law Review* 69 (2001): 733; Leaffer, Marshall A., "Protecting United States Intellectual Property Abroad: Toward a New Multilateralism," *Iowa Law Review* 76 (1991): 273.

long-term economic impacts globally. These studies are typically econometric. Overall, there seems to be general consensus among scholars that bilateral treaties, particularly between the United States and various individual countries, fail to take into account developing countries' needs because these countries do not offer sufficiently sizeable markets to warrant the time and effort of bilateral negotiations.

Another trend in this group of articles focuses on regional or intra-community trade.⁵⁶ Many use the European Union as a case study. For instance, Andreas Reindl examines IP cases and other developments in European competition law to examine the region's pro-free trade approach in IP cases in contrast to the traditional territorial nature of IP rights.⁵⁷

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⁵⁶ See, e.g., Reindl, Andreas, "Intellectual Property and Intra-Community Trade," *Fordham International Law Journal* 20 (1997): 819.

⁵⁷ *Id.*

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8. The Linkage between International IP Protection Standards and Economic Development

There is a trend among the articles to focus generally on whether strong uniform international standards for IP protection will encourage innovation and economic development. While this trend does not directly address market barriers, the articles explored closely related issues and reflect that economic development is a pre-condition for market access. These articles discuss the extent to which conventions and treaties, such as the TRIPS Agreement, have facilitated the growth of IP rights and promoted economic development in the international arena. This subset of articles is largely focused on the impact of these treaties on developing nations and regions, particularly Asia and Latin America. The articles demonstrate that scholars remain divided about whether strong international standards will promote economic growth in the developing world.

Some scholars maintain that strong IP protection, particularly as structured under the TRIPS Agreement, significantly benefits developing countries and promotes their

economic growth.⁵⁸ These authors contend that implementing IP rights systems helps increase foreign direct investment, domestic innovation, and technology acquisition and transfer. They conclude that expanded IP protection has the potential for long-term economic development and technological innovation in developing countries, despite its high initial cost. They therefore encourage developing countries to develop and/or strengthen their IP rights systems.

The articles in support of strong uniform standards often present case studies to demonstrate how IP rights have already stimulated growth in particular countries. For instance, one article reviews empirical data to show how IP rights have promoted economic growth, education, quality of life, and research and development in developed countries.⁵⁹ Another prominent author in the area reviews empirical evidence on the costs and benefits of IP rights systems in facilitating economic development.⁶⁰ He concludes that product innovation depends upon the strength of IP rights in developing countries. He found a positive impact on growth, but also acknowledged that this effect depended on the competitiveness of countries' economies.

In contrast, other authors contend that TRIPS-level protections may actually impede economic growth in developing countries.⁶¹ These authors argue that it is costly for developing countries to fully implement TRIPS requirements because they remain poor, have small, undercapitalized corporations, inadequate education systems, and weak political institutions prone to corruption. These articles suggest that the benefits of strong IP rights systems are contingent upon the implementation of the legal, economic and political structures associated with market liberalization and free market systems. These articles observe that developing countries remain skeptical of developed countries' motives in promoting their Western-based versions of IP protections. Some argue that developing countries' struggle to implement international IP standards may harm their economic development pursuits by facilitating IP rights holders' monopolistic behaviors thereby raising the costs of imitation. These authors remain critical of the correlation between level of IP rights protection and economic development.

A consensus does emerge, however, amongst some authors who recognize that IP regimes represent just one variable that might enhance economic growth in developing

⁵⁸ See, e.g., Homere, Jean Raymond, "Intellectual Property Rights Can Help Stimulate the Economic Development of Least Developed Countries," *Columbia Journal of Law & Arts* 27 (2004): 277.

⁵⁹ *Id.*

⁶⁰ Maskus, Keith E., "Intellectual Property Rights and Economic Development," *Case Western Reserve Journal of International Law* 32(3) (2000): 471.

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countries.⁶² These authors argue that strong IP rights may be growth-enhancing when such rights are combined with other complementary institutional reforms. They conclude that developing economies will most profit from implementing IP rights in the global marketplace if they establish minimum IP standards, build necessary infrastructure, and adopt regulatory safeguards to prevent abuses and promote free entry. For instance, some authors recommend that developing countries should establish strong competition regimes to combat potentially anti-competitive practices, such as abusive licensing, monopoly pricing, unnecessary market segmentation, refusals to deal, excessive pricing, and territorial restraints on outputs, which might thwart potential gains.⁶³ Other authors also emphasize the need for more robust complementary legal regimes such as corporate law and bankruptcy law.⁶⁴ Most authors also emphasize the need for effective judicial enforcement of IP rights, including widely available judicial remedies, adequately resourced public administrations, and proper training for judges.

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B. Patents

The CLIP research team identified 206 publications that specifically examined patent rights as barriers to market entry. Among these publications several specific trends appear in clusters of articles: (1) patent rights scope and market entry barriers; (2) corporate IP strategies and markets; (3) licensing and markets; (4) IP litigation and its effects on market entry; (5) information, communications and technology industries; (6) pharmaceutical industry; (7) biotechnology industry; (8) geographic case studies; (9) patent rights and economic development; (10) the linkage between international patent protection standards and economic development.

1. Patent Right Scope and Market Entry Barriers

A number of articles examine how the scope and breadth of patent rights act as barriers to market entry and affect innovation and competition in domestic industries.

Most of these articles discuss the friction between patent protection and antitrust law. Patents confer rights to exclude others from making, using, or selling the patented invention for a period of time. These rights seek to provide inventors with an incentive to promote innovations. Scholars observe that patents thereby grant patent owners with a limited temporary monopoly. Antitrust law, alternatively, seeks to prevent monopolies. Scholars propose solutions to the conflict between the two legal regimes, which they refer to as the “patent-antitrust paradox.”⁶⁵ Most solutions revolve around concepts of “innovation” as a common denominator that may reconcile the two bodies of law.⁶⁶

Some articles address how strong patent protection has stymied market entry and start-up entrepreneurs.⁶⁷ These authors find that commercial entities seek patents for the sole purpose of disadvantaging competitors, rather than to develop technology or

⁶⁵ See, e.g., Carrier, M. A., “Unraveling the Patent-Antitrust Paradox,” *University of Pennsylvania Law Review* 150(3) (2002): 761; Carrier, Michael A., “Resolving the Patent-Antitrust Paradox through Tripartite Innovation,” *Vanderbilt Law Review* 56 (2003): 1047.

⁶⁶ Bartow, Ann, “Separating Marking Innovation from Actual Invention: A Proposal for a New, Improved, Lighter, and Better-Tasting Form of Patent Protection,” *Journal of Small & Emerging Business Law* 4 (2000): 1; Landman, Lawrence B., “Competitiveness, Innovation Policy, and the Innovation Market Myth,” *St. John's Journal of Legal Commentary* 13 (1998): 223; Leslie, Christopher R., “Antitrust and Patent Law as Component Parts of Innovation Policy,” *Journal of Corporate Law* 34 (2009): 1259.

⁶⁷ See, e.g., Beard, T. R. and D. L. Kaserman, “Patent Thickets, Cross-Licensing, and Antitrust,” *Antitrust Bulletin* (2002): 345(324); Leslie, Christopher R., “The Anticompetitive Effects of Unenforced Invalid Patents,” *Minnesota Law Review* 91 (2006): 101.

innovations.⁶⁸ Others note that patents may be obtained to make the patent holder seem innovative.⁶⁹ Authors observe that companies are often conflicted because patent disclosure rules dissuade companies from patenting their innovations while at the same time companies want to patent their innovations in order to strengthen their market positions.⁷⁰ A few scholars also find that some monopolists knowingly possess invalid patents and represent them as valid.⁷¹ They conclude that antitrust law's treatment of fraudulent invalid patents remains inadequate. Scholars have generally reached a consensus that these are inefficient uses of patents and detrimental to market entry.

In addition, some scholars explore how broad patent rights can suppress industry competition by providing certain IP rights holders with a monopoly.⁷² These scholars primarily focus on the economics of various patent and licensing arrangements and determine how they facilitate monopolistic behaviors. Other articles conclude that patent thickets may hinder innovation and propose alternative regulations such as the adoption of a system of increasing renewal fees.⁷³

A number of articles examine how the expansion of patent rights has impacted innovation.⁷⁴ Some authors note that the United States has undergone a pro-patent movement. Many authors conclude that unlimited expansion of the scope of patent rights can impede innovation, raise barriers to entry, cause a surge in patent litigation, and elevate the costs of innovation associated with defense of patenting. Others argue that patent protection restricts entry by forcing entrants to sufficiently differentiate their production technology.

⁶⁸ See *supra* note 66.

⁶⁹ See, e.g., Richards, John, "Do Overly Broad Patents Lead to Restrictions on Innovation and Competition?" *Fordham Intellectual Property, Media & Entertainment Law Journal* 15 (2005): 947.

⁷⁰ Duguet, Emmanuel and Isabelle Kabla. "Appropriation Strategy and the Motivations to Use the Patent System: an Econometric Analysis at the Firm Level in French Manufacturing." In *The Economics and Econometrics of Innovation*, edited by David Encaoua et al., 267. Dordrecht: Kluwer Academic Publishers, 2000.

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2. Corporate IP Strategies and Markets

A few articles focus on how patent rights impact corporate business strategies in order to permit or restrict entry into new markets. This subset of articles considers the role that patent law has in corporate mergers and joint ventures and how corporate decisions regarding patent rights may open or limit markets. They also explore the value of patents to companies and the role of patents in shaping markets and in shaping corporate development strategies. In addition, these authors consider the antitrust implications of joint research endeavors among competitors. They explore how competitors can use patents to block new entry or stifle competition within an existing market.

Many authors focus on the role of patent rights in the corporate strategies of start-up companies in their early stages.⁷⁵ For instance, one study surveys 1,332 early-stage technology companies and explored entrepreneurs' views of the patent system, i.e., whether they believe it helps or hinders their start-up endeavors, in a variety of industries.⁷⁶ They note high patenting motives in certain industries where companies seek a patent to gain competitive advantages, prevent technology copying, securing financing, and improving their reputation. They also note that companies in other industries elect not to apply for patents because of the high application costs.

⁷⁵ Graham, Stuart J.H., "High Technology Entrepreneurs and the Patent System: Results of the 2008 Berkley Patent Survey," *Berkeley Technology Law Journal* 24 (2009): 1255; Langinier, Corinne, "Are Patents Strategic Barriers to Entry?" *Journal of Economics and Business* 56(5) (2004): 349; Sidak, J. Gregory, "Patent Holdup and Oligopsonistic Collusion in Standard-Setting Organizations," *Journal of Competition Law & Economics* 5(1) (2009): 123; Panagopoulos, Andreas and Park, In-Uck, "Patent Protection, Takeovers, and Startup Innovation: A Dynamic Approach," CMPO Working Paper No. 08/201, May 2008. *available at* <http://www.bristol.ac.uk/cmipo/publications/papers/2008/wp201.pdf>

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3. Licensing and Markets

A number of articles examine how licensing choices regarding patent rights can act as an entry barrier to a specific market sector and, in particular, how licensing can lead to

anticompetitive behavior. These publications consider how exclusive rights and licensing can be used opportunistically to create barriers to market entry. The majority of the literature in this subset focuses on the antitrust implications stemming from refusal to license intellectual property and explores the barriers to market entry that arise from patent holders that refuse to license their IP. The interaction between licensing and antitrust laws in Europe and the United States are compared, as well as proposals intended to address the use of licensing rights to serve anticompetitive motives.

Articles in this subset typically explore the potential for opportunistic abuse that stems from IP rights owners who refuse to license their patents. While patent holders in the U.S. and Europe can typically refuse to license their rights and not be subject to antitrust consequences, this type of licensing behavior is inherently anticompetitive.⁷⁷ Licensing and antitrust doctrines are complementary in that they both “have as their economic focal point the maximization of wealth by enabling the production of consumer goods at the lowest price.”⁷⁸ However, they conflict in that while antitrust law sets out to prevent monopolies, a company that refuses to license their holdings essentially retains a legal monopoly over their patents.

As an example, one article analyzes the European and U.S. systems, and concludes that while the interaction between licensing and antitrust laws largely vary on a case-by-case basis, the European IP regime tends to take a more regulated approach to anticompetitive licensing behavior, while the licensing system in the United States offers more opportunities for patent owners to use licensing as a tool to create barriers to entry.⁷⁹ Similarly, another author notes that in order for licensing regulations to be put in place to remedy anticompetitive practices, there must be “a rational connection between the offense and the remedy.”⁸⁰ Another author examines licensing and competition through the use of non-exclusive patent licensees.⁸¹

Another significant article explores “fair, reasonable and non-discriminatory” terms and conditions, known as FRAND, which is a set of guidelines that attempts to address the issue of anticompetitive behavior stemming from the refusal of patent owners to license their holdings. FRAND is essentially a commitment to offer intellectual property rights to

⁷⁷ Coco, Rita, “Antitrust Liability for Refusal to License Intellectual Property: A Comparative Analysis and the International Setting,” *Marquette Intellectual Property Law Review* 12 (2008): 1; Meyers, Thomas C., “Field-of-Use Restrictions as Procompetitive Elements in Patent and Know-How Licensing Agreements in the United States and the European Communities,” *Northwestern Journal of International Law & Business* 12 (1991): 364.

⁷⁸ *Id.*

⁷⁹ Marks, David H. , “Patent Licensing and Antitrust in the United States and the European Economic Community,” *American University Law Review* 35 (1986): 963.

⁸⁰ Schlam, Lawrence, “Compulsory *Royalty-Free* Licensing as an Antitrust Remedy for Patent Fraud: Law, Policy and the Patent-Antitrust Interface Revisited,” *Cornell Journal of Law & Public Policy* 7 (1998): 467.

⁸¹ Corgill, Dennis S., “Competitive Injury and Non-Exclusive Patent Licensees,” *University of Pittsburgh Law Review* 71 (2010): 641.

licensees on fair, reasonable, and non-discriminatory terms and conditions.⁸² The article notes that while many organizations are committed to FRAND licensing, “there is no universally agreed upon operational definition of that commitment.” The author notes that absent FRAND agreements, companies with patents that are selected to be an industry standard (therefore making their patents essential to all other competitors in the industry) are put in a position to opportunistically abuse this market power. For example, the company could refuse to license or charge “excessively high royalty rates.” The article goes on to explore several different methodologies which courts in the United States and Europe could follow to distinguish between behavior that is compliant and not compliant with FRAND.

As a trend, the literature in this subset generally concludes that as long as licensing rights are not used by IP rights owners in an anticompetitive manner, they are generally acceptable.

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Coco, Rita. “Antitrust Liability for Refusal to License Intellectual Property: A Comparative Analysis and the International Setting.” *Marquette Intellectual Property Law Review* 12 (2008): 1.

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4. IP Litigation and its Effects on Market Entry

Some articles examine how the threat of patent litigation can act as a barrier to market entry. The articles in this subset explore the effects of patent enforcement on economic growth.

One particularly thorough study examines empirical literature about IP enforcement and considers how the propensity to litigate patents varies with expected benefits of litigation.⁸³ The authors of this study also examine how the cost of litigation affects a firm's willingness to enforce patents and how the cost of enforcement changes the private value of patent rights. In addition, the article generally explores the impact of IP litigation on innovation.

Other articles explore the anti-competitive motives behind many patent enforcement lawsuits, and potential remedies to this problem. One article proposes that by restricting the grant of preliminary injunctions, encouraging declaratory judgment suits, and encouraging summary judgment for defendants, the amount of patent-based anti-competitive litigation can be reduced.⁸⁴ Similarly, another article focuses on the pre-trial and post-trial control measures that can be used as tools of the court to weed out lawsuits brought with anti-competitive motives.⁸⁵ Another article focuses on the tension between antitrust law and IP rights. The effect of permanent injunctions on the competitive landscape is also explored in this subset. ⁸⁶

The articles in this subset generally agree that, while patent litigation on its face can be used for anti-competitive purposes, courts can effectively police the abuse of patent litigation via the use of judicial control measures.

Literature:

Barton, John H. "Antitrust, Patents, and Developing Nations." In *The Development Agenda: Global Intellectual Property and Developing Countries*, edited by Neil Weinstock Netanel, 401. New York: Oxford University Press, 2009.

⁸³ Lanjouw, Jean O. and Josh Lerner, "The Enforcement of Intellectual Property Rights: A Survey of the Empirical Literature," in *The Economics and Econometrics of Innovation*, eds. David Encaoua et al. (Dordrecht: Kluwer Academic Publishers, 2000), 201.

⁸⁴ Hurley, Suzzette Rodriguez, "Failing to Balance Patent Rights and Antitrust Concerns," *The Federal Circuit Bar Journal* 13 (2003-2004): 475.

⁸⁵ Meurer, Michael J., "Controlling Opportunistic and Anticompetitive Intellectual Property Litigation," *Boston College Law Review* 44 (2003): 509.

⁸⁶ Roberts, Clement S., "Permanent Injunctions and Pluralistic Competition," *No. 5 Landslide* 2 (2010): 40.

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5. Information, Communications and Technology Industries

A few articles focus on how patent law acts as a barrier to market entry within the ICT industries. Some of the articles identify the challenge of adapting patent law to new technologies, particularly software innovations.⁸⁷ They explain that ambiguities in some countries' patent regimes could hinder development and innovation, particularly as they debate what types of technology are patentable. These challenges have arisen notably in the context of software development.

Several articles debate the market impact of software patents.⁸⁸ These authors explore whether software patents stimulate or stifle entry in the industry. They also examine whether patents facilitate or delay financing. Most authors underline the importance of the software industry in the economy and note how IP laws have impacted the industry's success.

Some articles argue that countries must make greater efforts to protect IP rights in software to ensure global competitiveness, particularly in attracting companies such as Microsoft.⁸⁹ They argue that patent protection provides software developers with

⁸⁷ See, e.g., Cockburn, I. M. M., "Patents, Thickets, and the Financing of Early-Stage Firms: Evidence from the Software Industry," NBER working paper series; no. 13644, (2007) available at <http://papers.nber.org/papers/13644>; Moy, R., "A Case Against Software Patents," *Santa Clara Computer & High Technology Law Journal* 17(1) (2000): 67; Thomas, R. E., "Debugging Software Patents: Increasing Innovation and Reducing Uncertainty in the Judicial Reform of Software Patent Law," *Santa Clara Computer & High Technology Law Journal* 25(1) (2008): 191.

⁸⁸ See *supra* note 86.

⁸⁹ See, e.g., Baer, William J. and David A. Balto, "Antitrust Enforcement and High-Technology Markets," *Michigan Telecommunication Technology Law Review* 5 (1998): 73.

incentives to invest in developing new programs because patents ensure that they can capture some of their software's market value. These articles regard patent law as critical for fueling software development and argue that it stimulates entry by improving entrants' bargaining position vis a vis incumbents. They maintain that patent systems allow new entrants to license their way into the market. For example, one article discusses how US patents have revitalized the Taiwanese semiconductor industry and made it more globally competitive.⁹⁰

Others argue that software patents have been anticompetitive because they thwart creativity and innovation to start-up companies' detriment.⁹¹ They suggest that software patents have acted as barriers to helping firms bring their software to markets in their early stages. They suggest that patents increase entrants' costs and delay their financing. In particular, patent thickets raise problems for the initial acquisition of capital. These articles argue that start-up companies are less likely to make their products go public in patent thicketed areas.

Literature:

Baer, William J. and David A. Balto. "Antitrust Enforcement and High-Technology Markets." *Michigan Telecommunication Technology Law Review* 5 (1998): 73.

Chung, Chin et al. "US Semiconductor Patents Granted to Taiwan, South Korea and Japan." In *The New Knowledge Economy of Taiwan*, edited by Tain-Jy and Joseph S. Lee, 188. Northampton: Edward Elgar Publishing, 2004.

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Miyamoto, M. et al. "Market Entry Pattern and Timing in an Industry with Technological Evolution: The Liquid Crystal Display Industry." *International Business & Economics Research Journal (IBER)* 9 (2010).

⁹⁰ Chung, Chin et al., "US Semiconductor Patents Granted to Taiwan, South Korea and Japan," in *The New Knowledge Economy of Taiwan*, ed. Tain-Jy and Joseph S. Lee (Northampton: Edward Elgar Publishing, 2004) 188.

⁹¹ See, e.g., Miyamoto, M. et al., "Market Entry Pattern and Timing in an Industry with Technological Evolution: The Liquid Crystal Display Industry," *International Business & Economics Research Journal (IBER)* 9 (2010).

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6. Pharmaceutical Industry

A number of articles focus on how patent law acts as a barrier to market entry within the pharmaceutical industry. The articles focused on the pharmaceutical industry examine: 1) the impact of generic drugs on competition, 2) the role of patent protection in medical innovation, 3) the problem of access to drugs, or 4) the effect of patent law changes on the pharmaceutical industry of specific geographic regions.

One group of articles discusses how generic drugs affect competition in the pharmaceutical industry. Some articles examine the effect of the U.S. Hatch-Waxman Act and the protection of brand name drugs as a barrier to entry. Other articles focus on "pseudo-generic versions" of brand-name drugs offered by brand-name pharmaceutical producers,⁹² the effect of brand advertising prior to expiration of brand-name drugs⁹³, the benefits to consumers of authorized generics⁹⁴, and the antitrust implications of non-compete agreements between pharmaceutical patent holders and generic drug manufacturers.⁹⁵ Anti-competitive tactics explored include "gaming the drug approval process of the FDA," fraudulently procuring and enforcing patents, and filing frivolous patent infringement suits to take advantage of "stays" granted by the court.⁹⁶ Articles also analyze the agreements between pharmaceutical patent holders and generic drug manufacturers and their consequences on drug competition, health care, costs, and

⁹² Kong, Y. and J. R. Seldon, "Pseudo-Generic Products and Barriers to Entry in Pharmaceutical Markets," *Review of Industrial Organization* 25(1) (2004): 71.

⁹³ Fiona, M. S. M., "Barriers to Entry, Brand Advertising, and Generic Entry in the US Pharmaceutical Industry," *International Journal Of Industrial Organization* 18 (2000): 1085.

⁹⁴ Ernst, R. B., M. Richard, et al., "MARKETWATCH: Authorized Generic Drugs, Price Competition, and Consumers' Welfare," *Health Affairs* 26(3) (2007): 790.

⁹⁵ Sandoval, C. J. K., "Pharmaceutical Reverse Payment Settlements: Presumptions, Procedural Burdens, and Covenants Not to Sue Generic Drug Manufacturers," *Santa Clara Computer & High Technology Law Journal* 26(1) (2009): 141.

⁹⁶ Cramer, Eric L. & Daniel Berger, "The Superiority of Direct Proof of Monopoly Power and Anticompetitive Effects in Antitrust Cases Involving Delayed Entry of Generic Drugs," *University of San Francisco Law Review* 39 (2004): 81.

public policy.⁹⁷ As a trend, many of the articles conclude that the Hatch-Waxman Act has intensified generic competition.

Another group of articles examines how patent rights impact innovation and investment in the pharmaceutical industry. Authors note that patents play a much more significant role for pharmaceutical firms than other industries due to the high costs of drug innovation and the low costs of imitation drugs.⁹⁸ As a trend, these articles note that increased patent protection is positively correlated with increased investment in pharmaceuticals for high income countries. However, it is also noted that in developing countries, an increase in the level of patent protection does not seem to lead to greater investment in the pharmaceutical industry. In contrast, it can actually serve as a barrier to entry.⁹⁹

Several articles focus on the effects of patent protection on access to essential medicines in developing countries.¹⁰⁰ The majority of articles in this group focus on both affordability and access.¹⁰¹ Some articles argue that the guidelines under TRIPS and "TRIPS-plus" regimes are too strict, and as a result, make access to medicines difficult for developing countries.¹⁰² One article focuses exclusively on HIV/AIDS drugs, and draws the conclusion that product patent regimes encourage the introduction of such drugs only in developing countries with relatively equally distributed incomes.¹⁰³ Authors also note that medicines for diseases that are specific to third-world countries are traditionally underfunded as there is less economic incentive for firms to put R&D

⁹⁷ Sandoval, C. J. K., "Pharmaceutical Reverse Payment Settlements: Presumptions, Procedural Burdens, and Covenants Not to Sue Generic Drug Manufacturers," *Santa Clara Computer & High Technology Law Journal* 26(1) (2009): 141.

⁹⁸ Grabowski, H., "Patents, Innovation and Access to New Pharmaceuticals," *Journal of International Economic Law* 5(4) (2002): 849.

⁹⁹ *Id.*

¹⁰⁰ Skinner, B. J., "Patents and Access to Drugs in Poor Countries: Subsidize the Poor and Encourage Economic Development Instead of Stealing from the Inventors of Essential Medicines," *Fraser Forum* (2005): 4, available at www.heartland.org/custom/semod_policybot/pdf/17606.pdf.

¹⁰¹ Ilias, S., *Intellectual Property Rights and Access to Medicines: International Trade Issues* (Ft Belvoir: Defense Technical Information Center, 2009); Cann, Jr. Wesley A. "On the Relationship between Intellectual Property Rights and the Need of Less-Developed Countries for Access to Pharmaceuticals: Creating a Legal Duty to Supply Under a Theory of Progressive Global Constitutionalism." *University of Pennsylvania Journal of International Economic Law* 25 (2004): 755; Morgan, Maxwell R., "Medicines for the Developing World: Promoting Access and Innovation in the Post-TRIPS Environment," *University of Toronto Faculty of Law Review* 64 (2006): 45.

¹⁰² Kyle, M. K. M. A., "Investments in Pharmaceuticals Before and After TRIPS," NBER working paper series; no. 15468; Variation: Working paper series (National Bureau of Economic Research); no. 15468, (2009) available at <http://www.nber.org/papers/w15468.pdf>.

¹⁰³ Borrell, J.R. "Patents and the Faster Introduction of New Drugs in Developing Countries." *Applied Economics Letters* 12(6) (2005): 379.

into these sectors. They suggest that special programs should be implemented to stimulate more R&D in such sectors.¹⁰⁴

Some studies take an empirical approach by analyzing “data exclusivity” rights.¹⁰⁵ Others take an empirical approach by measuring royalties under licensing schemes and comparing them to royalties that would be realized under the ‘foregone profits’ standard of U.S. patent law.¹⁰⁶ As a general trend, articles tend to focus on the challenge of granting patent rights under TRIPS while still keeping medicine available for developing countries.

Finally, some articles focus on geographic regions in order to examine the effect of patent law changes on the pharmaceutical industries. Countries covered include Turkey,¹⁰⁷ Saudi Arabia,¹⁰⁸ Japan,¹⁰⁹ and Korea.¹¹⁰ These articles use the pharmaceutical industry in order to examine innovation policy generally.¹¹¹ As a general trend, they argue that, while IP rights may serve as a catalyst for innovation in high income countries, in developing countries they may impede progress and innovation. To achieve an optimal IP rights regime, the economic, cultural, and social environment of each geographic region and/or country must be considered.

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Bahgat, Hossam and Rebecca Wright. “Access to Medicines in Egypt: A Human Rights Approach to IP, Trade and Health.” In *Access to Knowledge in Egypt: New Research on Intellectual Property, Innovation and Development*, edited by Nagla Rizk and Lea Shaver, 56. London: Bloomsbury, 2010.

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- ¹⁰⁴ Grabowski, H., "Patents, Innovation and Access to New Pharmaceuticals," *Journal of International Economic Law* 5(4) (2002): 849.
- ¹⁰⁵ Cartagena, R. G. and A. Attaran, "A Study of Laws in Latin America: Is Access to Affordable Medicine Threatened?" *Health Law Journal* 17 (2009): 269.
- ¹⁰⁶ Scherer, F. M. and J. Watal, "Post-TRIPS Options for Access to Patented Medicines in Developing Nations," *Journal of International Economic Law* 5(4) (2002): 913.
- ¹⁰⁷ Kirim, A. S., "Reconsidering Patents and Economic Development: A Case Study of the Turkish Pharmaceutical Industry," *World Development* 13(2) (1985): 219; Vural, Eren et al., "Pharmaceuticals and Intellectual Property Rights: A Political Economy of the Recent Policy Changes Across the Developing World and in Turkey," *ODTÜ Gelişme Dergisi* 34(2) (2007): 337.
- ¹⁰⁸ Mourshed, Mona, "Braving Products Patents Under WTO: Implications and Strategies for Arab Pharmaceutical Industry." In *New Economic Developments and their Impact on Arab Economies*, ed. (Ahmed Al-Kawaz. Amsterdam: Elsevier Science, 1999).
- ¹⁰⁹ Mahlich, J., "Patents and Performance in the Japanese Pharmaceutical Industry: An Institution-Based View," *Asia Pacific Journal of Management* 27 (2010): 99.
- ¹¹¹ Schryver, Tom De and A. Greet, "The Dynamics of Real Options Thinking on Competition through Innovation: The Case of the Pharmaceutical Industry," *Competitiveness Review: An International Business Journal incorporating Journal of Global Competitiveness* 13: 16; Rai, Arti K., "Fostering Cumulative Innovation in the Biopharmaceutical Industry: The Role of Patents and Antitrust," *Berkley Technology Law Journal* 16 (2001): 813.

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7. Biotechnology Industry

A group of articles examines the effect of patent law on innovation in the biotechnology industry. These articles are generally empirical, presenting case studies and examining the biotechnology industry on a multinational basis. Some examples of empirical data used include statistical analysis of patents¹¹² and grant rates for patent applications.¹¹³

The articles in this subset use studies of the biotechnology industry to test a number of theories about the role patent law plays in stimulating innovation. One article, for example, examines the effect of patent rights on the growth of the agriculture industry in India.¹¹⁴ The article studies the strengthening of patent rights in the plant breeding industry and its effects on the growth of the agriculture industry in India. The article states that patent analysis makes it possible to identify the prevalence of technology and its life cycle. The article therefore concludes that patent analysis is an excellent indicator of research and development output, and can be used to demonstrate the present level of technology as well as forecast future trends.

Similarly, another article explores the effect of IP rights on nine different agricultural biotechnology firms in seven countries (Australia, Brazil, Canada, China, European

¹¹² Love, K.S., R. Munmun, et al., "Intellectual Properties Rights-A Strong Determinant of Economic Growth in Agriculture," *Chronicles of Young Scientists* 1 (2010): 29.

¹¹³ Chan, H. P., "International Patent Behavior of Nine Major Agricultural Biotechnology Firms," *AgBioForum* 9(1) (2006): 59.

¹¹⁴ Love, K.S., R. Munmun, et al., "Intellectual Properties Rights-A Strong Determinant of Economic Growth in Agriculture," *Chronicles of Young Scientists* 1 (2010): 29.

Patent Office, Japan, and South Africa).¹¹⁵ This article draws a correlation between the invention type, patent application process, and the corresponding patent grant rates. The article finds that countries with slower approval times in the patenting process tend to have lower approval rates. The study also uses empirical evidence to explore why there is not a significant level of technology transfer from the U.S. to other countries.

Another article explores the role of patent portfolios in the commercialization of biotechnology.¹¹⁶ The study examines how to build a patent portfolio that will aid in the commercialization of biotechnologies. The author argues that a well-crafted patent portfolio is a cornerstone for a firm's development strategy. The article suggests that an optimized patent portfolio of many distinct (but related) patents can enable a firm to maximize the scale and diversity of IP protection. The article also explores the various routes to commercialization that a biotechnology firm can pursue. The significance of research-based alliances, exclusive licensing schemes, and the role of designing patent portfolios with the goal of attracting venture capital funding are also explored. While all of the articles in this subset generally explore the effect of patent rights on innovation, they universally conclude that a narrowly tailored IP rights regime is critical to encouraging innovation in the biotechnology sector.

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¹¹⁵ Chan, H. P., "International Patent Behavior of Nine Major Agricultural Biotechnology Firms," *AgBioForum* 9(1) (2006): 59.

¹¹⁶ Mackey, T. M., "Nanobiotechnology, Synthetic Biology, and RNAi: Patent Portfolios for Maximal Near-Term Commercialization and Commons for Maximal Long-Term Medical Gain," *Marquette Intellectual Property Law Review* 13(1) (2009): 123.

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8. Geographic Case Studies

A number of articles examine how patent rights impact market entry in specific countries or geographical regions. CLIP identified two types of geographic case studies: 1) empirical analysis of a specific country's economy using patent data, or 2) non-empirical studies of the patent systems in specific countries or regions.

Most notably, many articles in this subset provide an empirical analysis of the economy of specific countries or geographic regions using patent data. These articles use patent and financial data from specific countries (e.g. Taiwan,¹¹⁷ Germany,¹¹⁸ U.S.¹¹⁹) to draw conclusions about the correlation between patent protection and economic performance. A variety of variables are used to make these determinations. Some examples of patent variables include number of patents, length of patent protection, IPC-classes, family size, backward and forward citations, and data from patent reforms. Examples of economic variables used include the Fama-French value and data illustrating the short term and long term profitability of companies.

One study investigated whether companies with "higher quality" patents had more successful initial public offerings (IPOs) than those with "lower quality" patents.¹²⁰ Another study explores the correlation between increasing the length of patent

¹¹⁷ Park, Kyoo-Ho, and Keun Lee. "Linking the Technological Regime to the Technological Catch-Up: Analyzing Korea and Taiwan Using the US Patent Data." *Journal of Industrial and Corporate Change* 15(4): 715.

¹¹⁸ Bessler, W. and C. Bittelmeyer, "Patents and the Performance of Technology Firms: Evidence from Initial Public Offerings in Germany," *Financial Markets and Portfolio Management* 22(4) (2008): 323.

¹¹⁹ Park, Kyoo-Ho, and Keun Lee, "Linking the Technological Regime to the Technological Catch-Up: Analyzing Korea and Taiwan Using the US Patent Data," *Journal of Industrial and Corporate Change* 15(4): 715.

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protection and the number of patents acquired.¹²¹ Another article uses U.S. patent data to analyze the technology industries of Korea and Taiwan.¹²² This study drew a distinction between the larger, more diversified firms of Korea and the more agile and specialized firms of Taiwan. By using U.S. patent data, the study concluded that even between developed countries like Korea and Taiwan, IP rights are not one-size-fits-all. Depending on variables like the organizational structure of large corporations, patent regimes should be customized for each country to ensure the strongest economic performance. Another paper examines the effects of patent protection on technology transfer by analyzing patent licensing contracts of Japanese firms. U.S. Patent data has also been used to create a "portrait of innovation" of the high tech sector of a country.¹²³ While empirical data relating to patents has been used in various contexts in a variety of articles, it is generally acknowledged that modifying the IP regime of a country has wide ranging economic implications.

Of the non-empirical studies, twelve studies focused on the effects of patent rights in specific countries. Countries covered include Japan,¹²⁴ South Korea,¹²⁵ India,¹²⁶ China,¹²⁷ Sweden,¹²⁸ and the United States.¹²⁹ These studies explored themes of

¹²¹ Yang, C. et al., "Effects of Strengthening Intellectual Property Rights in Newly Industrialized Economies: Evidence from Taiwan's 1994 Patent Reform," *Contemporary Economic Policy* 26 (2008): 259.

¹²² Park, Kyoo-Ho, and Keun Lee, "Linking the Technological Regime to the Technological Catch-Up: Analyzing Korea and Taiwan Using the US Patent Data," *Journal of Industrial and Corporate Change* 15(4): 715.

¹²³ Trajtenberg, M., *Innovation in Israel 1968-97: A Comparative Analysis Using Patent Data* (Tel Aviv, Tel Aviv, 1999).

¹²⁴ Motohashi, K., "Japan's Patent System and Business Innovation: Reassessing Pro-Patent Policies," *Patents, Innovation and Economic Performance*. (Paris and Washington, D.C.: C.-o. Organization for Economic and Development, 2004).

¹²⁵ Park, Eun-A and Richard Taylor, "Barriers to Entry Analysis of Broadband Multiple Platforms: Comparing the U.S. and South Korea," Presented at the Telecommunications Policy Research Conference, Washington D.C., (2006) available at web.si.umich.edu/tprc/papers/2006/.../TPRC2006BarriersToEntry.pdf.

¹²⁶ Babu, P. G., *Economic Analysis of Law in India: Theory and Application* (New Delhi, New York, 2010).

¹²⁷ Fleisher, B. and M. Zhou, "Are Patent Laws Harmful to Developing Countries? Evidence from China," Ohio State University, Department of Economics, Working Papers: 09-07 (2009).

¹²⁸ Granstrand, O., *The Use of Patents for the Protection of Technological Innovation: A Case Study of Selected Swedish firms*. (Geneva: United Nations, 1990).

¹²⁹ Park, Eun-A and Richard Taylor, "Barriers to Entry Analysis of Broadband Multiple Platforms: Comparing the U.S. and South Korea," Presented at the Telecommunications Policy Research Conference, Washington D.C., (2006) available at web.si.umich.edu/tprc/papers/2006/.../TPRC2006BarriersToEntry.pdf.

technological development, economic and sociological development, and barriers to entry.

Of the non-empirical studies, six studies focused on the effects of patent rights in specific regions. Regions covered include Africa,¹³⁰ Indiana (U.S.),¹³¹ Europe,¹³² the Caribbean,¹³³ and the Pacific.¹³⁴ The regionally focused articles primarily explored themes of innovation and development and market effects.

Several articles explored the effects of TRIPS on developing countries. A common topic is the trade-off between providing IP protection for medicine and controlling access to medicine. The scope of IP protection afforded to pharmaceuticals also has an effect on the state of competition between pharmaceutical companies based in developing countries, and their multinational counterparts.¹³⁵

Many articles explore the state of patent law in certain geographic regions. Those that focus on developing regions tend to address the conflict between developed countries positions on IP rights and the economic and cultural positions of rural and developing communities. Another phenomenon that is commonly explored is the effect of IP on the competitiveness of developing countries. Articles address issues such as anti-competitive behavior and exclusionary practices. Overall, the articles suggest that strong IP protection has a net positive effect on the economies of developed countries, while serving as an impediment to the economies of developing countries.

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- ¹³⁰ Marcelin Tonye, M., "Are the African Organization of Intellectual Property Patent Approach and Cameroonian National Biodiversity Regulations at a Crossroads? Suggesting Alternatives Tailored to National and Regional Interests," *Review of European Community & International Environmental Law* 14 (2005): 283.
- ¹³¹ Nunn, S. and A. Worgan, "Spaces of Innovation: Patent Activity in Indiana Metropolitan Areas, 1990 to 1998," *Economic Development Quarterly* 16(3) (2002): 237.
- ¹³² Gutterman, A. S., *Innovation and Competition Policy: A Comparative Study of the Regulation of Patent Licensing and Collaborative Research and Development in the United States and the European Community* (The Hague, Kluwer Law International, 1996); Altvater, E. P. K., *Intellectual Property Rights in Central and Eastern Europe: The Creation of Favourable Legal and Market Preconditions.* (Amsterdam, Washington, DC, 1998).
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Nagaoka, S. "Symposium: Innovation and Intellectual Property Values: Does Strong Patent Protection Facilitate International Technology Transfer? Some Evidence from Licensing Contracts of Japanese Firms." *Journal of Technology Transfer* 34(2) (2009): 128.

Nguyen, Christian H. "A Unitary ASEAN Patent Law in the Aftermath of TRIPS." *Pacific Rim Law & Policy* 8 (1999): 453

Nunn, S. and A. Worgan. "Spaces of Innovation: Patent Activity in Indiana Metropolitan Areas, 1990 to 1998." *Economic Development Quarterly* 16(3) (2002): 237.

Ouellette, L. L. "Addressing the Green Patent Global Deadlock through Bayh-Dole Reform." *Yale Law Journal* 119(7) (2010): 1727.

Park, Eun-A and Richard Taylor. "Barriers to Entry Analysis of Broadband Multiple Platforms: Comparing the U.S. and South Korea." Presented at the Telecommunications Policy Research Conference, Washington D.C., (2006) *available at* web.si.umich.edu/tprc/papers/2006/.../TPRC2006BarriersToEntry.pdf.

Park, Kyoo-Ho, and Keun Lee. "Linking the Technological Regime to the Technological Catch-Up: Analyzing Korea and Taiwan Using the US Patent Data." *Journal of Industrial and Corporate Change* 15(4): 715.

Park, Julie S. "Pharmaceutical Patents in the Global Arena: Thailand's Struggle between Progress and Protectionism." *Boston College Third World Law Journal* 13 (1993): 121.

Sell, A. *Patent Protection and the Economic Development of Developing Countries*. Working paper for the preparation of the national paper of the Federal Republic of Germany to the UNCSTD, Kiel, (1977).

Taylor, Michael R. and Jerry Cayford. "American Patent Policy, Biotechnology, and African Agriculture: The Case for Policy Change." *Harvard Journal of Law & Technology* 17 (2004): 321.

Tratjenberg, M. *Innovation in Israel 1968-97: A Comparative Analysis Using Patent Data*. NBER Working Paper Series, No. 7022, 1999 *available at* www.nber.org/papers/w7022.pdf.

Yang, C. et al. "Effects of Strengthening Intellectual Property Rights in Newly Industrialized Economies: Evidence from Taiwan's 1994 Patent Reform." *Contemporary Economic Policy* 26 (2008): 259.

Zahraiddin, Rafael X. "The Effect of Broad Patent Scope on the Competitiveness of United States Industry." *Delaware Journal of Corporate Law* 17 (1992): 949.

9. The Linkage between International Patent Protection Standards and Economic Development

There is a small trend in the empirical literature analyzing the impact on innovation, research and development, economic growth, and the rate of patent filings from global harmonization of patent standards embodied in treaties and trade agreements. In particular, these articles examine how the global patent system has impacted developing countries and the rate of patent filings.

The articles focus on the effects of international institutions and conventions that have emerged to harmonize international IP rights among nations. A few of these studies particularly focus on the pharmaceutical industry, chiefly drug and medical device patents. Some authors suggest that TRIPS compliance is likely to increase prices of vital medicines that developing countries need. They further suggest that domestic

pharmaceutical firms will suffer and jobs will be lost. Some scholars suggest ways to refine the WTO Dispute System to ensure successful resolutions of IP disputes.

Literature:

Frankel, Susy. "WTO Application of 'the Customary Rules of Interpretation of Public International Law' to Intellectual Property." *Virginia Journal of International Law* 46 (2006): 365.

Gupta, Rishi. "TRIPS Compliance: Dealing with the Consequences of Drug Patents in India." *Houston Journal of International Law* 26 (2004): 599.

Khan, B. Zorina and Kenneth L. Sokoloff. "Historical Perspectives on Patent Systems in Economic Development." In *The Development Agenda: Global Intellectual Property and Developing Countries*, edited by Neil Weinstock Netanel, 215. New York: Oxford University Press, 2009.

Kirchanski, Stefan. "Protection of U.S. Patent Rights in Developing Countries: U.S. Efforts to Enforce Pharmaceutical Patents in Thailand." *Loyola International & Comparative Law Journal* 16 (1994): 569.

Lévêque, Françoise and Yann Meniere. "Patents and Innovation: Friends or Foes?" Berkeley Center for Law & Technology, Law and Technology Scholarship Series (March 22, 2007) available at <http://www.escholarship.org/uc/item/2w8605xg>.

Nguyen, Christian H. "A Unitary ASEAN Patent Law in the Aftermath of TRIPS." *Pacific Rim Law & Policy* 8 (1999): 453.

Phan, Nhat D. "Leveling the Playing Field: Harmonization of Antitrust Guidelines for International Patent Licensing Agreements in the United States, Japan, and the European Union." *American University Journal of International Law & Policy* 10 (1994): 447.

Qian, Yi. "Are National Patent Laws the Blossoming Rains? Evidence from Domestic Innovation, Technology Transfers, and International Trade Post Patent Implementations in the Period 1978-2002." In *The Development Agenda: Global Intellectual Property and Developing Countries*, edited by Neil Weinstock Netanel, 191. New York: Oxford University Press, 2009.

10. Patent Rights and Economic Development

These publications discuss how patent rights aid or impair economic development in developing nations and regions. While this trend does not directly address market barriers, the articles explore closely related issues and reflect that economic development is a pre-condition for market access.

Some publications present empirical studies of the impact of patent protection on innovation, economic growth, and industrial competitiveness. As an illustration, one

particularly comprehensive study indicates that as patent strength increases the level of domestic patent filings in developing countries decreases.¹³⁶ The study also found that patent strength did not significantly impact research and development in developing countries. In addition, it noted a positive relationship between patent strength and domestic patent filings in developed countries. Another study empirically analyzes the macroeconomic effects of the patent system within an endogenous growth model focused on new product development.¹³⁷ The author concludes that patents do protect innovators and optimal patent lifetime should be finite.

Other publications offer comparative or historical analyses of patent protection, tracing the evolution of patent policies in various developed regions and examining their impact on economic development.¹³⁸ For instance, one particularly robust study examines shifts in the strength of patent protection across sixty countries over a 150-year period.¹³⁹ The article concludes that strengthening patent protection had the most positive effects in areas that are well-developed but had initially weak protections. Other studies similarly verify that in wealthier developed countries, patent protection positively correlates with total factor productivity and economic growth rates.

Some studies use alternative economic analytical models to decipher the relationship between patent protection and economic development. As an illustration, one publication advocates a quality-ladder model to analyze the impact of patent policy on growth and inequality.¹⁴⁰ Using this approach, the article concludes that strengthening patent rights increases economic growth by stimulating spending on research and development and income inequality by raising the return on assets. Likewise, other studies adopt alternative analytical frameworks to determine how WTO and international IP regimes have impacted the economic development of developing countries.¹⁴¹

¹³⁶ Thompson, M. A. and F. W. Rushing, "An Empirical Analysis of the Impact of Patent Protection on Economic Growth: An Extension," *Journal of Economic Development* 24(1) (1999): 67.

¹³⁷ Michel, Philip and Jules Nyssen, "On Knowledge Diffusion, Patents Lifetime and Innovation Based Endogenous Growth," In *The Economics and Econometrics of Innovation*, David Encaoua et al., 55. Dordrecht: Kluwer Academic Publishers, 2000.

¹³⁸ See, e.g., Roy, Upendra, Robert D. Tuch, and Joseph E. Clark, "Global Assessment of Patents, R&D Investment and Economic Output: Macro Comparisons at the Country Level," *Journal of the Patent & Trademark Office Society* 79 (1997): 110.

¹³⁹ *Id.*

¹⁴⁰ Chu, et al., "Effects of Patent Policy on Income and Consumption Inequality in a R&D Growth Model," *Munich Personal RePEc Archive*, available at <http://mpra.ub.uni-muenchen.de/10168/>.

¹⁴¹ See, e.g., Cameron, R. F., *Patent Protection in Relation to World Economic Development* (Cambridge, Mass.); Condon, Bradly and Tapen Sinha, "Global Diseases, Global Patents and Differential Treatment in WTO Law: Criteria for Suspending Patent Obligations in Developing Countries," *Northwestern Journal of International Law & Business* 26 (2005): 1; Yi, Q., "Do National Patent Laws Stimulate Domestic Innovation in a Global Patenting Environment? A Cross-Country Analysis of Pharmaceutical Patent Protection, 1978-2002," *Review of Economics and Statistics* 89(3) (2007): 436.

Some of these articles also focus on pharmaceutical patents and developing countries' access to medicines and other pharmaceutical products to meet their health needs.¹⁴² They explore these concerns in light of major health epidemics, which have further intensified a broader debate over the appropriate balance between the interests of patent holders and the medical needs of developing countries. These articles typically argue that TRIPS should be amended or reinterpreted to provide greater assistance to users of patented pharmaceuticals.

Some empirical articles focus on particular case studies. For instance, one study evaluates the impact of patent protection on pharmaceutical innovation in 26 countries that established pharmaceutical patent laws from 1978 through 2002.¹⁴³ It concludes that national patent protection alone does not stimulate domestic growth or innovation. The article finds that there is an optimal level of IP rights regulation above which further strength reduces innovative activities.

A few articles examine how the administration and procedures of patent offices in developing countries impact economic development.¹⁴⁴ They address how patent offices as administrative bodies play an important role in economic development by administering existing patent standards. These patent offices have become integrated into a global system of robust patent lawmaking and administration. Some articles note that patent offices of developing countries are more likely to grant pharmaceutical patents, which further limits availability of vital medicines for their citizens. The articles do not, however, examine what role antitrust agencies should play in intellectual property and competition policy.

Literature:

Allred, B. B. and W. G. Park. "Patent Rights and Innovative Activity: Evidence from National and Firm-Level Data." *Journal of International Business Studies* 38(6) (2007): 878.

Branes, J. M. *Patent Technology Transfer and Industrial Competition*. Hauppauge: Nova Science Publishers, 2006.

¹⁴² Condon, Bradley and Tapen Sinha, "Global Diseases, Global Patents and Differential Treatment in WTO Law: Criteria for Suspending Patent Obligations in Developing Countries," *Northwestern Journal of International Law & Business* 26 (2005): 1; Kim, Douglas W. and John Andrew Demos, "Intellectual Capital: An Economic Approach to Understanding the Societal Effect of Patent Protection," *Intellectual Property & Technology Law Journal* (2002).

¹⁴³ Yi, Q., "Do National Patent Laws Stimulate Domestic Innovation in a Global Patenting Environment? A Cross-Country Analysis of Pharmaceutical Patent Protection, 1978-2002," *Review of Economics and Statistics* 89(3) (2007): 436.

¹⁴⁴ See, e.g., Drahos, Peter, "Trust Me: Patent Offices in Developing Countries," *American Journal of Law & Medicine* 34 (2008): 151.

- Burlamaqui, Leonardo. "Innovation, Competition Policies, and Intellectual Property: An Evolutionary Perspective and Its Policy Implications." In *The Development Agenda: Global Intellectual Property and Developing Countries*, edited by Neil Weinstock Netanel, 429. New York: Oxford University Press, 2009.
- Cameron, R. F. *Patent Protection in Relation to World Economic Development*. Cambridge, Mass. 34 leaves; 28 cm.
- Chu, et al. "Effects of Patent Policy on Income and Consumption Inequality in a R&D Growth Model." *Munich Personal RePEc Archive* available at <http://mpra.ub.uni-muenchen.de/10168/>.
- Condon, Bradley and Tapen Sinha. "Global Diseases, Global Patents and Differential Treatment in WTO Law: Criteria for Suspending Patent Obligations in Developing Countries." *Northwestern Journal of International Law & Business* 26 (2005): 1.
- Drahos, Peter. "Trust Me: Patent Offices in Developing Countries." *American Journal of Law & Medicine* 34 (2008): 151.
- Erstling Jay A. and Ryan E. Strom. "Korea's Patent Policy and its Impact on Economic Development: A Model for Emerging Countries?" *San Diego International Law Journal* 11 (2010): 441.
- Ghosh, Shubha. "Patents, and Traditional Knowledge." *Columbia Journal of Asian Law* 17 (2003): 73.
- Greif, S. "Patents and Economic Growth." *International Review of Industrial Property and Copyright Law* 18(2) (1987): 191.
- Kim, Douglas W. and John Andrew Demos. "Intellectual Capital: An Economic Approach to Understanding the Societal Effect of Patent Protection." *Intellectual Property & Technology Law Journal* (2002).
- Lerner, J. "Patent Protection and Innovation Over 150 Years." National Bureau of Economic Research, Inc., NBER Working Papers: 8977 (2002).
- Licht, George and Konrad Zoz. "Patents and R&D an Econometric Investigation Using Applications for German, European and US Patents by German Companies." In *The Economics and Econometrics of Innovation*, edited by David Encaoua et al., 307. Dordrecht: Kluwer Academic Publishers, 2000.
- Michel, Philip and Jules Nyssen. "On Knowledge Diffusion, Patents Lifetime and Innovation Based Endogenous Growth." In *The Economics and Econometrics of Innovation*, David Encaoua et al., 55. Dordrecht: Kluwer Academic Publishers, 2000.
- Nancy, T. G. "The Economics of Patents: Lessons from Recent U.S. Patent Reform." *Journal of Economic Perspectives* 16(2) (2002): 131.
- Park, Walter G. "Patent Rights and Economic Freedom: Friend or Foe?" *Journal of Private Enterprise* 18(2) (2002).

Rensman, M. and Gerard H. Kuper. "The Role of R&D and Patent Activity in Economic Growth: Some Empirical Evidence." Research Report from Univ. of Groningen: No. 99C03, (1999) *available at*, <http://econpapers.repec.org/paper/dgrugsom/99c03.htm>.

Roy, Upendra, Robert D. Tuch, and Joseph E. Clark. "Global Assessment of Patents, R&D Investment and Economic Output: Macro Comparisons at the Country Level." *Journal of the Patent & Trademark Office Society* 79 (1997): 110.

Schacht, Wendy H. "Industrial Competitiveness and Technological Advancement: Debate Over Government Policy." In *Patent Technology: Transfer and Industrial Competition*, edited by Juanita M. Branes, 77. New York: Nova Science Publishers, Inc., 2007.

Scherer, F. M. and W. Jayashree "Post-TRIPS Options for Access to Patented Medicines in Developing Nations." *Journal of International Economic Law* 5(4): 913.

Sherwood, Robert M. "Human Creativity for Economic Development: Patents Propel Technology." *Akron Law Review* 33 (2000): 351.

Sinha, U. B. "Patent Enforcement, Innovation and Welfare." *Journal of Economics (Zeitschrift fur Nationalokonomie)* 88(3) (2006): 211.

Thompson, M. A. and F. W. Rushing. "An Empirical Analysis of the Impact of Patent Protection on Economic Growth: An Extension." *Journal of Economic Development* 24(1) (1999): 67.

Xu, B. and E. P. Chiang. "Trade, Patents and International Technology Diffusion." *Journal of International Trade and Economic Development* 14(1) (2005): 115.

Yi, Q. "Do National Patent Laws Stimulate Domestic Innovation in a Global Patenting Environment? A Cross-Country Analysis of Pharmaceutical Patent Protection, 1978-2002." *Review of Economics and Statistics* 89(3) (2007): 436.

C. Copyright

The CLIP research team identified 34 publications that examined copyright and issues of market entry. These articles revealed clusters that reflected trends in: (1) copyright scope and market entry; (2) IP litigation and its effects on market entry; (3) information, communications and technologies industries; (4) geographic case studies; (5) IP protection as an international trade barrier.

1. Copyright Scope and Market Entry Barriers

The CLIP team identified one article which examines how copyright law can act as an entry barrier to specific market sectors. The article notes that the policies behind competition law and copyright are similar in that they both "promote innovation and competition for the benefit of consumers." The author points out that while copyright confers a limited legal monopoly, the rights granted are "rarely coextensive with

economic dominance.” It is noted that copyright law has largely been shaped by business needs. Subsequently, copyright law and competition law generally work well as complementary drivers to promote innovation and competition.

Literature:

Lim, Daryl. “Copyright Under Siege: An Economic Analysis of the Essential Facilities Doctrine and the Compulsory Licensing of Copyrighted Works.” *Albany Law Journal of Science & Technology* 17 (2007): 481.

2. IP Litigation and its Effects on Market Entry

Several articles examine how the threat of copyright litigation can act as a barrier to market entry. Articles in this subset explore the themes of software piracy and its effect on developing countries,¹⁴⁵ the fair use doctrine as a tool to increase access to knowledge,¹⁴⁶ and the role of the European Court of Justice (ECJ) on the development of copyright law in Europe.¹⁴⁷

Literature:

Dreier, Thomas. “The Role of the ECJ for the Development of Copyright in the European Communities.” *Journal of the Copyright Society of the U.S.A.* 54 (2007): 183.

Kopczynski, M. "Robin Hood Versus the Bullies: Software Piracy and Developing Countries." *Rutgers Computer & Technology Law Journal* 33(2) (2007): 299.

Rogers, Douglas L. “Increasing Access to Knowledge Through Fair Use - Analyzing the Google Litigation to Unleash Developing Countries.” *Tulane Journal of Technology & Intellectual Property* 10 (2007): 1.

3. Information, Communications and Technology Industries

A small subset of articles focus on how copyright acts as a barrier to market entry within the ICT industries. These publications examine issues related to software, system compatibility and digital music.

¹⁴⁵ Kopczynski, M., "Robin Hood Versus the Bullies: Software Piracy and Developing Countries," *Rutgers Computer & Technology Law Journal* 33(2) (2007): 299.

¹⁴⁶ Rogers, Douglas L., "Increasing Access to Knowledge Through Fair Use - Analyzing the Google Litigation To Unleash Developing Countries," *Tulane Journal of Technology & Intellectual Property* 10 (2007): 1.

¹⁴⁷ Dreier, Thomas, "The Role of the ECJ for the Development Of Copyright in the European Communities," *Journal of Copyright Society U.S.A.* 54 (2007): 183.

These articles explore how strong copyright protection regimes affect the software industry.¹⁴⁸ Some authors contend that strong copyright protections for software impacts start-up companies in developing economies. They suggest that copyright protection can act as a barrier to start-up companies in less developed countries. Other articles explore the impact of IP rights on open source industries and free software.¹⁴⁹ They discuss the costs and benefits for market entry and competitiveness in the software industry.

Some articles discuss the problem of software piracy and its relation to variations in levels of IP protection across countries.¹⁵⁰ They found that developed economies tend to have stronger copyright regimes and lower piracy rates compared to less developed countries. They note the impact of cultural differences, i.e., piracy rates are higher in less developed countries that emphasize collectivist cultures and have lower level IP protections.

Literature:

Barroclough, Diana. "The Production of Knowledge, Innovation, and IP in Developing Countries: Creative Industries and the Development Agenda." In *The Development Agenda: Global Intellectual Property and Developing Countries*, edited by Neil Weinstock Netanel, 321. New York: Oxford University Press, 2009.

Boldrin, M. and D. K. Levine. "Market Structure and Property Rights in Open Source Industries. (Open Source and Proprietary Models of Innovation: Beyond Ideology)." *Washington University Journal of Law & Policy* 30 (2009): 325.

Dam, Kenneth W. "Some Economic Considerations in the Intellectual Property Protection of Software." *Journal of Legal Studies* 24 (1995): 321.

Donald, B. M. and G. S. David. "Which Countries Protect Intellectual Property? The Case of Software Piracy." *Economic Inquiry* 38(2) (2000): 159.

Dreier, Thomas. "The Role of the ECJ for the Development of Copyright in the European Communities." *Journal of Copyright Society U.S.A.* 54 (2007): 183.

¹⁴⁸ Dam, Kenneth W., "Some Economic Considerations in the Intellectual Property Protection of Software," *Journal of Legal Studies* 24 (1995): 321; Even, Y., "The Right of Integrity in Software: An Economic Analysis," *Santa Clara Computer & High Technology Law Journal* 22(2) (2006): 219.

¹⁴⁹ Boldrin, M. and D. K. Levine, "Market Structure and Property Rights in Open Source Industries. (Open Source and Proprietary Models of Innovation: Beyond Ideology)," *Washington University Journal of Law & Policy* 30 (2009): 325.

¹⁵⁰ Donald, B. M. and G. S. David, "Which Countries Protect Intellectual Property? The Case of Software Piracy," *Economic Inquiry* 38(2) (2000): 159.

Dunne, Brian J. "Compatibility Requirements, Systems Competition, and Copyright." *University of Toledo Law Review* 39 (2008): 813.

Even, Y. "The Right of Integrity in Software: An Economic Analysis." *Santa Clara Computer & High Technology Law Journal* 22(2) (2006): 219.

Fletcher, James E. "Some Economic Implications of Copyright: Television Syndication." In *Copyright and Consequences: Central European and U.S. Perspectives*, edited by Lee B. Becker and Tudor Vlad, 203. Cresskill: Hampton Press, 2003.

Lechter, Michael A. "Copyright, Software, and Web Site Issues in the Internet World." In *Licensing Best Practices*, edited by Robert Goldscheider, 139. New York: John Wiley & Sons, 2002.

Look, Hugh and Alicia Wise. "The Economics of Copyright." In *Digital Library Economics: An Academic Perspective*, edited by David Baker and Wendy Evans, 265. Oxford: Chandos, 2009.

Rogers, Douglas L. "Increasing Access to Knowledge Through Fair Use - Analyzing the Google Litigation To Unleash Developing Countries." *Tulane Journal of Technology & Intellectual Property* 10 (2007): 1.

Scott, Beth and Duncan Brown. "Expanding the Frontiers of our Digital Future: Reducing Software Piracy to Accelerate Economic Benefits." *International Review of Law, Computers & Technology* 20 (2006): 217.

4. Geographic Case Studies

A number of articles examine how copyright regimes impact market entry in specific countries or geographical regions. For example, studies in this subset examine the copyright systems in China,¹⁵¹ Eastern Europe,¹⁵² Thailand,¹⁵³ and Vietnam.¹⁵⁴ As a trend, the majority of the articles in this subset explore the topics of economic development and/or ICT. Other topics explored include the cultural implications of enforcing U.S. Copyrights abroad, software piracy, and the music industry in developing countries.

¹⁵¹ Liu, Jiarui, "The Tough Reality of Copyright Piracy: A Case Study of the Music Industry in China," *Cardozo Arts & Entertainment Law Journal* 27 (2010): 621.

¹⁵² Ruping, Karl, "Copyright and an Integrated European Market: Conflicts With Free Movement of Goods, Competition Law, and National Discrimination," *Temple International & Comparative Law Journal* 11 (1997): 1.

¹⁵³ O'Neill III, Thomas N., "Thai Copyright Law, Economic Development and International Trade," *New York University Journal of International Law & Policy* 24 (1992): 1131.

¹⁵⁴ Siefkas, Julie, "Copyright Piracy in Vietnam: The Impediments of Weak Enforcement Policies on the Country's Economic Reform," *Florida Journal of International Law* 14 (2002): 475.

Some articles explore the economic contribution of copyright based industries. For example, one article uses empirical data to show that copyright-based industries accounted for 5.7% GDP and 5.8% of national employment in Singapore.¹⁵⁵ The author notes, however, that while copyright regimes have an arguably positive effect on Singapore's economic development, adopting the identical set of copyright laws to developing countries may not have the same beneficial effects. It is generally agreed that there is a positive correlation between copyright protection and economic development in high income countries, but the correlation is not so clear when examined in the scope of third world and developing countries.¹⁵⁶

There are also a number of articles that explore the effects of copyright regimes on developing countries from the context of cultural, economic, and political perspectives. Many of these articles use case studies and empirical data from countries like China, Vietnam, and Thailand.¹⁵⁷ One article, for example, examines the challenges that a country like China faces when enforcing Western notions of property rights which may conflict with its traditions and political history.¹⁵⁸ Some authors argue that while many countries have officially adopted the IP rights from TRIPS, copyright protections are not enforced in practice.¹⁵⁹ The result is that while illegal copies of music CDs and computer software are technically illegal, sales are still rampant in many developing countries.

Other articles use the model of the software industry to examine whether developing countries should adopt a strong or weak IP regime. Particularly, articles analyze the impact of IP protection on the corporate strategy of technology companies when entering a developing country market. One such case study examined the different corporate strategies of Microsoft (a company whose business model depends on revenues derived from copyright protection) and Linux (an open source alternative) when considering the Chinese market.¹⁶⁰ Another article argued for China to redefine

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- ¹⁵⁵ Chow, K. B. and K. M. Leo, "The Economic Contribution of Copyright Based Industries in Singapore," *Review of Economic Research on Copyright Issues* 2(2005): 127.
- ¹⁵⁶ Basalamah, Salah, "Compulsory Licensing for Translation: An Instrument of Development?" *IDEA* 40 (2000): 503.
- ¹⁵⁷ Monlux, Nicholas, "Copyright Piracy on the High Seas of Vietnam: IP Property Piracy in Vietnam Following WTO Accession," *American Intellectual Property Law Association Quarterly Journal* 37 (2009): 135.
- ¹⁵⁸ *Id.* (Comparing and contrasting copyright challenges in China with the copyright policy in Vietnam).
- ¹⁵⁹ Siefkas, Julie, "Copyright Piracy in Vietnam: The Impediments of Weak Enforcement Policies on the Country's Economic Reform," *Florida Journal of International Law* 14 (2002): 475.
- ¹⁶⁰ Xiaobai, S., "Developing Country Perspectives on Software: Intellectual Property and Open Source – A Case Study of Microsoft and Linux in China," *International Journal of IT Standards Standardization Research*, 3(1) (2005): 21.

copyright infringement rules to create a more friendly legal environment for technology companies.¹⁶¹

Literature:

Basalamah, Salah. "Compulsory Licensing for Translation: An Instrument of Development?" *IDEA* 40 (2000): 503.

Chow, K. B. and K. M. Leo. "The Economic Contribution of Copyright Based Industries in Singapore." *Review of Economic Research on Copyright Issues* 2(2005): 127.

Clondescu, Radu. "The Romanian Composers' Union and the Copyright Association." In *Copyright and Consequences: Central European and U.S. Perspectives*, edited by Lee B. Becker and Tudor Vlad, 235. Cresskill: Hampton Press, 2003.

Harabi, Najib. "Copyright-Based Industries in Arab Countries." In *Creative Industries and Developing Countries: Voice, Choice, and Economic Growth*, edited by Diana Barrowclough and Zeljka Kozul-Wright, 193. New York: Routledge, 2008.

Haupt, Stefan. "Copyright Issues Related to the Reunification of Germany in the Domain of Film Production." In *Copyright and Consequences: Central European and U.S. Perspectives*, edited by Lee B. Becker and Tudor Vlad, 209. Cresskill: Hampton Press, 2003.

Hu, Patrick H. "'Mickey Mouse' in China: Legal and Cultural Implications in Protecting U.S. Copyrights." *Boston University International Law Journal* 14 (1996): 81.

James, Vanus. "The IPRs and the Music Industry in the Caribbean." In *Creative Industries and Developing Countries: Voice, Choice, and Economic Growth*, edited by Diana Barrowclough and Zeljka Kozul-Wright, 213. New York: Routledge, 2008.

Liu, Jiarui. "The Tough Reality of Copyright Piracy: A Case Study of the Music Industry in China." *Cardozo Arts & Entertainment Law Journal* 27 (2010): 621.

Lüder, Dr. Tilman. "The Next Ten Years in E.U. Copyright: Making Markets Work." *Fordham Intellectual Property, Media & Entertainment Law Journal* 18 (2007): 1.

Monlux, Nicholas. "Copyright Piracy on the High Seas of Vietnam: IP Property Piracy in Vietnam Following WTO Accession." *American Intellectual Property Law Association Quarterly Journal* 37 (2009): 135.

O'Neill III, Thomas N. "Thai Copyright Law, Economic Development and International Trade." *New York University Journal of International Law & Policy* 24 (1992): 1131.

¹⁶¹ Zhang, Y., "Establishing Secondary Liability with a Higher Degree of Culpability: Redefining Chinese Internet Copyright Law to Encourage Technology Development," *Pacific Rim Law & Policy Journal* 16(1) (2007): 257.

Ruping, Karl. "Copyright and an Integrated European Market: Conflicts With Free Movement of Goods, Competition Law, and National Discrimination." *Temple International & Comparative Law Journal* 11 (1997): 1.

Siefkas, Julie. "Copyright Piracy in Vietnam: The Impediments of Weak Enforcement Policies on the Country's Economic Reform." *Florida Journal of International Law* 14 (2002): 475.

Simpson, Amy E. "Copyright Law and Software Regulations in the People's Republic of China: Have the Chinese Pirates Affected World Trade?" *North Carolina Journal of International Law & Com. Regulation* 20 (1995): 575.

Tuan, N. S. "TRIPS Copyright Dispute Settlement after the Transition and Moratorium: Nonviolation and Situation Complaints against Developing Countries." *Law & Policy International Business* 31 (2000): 1051.

Xiaobai, S. "Developing Country Perspectives on Software: Intellectual Property and Open Source - A Case Study of Microsoft and Linux in China." *International Journal of IT Standards Standardization Research*, 3(1) (2005): 21.

Zhang, Y. "Establishing Secondary Liability with a Higher Degree of Culpability: Redefining Chinese Internet Copyright Law to Encourage Technology Development." *Pacific Rim Law & Policy Journal* 16(1) (2007): 257.

Xue, Hong. "What Direction is the Wind Blowing? Protection of DRM in China." In *The Development Agenda: Global Intellectual Property and Developing Countries*, edited by Neil Weinstock Netanel, 177. New York: Oxford University Press, 2009.

5. IP Protection as a Barrier to International Trade

A smaller subset of articles examines how copyright can act as a barrier to trade between two or more countries. These publications consider the impact of international treaties, such as TRIPS and the Berne Convention, on international trade. Some authors call for repeal or major reform of the current international treaties.¹⁶² Many of these articles focus on Asia or other particular areas or case studies.¹⁶³ Some of these articles discuss the difficulties that countries face in protecting copyrights abroad, particularly in the area of software piracy.¹⁶⁴ Other authors contend that copyright-related capital positively impacts international trade. They find that the harmonization of

¹⁶² See, e.g., Story, Alan, "Burn Berne: Why the Leading International Copyright Convention Must Be Repealed," *Houston Law Review* 40 (2003): 763.

¹⁶³ Simpson, Amy E., "Copyright Law and Software Regulations in the People's Republic of China: Have the Chinese Pirates Affected World Trade?" *North Carolina Journal of International Law & Com Regulation* 20 (1995): 575; O'Neill III, Thomas N., "Thai Copyright Law, Economic Development and International Trade," *New York University Journal of International Law & Policy* 24 (1992): 1131.

¹⁶⁴ See, e.g., Kopczynski, M., "Robin Hood Versus the Bullies: Software Piracy and Developing Countries," *Rutgers Computer & Technology Law Journal* 33(2) (2007): 299.

copyright policies among countries has positively influenced bilateral trade in core copyright industries.

Literature:

Basalamah, Salah. "Compulsory Licensing for Translation: An Instrument of Development?" *IDEA* 40 (2000): 503.

Hollifield, C. Ann, Tudor Vlad, Lee B. Becker. "The Effects of International Copyright Laws on National Economic Development." In *Copyright and Consequences: Central European and U.S. Perspectives*, edited by Lee B. Becker and Tudor Vlad, 163. Cresskill: Hampton Press, 2003.

Kopczynski, M. "Robin Hood Versus the Bullies: Software Piracy and Developing Countries." *Rutgers Computer & Technology Law Journal* 33(2) (2007): 299.

Netanel, Neil Weinstock. "Market Hierarchy and Copyright in Our System of Free Expression." *Vanderbilt Law Review* 53 (2000): 1879.

O'Neill III, Thomas N. "Thai Copyright Law, Economic Development and International Trade." *New York University Journal of International Law & Policy* 24 (1992): 1131.

Simpson, Amy E. "Copyright Law and Software Regulations in the People's Republic of China: Have the Chinese Pirates Affected World Trade?" *North Carolina Journal of International Law & Com Regulation* 20 (1995): 575.

Story, Alan. "Burn Berne: Why the Leading International Copyright Convention Must Be Repealed." *Houston Law Review* 40 (2003): 763.

D. Trademark

The CLIP research team identified approximately 23 publications that specifically examine trademark rights as barriers to market entry. While this sample was small, a few trends did appear. These articles revealed three clusters: (1) trademark rights scope and market entry barriers; (2) geographic case studies; and (3) IP protection as a barrier to international trade.

1. Trademark Rights Scope and Market Entry Barriers

This small subset of articles examines how the scope of trademark protection acts as a barrier to market entry.¹⁶⁵ Specifically, these articles focus on how trademark protection

¹⁶⁵ See, e.g., Lunney, Jr, Glynn S., "Trademark Monopolies," *Emory Law Journal* 48 (1999): 367; McClure, Daniel M., "Trademarks and Competition: The Recent History," *SPG Law & Contemporary Problems* 59 (1996): 13; Rose, Simone A., "Will Atlas Shrug? Dilution Protection for 'Famous' Trademarks: Anti-Competitive 'Monopoly' or Earned 'Property' Right?" *Florida Law Review* 47 (1995): 653.

impacts competition. They also address the relationship between trademark and antitrust law and conclude that tensions sometimes arise between the two legal regimes. Older articles emphasize the anticompetitive power of trademark rights.¹⁶⁶ These authors recognize that trademark law provides owners with the exclusive right to use a name to identify their goods and exclude their competitors. They posited that a trademark could give one producer an unfair advantage because of its attractiveness or memorability and emphasize that extensive promotion could create barriers to entry of new firms. They suggest that trademark rights provide their holders with monopolistic abilities by enabling them to engage in tying arrangements, territorial divisions, and price discrimination. They recognize, however, that Congress attempted to counteract this monopolistic potential by providing trademark infringers with a defense that the trademark holder had used the mark for monopolistic purposes.

More recent articles observe that courts are now willing to protect trademarks on the theory that they promote economic efficiency.¹⁶⁷ Most have retreated from the view that trademarks are inherently anticompetitive. Instead, they embrace the virtues of trademark rights and their role in the economy as property. They argue that trademarks provide consumers with a convenient and essential means for distinguishing between competing goods in the marketplace.¹⁶⁸ These studies underline the informational advantages that trademarks offer consumers. They emphasize that marks convey otherwise unavailable information concerning products that is material to consumers' purchasing decisions. They generally recognize that the goals of antitrust and trademark law are therefore compatible.

However, some authors continue to remain critical of trademark protection, arguing that trademark rights confer inappropriate monopolistic power.¹⁶⁹ They argue that trademark has value independent of informing customers because competitors must expend resources to develop an alternative mark that consumers will recognize as a competitive substitute.¹⁷⁰ They find that imitations have become imperfect substitutes for the original mark as protection increases. For instance, one author suggests that the nature and extent of goodwill associated with the trademark's indication of its holders' reputation significantly affects the competitiveness of markets.¹⁷¹ This scholar argues that established reputation represents a formidable barrier to entry and calls others to more closely scrutinize the expansion of trademark rights expansion in order to maintain a productive balance between the legitimate ambitions of individual traders and the public interest in dynamic markets.

Literature:

¹⁶⁶ Smith, Edward C., "Trademarks and Antitrust: The Misuse Defense Under Section 33(B)(7) of the Lanham Act," *Harvard Journal of Law & Public Policy* 4 (1981): 161.

¹⁶⁷ See, e.g., McClure, Daniel M., "Trademarks and Competition: The Recent History," *SPG Law & Contemporary Problems* 59 (1996): 13.

¹⁶⁸ Lunney, Jr, Glynn S., "Trademark Monopolies," *Emory Law Journal* 48 (1999): 367.

¹⁶⁹ *Id.*

¹⁷⁰ *Id.*

¹⁷¹ Van Caenegem, W., "Striking a Balance between Protecting Commercial Reputation and Promoting Competition," *Australian Law Journal* 77 (2003): 598.

- Austin, Graeme W. "Trademarks and the Burdened Imagination." *Brooklyn Law Review* 69 (2004): 827.
- Bauer, Joseph P. "A Federal Law of Unfair Competition: What Should Be the Reach of Section 43(a) of the Lanham Act?" *UCLA Law Review* 31 (1984): 671.
- Cherniak, Veronica J. "Ornamental Use of Trademarks: The Judicial Development and Economic Implications of an Exclusive Merchandising Right." *Tulane Law Review* 69 (1995): 1311.
- Ghosh, S. "Dilution and Competition Norms: The Case of Federal Trademark Dilution Claims Against Direct Competitors." *Santa Clara Computer & High Technology Law Journal* 24(3) (2008): 571.
- Lemley, M. A. and M. P. McKenna. "Owning Mark(et)s.(Free-Riding Trademark Claims)." *Michigan Law Review* 109(2) (2010): 137.
- Lopes, T. *Trade Marks, Brands and Competitiveness*. London: Routledge, 2010.
- Lunney, Jr, Glynn S. "Trademark Monopolies." *Emory Law Journal* 48 (1999): 367.
- McClure, Daniel M. "Trademarks and Competition: The Recent History." *SPG Law & Contemporary Problems* 59 (1996): 13.
- McKenna, M. P. "An Alternate Approach to Channeling?" *William and Mary Law Review* 51(2) (2009): 873.
- Rose, Simone A. "Will Atlas Shrug? Dilution Protection for 'Famous' Trademarks: Anti-Competitive 'Monopoly' or Earned 'Property' Right?" *Florida Law Review* 47 (1995): 653.
- Small, Thomas M. and Kenneth D. McKay. "Trademarks, Trade Names, and Trade Dress." In *Licensing Best Practices*, edited by Robert Goldscheider, 161. New York: John Wiley & Sons, 2002.
- Smith, Edward C. "Trademarks and Antitrust: The Misuse Defense Under Section 33(B)(7) of the Lanham Act." *Harvard Journal of Law & Public Policy* 4 (1981): 161.
- Van Caenegem, W. "Striking a Balance between Protecting Commercial Reputation and Promoting Competition." *Australian Law Journal* 77 (2003): 598.
- Weinberg, Harold R. "Is the Monopoly Theory of Trademarks Robust or a Bust?" *Journal of Intellectual Property Law* 13 (2005): 137.

2. Geographic Case Studies

A few articles examine how trademark law impacts market entry in specific countries or geographical regions. For example, studies in this subset examine the trademark systems in Chile¹⁷² and the European Union.¹⁷³

Literature:

Cunningham, M.A. "A Complementary Existence: An Economic Assessment of the Trademark and Competition Law Interface in the European Community." *Tulane European & Civil Law* 10 (1995): 141.

Szwaja, Janusz. "The Co-ordination of Polish Product Symbol Rights with EU Norms." In *Intellectual Property Rights in Central and Eastern Europe*, edited by Elmar Altvater and Kazimiera Prunskiene, 126. Amsterdam: IOS Press, 1998.

Velasco, Rodrigo. "Piracy and Protection: International Trademarks under the New Chilean Industrial Property Law." *Trademark Reporter* 82 (1992): 593.

Zhou, Jessica Jiong. "Trademark Law & Enforcement in China: A Transnational Perspective." *Wisconsin International Law Journal* 20 (2002): 415.

3. IP Protection as a Barrier to International Trade

This small subset of articles examines how trademark can act as a barrier to trade between two or more countries. These publications consider the impact of international treaties, such as TRIPS, on international trade.

Some argue that international legal regimes fail to adequately protect trademark rights. For instance, one author suggests that international regimes fail to effectively prevent theft of unregistered foreign marks.¹⁷⁴ Specifically, if a domestic producer misappropriates a foreigner's unregistered trademark, then the theft will have anticompetitive effects by preventing the foreign producer from entering or using its mark in the domestic market. This author examines how the Paris Convention regime facilitated the emergence of barriers to entry for trademarks originating abroad and then explores how the WTO, NAFTA, and EU have improved protections but nevertheless left foreign trademarks exposed to misappropriation. The author eventually concludes that the requirement that an unregistered foreign mark must be well known in the domestic market for it to be protected should be abandoned in favor of an "awareness of foreign

¹⁷² Velasco, Rodrigo, "Piracy and Protection: International Trademarks Under the New Chilean Industrial Property Law," *Trademark Reporter* 82 (1992): 593.

¹⁷³ Cunningham, M.A., "A Complementary Existence: An Economic Assessment of the Trademark and Competition Law Interface in the European Community," *Tulane European & Civil Law* 10 (1995): 141.

¹⁷⁴ Fulkerson, Beth, "Theft by Territorialism: A Case for Revising TRIPS to Protect Trademarks from National Market Foreclosure," *Michigan Journal of International Law* 17 (1996): 801.

use” rule. Other articles similarly called for greater international coordination to harmonize trademark rights.¹⁷⁵

Some authors also explore the globalization of trademark law and focus on multilateral developments including the evolution of major treaties such as the Madrid Protocol and the Trademark Law Treaty.¹⁷⁶ They discuss how regional developments have expanded trademark protection globally. Generally, they viewed the progressive harmonization of trademark law favorably and argued that it would ultimately benefit both trademark owners and consumers.

However, there seems to be few articles exploring whether trademark law leads to unfair competition internationally, particularly in less developed countries. One recent article dealt with how legal protection favors famous marks of global monopolists and describes the negative impact on competition and local business as “coca-colanization.”¹⁷⁷ This author suggests that developing countries must envision new strategies and a conscious policy that helps create and value local identities. She suggested that such a goal would require developing countries to re-imagine the purposes of trademark law and strike a better balance between enforcement and local market necessities.

Literature:

Fulkerson, Beth. “Theft by Territorialism: A Case for Revising TRIPS to Protect Trademarks from National Market Foreclosure.” *Michigan Journal of International Law* 17 (1996): 801.

Leaffer, Marshall A. “The New World of International Trademark Law.” *Marquette Intellectual Property Law Review* 2 (1998): 1.

Long, Doris Estelle. “Is Fame All There Is? Beating Global Monopolists at their Own Marketing Game.” *George Washington International Law Review* 40 (2008): 123.

Tan, Ashley. “Google Adwords: Trademark Infringer or Trade Liberalizer?” *Michigan Telecommunications Technology Law Review* 16 (2010): 473.

Zenobia, I. and F. Tashil. “Trademarks or Trade Barriers? Indigenous Knowledge and the Flaws in the Global IPR System.” *International Journal of Social Economics* 31(1) (2004): 173.

E. Trade Secret

¹⁷⁵ Tan, Ashley, “Google Adwords: Trademark Infringer or Trade Liberalizer?” *Michigan Telecommunications Technology Law Review* 16 (2010): 473.

¹⁷⁶ See, e.g., Leaffer, Marshall A., “The New World of International Trademark Law,” *Marquette Intellectual Property Law Review* 2 (1998): 1.

¹⁷⁷ Long, Doris Estelle, “Is Fame All There Is? Beating Global Monopolists at their Own Marketing Game,” *George Washington International Law Review* 40 (2008): 123.

The CLIP research team identified only 8 publications that specifically examine trade secret law as a barrier to market entry. While this sample was small, one trend did appear.

These articles focus on how trade secret impacts competition and innovation. Some articles suggest that broad trade secret protections can hinder innovation and the growth of industries.¹⁷⁸ They are primarily concerned with non-compete agreements. They also find tension in the relationship between trade secret and antitrust law.

The existing scholarship is very recent, i.e. undertaken within the last decade, and scant. Scholars' discussion of trade secret law has generally been part of the wider debate on overbroad IP rules in general. Although many of these studies are comprehensive and illuminating, there is a general lack of research specifically focusing on trade secret, particularly empirical studies.

Literature:

Brenner, Jules S. "The Doctrine of Inevitable Disclosure and its Inevitable Effect on Companies and People." *The Law & Business Review of the Americas* 7 (2001): 647.

Carey, Kristina L. "Beyond The Route 128 Paradigm: Emerging Legal Alternatives to the Non-Compete Agreement and their Potential Effect on Developing High-Technology Markets." *Journal of Small & Emerging Business Law* 5 (2001): 135.

Czapracka, K. A. "Antitrust and Trade Secrets: The U.S. and the EU Approach." *Santa Clara Computer & High Technology Law Journal* 24(2) (2008): 207.

Graves, Charles Tait. "Do Strict Trade Secret and Non-Competition Laws Obstruct Innovation?" *Entrepreneurial Business Law Journal* 1 (2007): 323.

Jager, Melvin F. "The Critical Role of Trade Secret Law in Protecting Intellectual Property Assets." In *Licensing Best Practices*, edited by Robert Goldscheider, 127. New York: John Wiley & Sons, 2002.

Lemley, M. A. "The Surprising Virtues of Treating Trade Secrets as IP Rights." *Stanford Law Review* 61(2) (2008): 311.

Miller, Elizabeth A. "Antitrust Restrictions on Trade Secret Licensing: A Legal Review and Economic Analysis." *WTR Law & Contemporary Problems* 52 (1989): 183.

Png, Ivan P.L. "Law and Innovation: Evidence from the Uniform Trade Secrets Act." (2011) available at <http://ssrn.com/abstract=1755284>.

¹⁷⁸ See, e.g., Carey, Kristina L., "Beyond the Route 128 Paradigm: Emerging Legal Alternatives to the Non-Compete Agreement and their Potential Effect on Developing High-Technology Markets," *Journal of Small & Emerging Business Law* 5 (2001): 135; Brenner, Jules S., "The Doctrine of Inevitable Disclosure and its Inevitable Effect on Companies and People," *The Law & Business Review of the Americas* 7 (2001): 647.

Sherwood, Robert M. "Trade Secret Protection: Help for a Treacherous Journey." *Washburn Law Journal* 48 (2008): 67.

III. RECOMMENDATIONS

Because there is very limited truly empirical research on the effects of IP on market entry, a research program designed to address this gap in the literature would generate valuable resources for policy makers. Set forth below are several recommendations for areas where empirical research would be beneficial as well as recommendations for specific studies that would make important contributions to the literature and the policy debate.

A. Empirical Research Generally

The research trends that CLIP identified drew largely on non-empirical or semi-empirical studies. Yet, policy debates in these areas would be informed by deeper empirical study. CLIP also found that the literature did not explicitly refer to IP "as a barrier to entry," but rather addressed issues that did indeed affect market entry.

Research that seeks to more clearly articulate rights and practices as "barriers to entry" in the context of particular conflicts would be useful. Specifically, a set of six empirical studies to analyze and demonstrate the following would be extremely valuable:

- (1) the effects of IP on international trade;
- (2) the effects of IP licensing on market entry in relation to specific market sectors;
- (3) the effects of broadly defined IP rights on market entry in relation to specific market sectors;
- (4) the effects of corporate IP strategies on market entry;
- (5) the impact of IP rights on start-up entrepreneurs; and
- (6) the administration of IP rights in specific industries, notably the pharmaceutical industry and patent office administration.

Each of these proposed studies would benefit from primary research through questionnaires addressed to industry that would seek to elicit data on actual business practices and perceptions. The studies might also be focused on ICT industries because of their critical importance and connection to the various types of IP rights.

CLIP also noted that research on the relationship between IP and economic development was essentially doctrinal and that the literature seemed to assume that a minimum level of development was a pre-condition to market entry concerns. A study to explore the minimum levels of development before IP rights implicate barriers to entry would be informative. This study might focus on a particular geographic region such as Asia Pacific.

B. Copyright Research Focused on the Information, Communications and Technology Industries

The research on copyright protection and market entry was very limited. As the information economy continues to grow, copyright law will become more important for economic development. Therefore, additional empirical research about copyright law generally and, as previously noted, the ICT industries specifically could assist developing countries create IP protection strategies that would help them strengthen their positions in this new global market.

C. Trademark Law and the Impact of Branding on Market Entry

Some compelling research addresses how trademark law and branding can function as a barrier to market entry. Additional work in this area could be beneficial for developing countries. Specifically, research that identifies the types of brands that relate to economic development (e.g. industrial goods brands, fashion brands, etc.) and how these brands affect the development of markets in emerging economies.

Since the literature on trademark also lacked important attention to licensing and competition, empirical examinations of the relationships between trademark protection, licensing practices and unfair competition would be of great value.

D. Trade Secret Law and Market Entry

Very little attention has been paid to the effects of trade secret law on market entry. Empirical research examining market sectors and geographical areas would make an important contribution to the literature.

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