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Articles

INTERNATIONAL COOPERATION AND THE PATENT-ANTITRUST INTERSECTION

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***194 Introduction**

The immediate goals of patent and antitrust policy are necessarily in conflict with each other. While antitrust law promotes competition by limiting the frequency and scope of monopolies, patent law creates time-limited monopolies to encourage investment in research and development.¹ If a patent grant is a special exception to the anti-monopoly goals of competition law, then the proper scope of this exception is often difficult to define.

For almost a century, courts and commentators categorized questions at the intersection of patent and antitrust as belonging to either one domain or the other, condoning some patentee practices as rewarding invention and condemning others for reducing competition.² This vacillation between patent and antitrust goals led to indeterminate rules and sometimes conflicting outcomes.³ Louis Kaplow recognized this problem in 1984, and noted that solving the patent-antitrust dilemma required coordination with other aspects of patent policy.⁴ Kaplow's Reappraisal spawned a wealth of literature aimed at increasing the efficiency of patent policy, typically by comparing the costs and benefits of patent-antitrust rules with the potential costs and benefits available by other changes in patent policy.⁵

Despite these advances, the existing approaches to patent system design tend to treat the costs and benefits of granting patent monopolies as if they were fully ***195** internalized by a single national economy.⁶ Today, however, there is significant interplay among various patent systems.⁷ Substantial international spillovers, primarily of benefits, create opportunities for countries to behave strategically in their implementation of patent policy. For example, many countries benefit from advancements stimulated by patent protection, regardless of whether that patent protection is offered within their borders or elsewhere.⁸ Acting unilaterally, such countries may rationally decide to forgo the costs of operating a domestic patent system, while continuing to enjoy the benefits of other jurisdictions' patent systems.

This collective action problem calls for formal coordination; accordingly, significant moves have been made towards standardizing the patent rights available around the world. Most prominently, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) sets substantive, minimal patent protections that all signatories must provide.⁹ However, analogous antitrust harmonization efforts have repeatedly stalled.¹⁰ As a result, questions at the patent-antitrust intersection have been largely left to national discretion. Despite the appearance of international standards, significant components of substantive patent policy remain in the hands of national policymakers.

Although the literature on international patent cooperation is extensive, commentators have generally focused on the distributional consequences of international patent protection, rather than on how an agreed-upon amount of patent protection might be optimally implemented.¹¹ As a result, the efficiency of international patent ***196** cooperation remains largely unaddressed; the single-jurisdiction literature does not consider the international effects of rewarding invention, while the international literature does not evaluate the competing means for offering that reward.

This Article models the costs and benefits of offering patent protection when there are spillovers from other patent jurisdictions. It predicts how national policymakers will behave--both with and without formal coordination--and evaluates the consequences of their predicted behavior. This analysis suggests that the current international patent regime is inadequate, and that improved outcomes are available through increased cooperation.

Part I of this Article provides background on the tension between patent and antitrust law and describes several approaches that have been used to address the problem. This Article also introduces the international frameworks affecting patent and antitrust policy today.

Part II of this Article models the costs and benefits of operating a national patent system when the rewards of stimulating innovation are shared across economies. The model predicts how a rational policymaker will set patent terms and

patent-antitrust policies, both in the presence and in the absence of a patent treaty constraining the policymaker's behavior.

Part III of this Article uses the model from Part II to demonstrate that the existing international patent regime is expected to lead to suboptimal results. It then discusses the necessity and feasibility of improving the existing regime through increased coordination of patent-antitrust policies.

Part IV of this Article examines the assumptions of the model and evaluates other factors that could cause the existing regime to produce outcomes better than expected. Part V concludes this Article.

I. Background

A. What is the Patent-Antitrust Intersection?

A patent is a state-granted right to exclude others from making, using, selling, or importing an invention.¹² This right comprises two parts: state-provided enforcement mechanisms, such as a civil cause of action in U.S. District Court,¹³ and *197 antitrust immunity for conduct that might objectively reduce competition.¹⁴ A patent holder has a *prima facie* right to monopolize the patented product and can invoke the authority of the state to do so.¹⁵

However, patent ownership does not create blanket antitrust immunity. For example, courts have held that patentees exceeded the scope of their lawful monopolies by charging royalties on expired patents, tying the sale of patented products to the sale of unpatented products, and unreasonably restricting resale of patented goods.¹⁶ A patentee could find his attempted restriction on the licensee unenforceable, or in some cases, be subject to antitrust damages for his conduct. Courts have viewed other licensing constraints, such as field-of-use restrictions or production limits on licensed products, more favorably.¹⁷ The antitrust limitations on patentees have also changed over time, both through judicial and regulatory decision-making.¹⁸

There are often significant differences in patent-antitrust policy across jurisdictions. For example, the European Commission (EC) is particularly hostile to *198 territorial restrictions, a practice that Japan has consistently allowed.¹⁹ The EC is also skeptical of price maintenance clauses, which are subject to more lenient treatment for both patentees and non-patentees in the United States.²⁰ Courts have resolved other questions of patent-antitrust policy more consistently across jurisdictions. For example, the United States, E.C., and Japan uniformly condemn collection of royalties after a patent has expired.²¹ Many of the policies that differ from jurisdiction to jurisdiction have a substantial impact on an inventor's reward.

A patent-antitrust controversy arises anytime a patentee engages in patent-related conduct that reduces competition. Broadly, the legal questions come in two flavors: what kinds of contractual restrictions will a court enforce, and what practices may a patentee engage in without being liable under antitrust laws. Antitrust immunities are the competition-reducing activities a patentee may undertake without either losing rights or incurring liability. Practices within these bounds constitute legal exploitation of the patent; other activities are sanctionable anticompetitive conduct.

B. Theories of the Patent-Antitrust Intersection

Early attempts to define the bounds of patent protection achieved nebulous and often contradictory results. For example, one case noted that "the primary purpose of our patent laws is not the creation of private fortunes for the owners of patents, *199 but is 'to promote the progress of science and the useful arts.'"²² This finding suggested a stern approach to patentees, who may have exceeded the scope of their patents the moment they attempted to collect royalties. But another case held that a practice was acceptable so long as it was "reasonably adapted to secure pecuniary reward for the patentee's monopoly."²³ By invoking one principle or the other, a court could justify almost any outcome in a conflict between patent and antitrust law. Courts could condone a restrictive licensing practice by finding that the practice rewards patentees,²⁴ while condemning a similar restrictive licensing practice by finding that it harms competition.²⁵

Other cases looked to the scope of the invention itself to determine whether a patentee was acting within the proper bounds of his patent, reasoning that a patentee should have "exclusive use of just what his inventive genius has discovered."²⁶ Within those bounds, a patentee could seek the reward that he was "entitled to secure,"²⁷ provided that he did not do anything "in [its] very nature illegal."²⁸

Given these hazy boundaries, it was difficult for an inventor to know in advance whether he was undertaking a practice that was “in its very nature illegal” or was merely seeking the reward he was “entitled to secure.” The use of these conclusive terms as a test for patentee practices was inherently circular and could not inform a decision as to which combination of patentee rights would optimally produce the desired reward for invention.

Louis Kaplow’s landmark Reappraisal transformed the apparent conflict between patent and antitrust policy into a balancing test in service of a common goal.²⁹ Kaplow introduced a cost-benefit framework allowing for rational comparison of various policy options.³⁰ The social benefits of a patent system, he noted, are obtained as a result of rewarding patentees, while the costs of the patent system come in the form of deadweight losses from patent monopolies.³¹ Kaplow argued ***200** that candidate patent policies should be evaluated by comparing the policies’ potential wealth transfer to patentees to the deadweight loss they could be expected to cause the society—the “ratio test.”³²

Kaplow’s ratio test evaluates antitrust immunities just like the length of a patent’s term, the scope of a patent’s exclusivity, or any other aspect of patent policy—each having the potential to increase or decrease a patentee’s reward at the cost or savings of some incremental deadweight loss.³³ Kaplow called for classifying policies according to the reward they deliver to patentees per unit of deadweight loss.³⁴ An optimal patent system would start with the policies producing the greatest patentee reward per unit of deadweight loss, then gradually add increasingly inferior patentee rights until the marginal benefit to society from the increased incentive to invent is no longer offset by the marginal deadweight loss.³⁵

Kaplow acknowledged that lack of empirical data may make it difficult to implement the perfect patent system,³⁶ but his framework was nonetheless a breakthrough because it allowed for meaningful comparison of candidate patent policies. After nearly a century of indeterminate formalisms, there now existed a rational method for comparing one patent-antitrust policy to another.

Kaplow’s model treated the costs and benefits of granting patent monopolies as if they were fully internalized by a single national economy.³⁷ This assumption is an elegant simplification and is inconsequential provided there are no significant interactions across patent jurisdictions. However, developments in the last quarter-century—the increased availability of foreign markets under the World Trade Organization (WTO), the arrival of competent non-U.S. patent jurisdictions, and dramatic improvements in knowledge-sharing across borders—call for reexamination of these assumptions. Moreover, various treaty commitments now constrain domestic patent law.³⁸ To effectively evaluate domestic patent policy, we must understand the international context in which these decisions take place.

***201 C. International Treaties Affecting Patent-Antitrust Policy**

Today, decisions about patent-antitrust policy take place against two distinct backgrounds: extensive international cooperation in the realm of patent law and virtually non-existent cooperation in the realm of antitrust law.

Antitrust harmonization efforts have been repeatedly unsuccessful.³⁹ The 1947 Havana Charter included basic antitrust provisions,⁴⁰ but the U.S. Senate rejected the Charter and it never entered into force.⁴¹ The next several decades saw further attempts at international antitrust standards, but ultimately yielded only a non-binding Restrictive Business Practices Code.⁴² Recent attempts to add competition policy to the WTO framework were thwarted when negotiators took the issue off the agenda for the Doha Round in the summer of 2004.⁴³ As a result of these setbacks, countries remain largely unconstrained in their power to create and enforce antitrust law.⁴⁴

Patent cooperation has a more extensive and successful history. Under the 1883 Paris Convention for the Protection of Industrial Property (Paris Convention), signatory countries committed to offer nationals of other signatory countries the same opportunity to receive and enforce patent right as they offer to their own nationals. ***202** ⁴⁵ The Paris Convention was quickly and broadly accepted.⁴⁶ As a result, almost every country in the world is formally committed to non-discrimination in patent rights based on either citizenship or location of invention.⁴⁷

Notably, the Paris Convention does not require signatory countries to offer any particular level of patent protection. So long as a signatory country offers the same level of protection to all inventors regardless of nationality, it could offer a trivial amount of protection and be in full compliance with the Convention.⁴⁸ For over a century, international patent law was nothing more than a promise of national treatment.

Subsequent patent treaties standardized the form of patent applications or otherwise streamlined procedure,⁴⁹ but efforts to achieve global harmonization of substantive rights were unsuccessful for many years. Finally, in 1994, minimum patent protections were added to the General Agreement on Tariffs and Trade (GATT) Uruguay Round.⁵⁰ These provisions--known as the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)--became a requirement for joining the World Trade Organization, and TRIPS was propelled to rapid and widespread accession.⁵¹

*203 TRIPS sets certain minima for patentee rights, including a mandatory patent term and basic rights of exclusive use.⁵² It also specifies the standards by which new applications should be evaluated.⁵³ It does not, however, require members to provide any specific antitrust immunities to patentees.⁵⁴ Despite the close coordination of patent policy, questions of antitrust are largely delegated to member states.⁵⁵

As a result of the divergent outcomes obtained from these parallel international harmonization efforts, national patent policies today operate in two distinct spheres. Issues thought to be at the core of patent protection are largely standardized, while matters traditionally associated with antitrust law are left to national discretion.⁵⁶

This Article now turns to evaluate how a policymaker pursuing his country's self-interest can be expected to employ this discretion, as well as the consequences for expected patentee rewards.

II. National Patent Systems with International Benefits

National patent policymakers do not make their decisions in a bubble; nearly all domestic patent policies have effects, positive or negative, outside a country's borders. Likewise, national patent policymakers should expect their domestic economies to be affected by other countries' patent policies. Understanding the cross-border consequences of national patent policy is the first step to evaluating the potential for socially beneficial cooperation.

This section begins by presenting several assumptions useful for evaluating how national patent jurisdictions interact. It then incorporates these assumptions into a model for national policymaking.⁵⁷ Finally, it evaluates this model under several scenarios with varying degrees of policy coordination across jurisdictions.

A. An Inventor's Expected Reward Depends on Patent Regimes Around the World

Today, an inventor is entitled to secure a patent not only in his home country but in practically any jurisdiction in the world. Under the terms of the Paris Convention, *204 signatory countries, of which there are now 173, must afford foreigners the same patent rights as the country's own nationals.⁵⁸ Regardless of where he lives or works, an inventor may file a patent application in the country of his choosing. Although many inventors choose to file patent applications only in their home countries, the option of filing for international protection is an important component of an inventor's expected reward.⁵⁹ Patents from some jurisdictions will be worth more than others, but an inventor's total reward is based on the expected benefits he will receive from countries around the world.

To simplify the analysis, the Author starts with the assumption that inventors have the same total incentive to invent regardless of where they live.⁶⁰ Each patent jurisdiction's offerings are a geographically neutral entitlement, the sum of which (Z) is the expected reward available to an inventor anywhere in the world.

B. Various Economies Capture the Benefits of Rewarding Invention with Varying Effectiveness

Inventors may have equal opportunity to take advantage of worldwide patent protection, but national economies do not. Some countries will be better positioned to benefit from increased investment in research and development than others.⁶¹ For example, consider two engineers with the knowledge and resources to make an important contribution to the field of semiconductor manufacturing--one in Canada, and one in the United States. Both inventors have the same opportunity to have their inventions protected in the most important jurisdictions for this technology area--including China, Japan, South Korea, and the United States⁶²--and as a result, have the same incentives to undertake the necessary research and development. However, the Canadian and U.S. economies do not receive the same benefit when these inventors perform their work. The United States has a much more developed *205 semiconductor sector and is better positioned to capitalize on new

developments in the field regardless of where those developments are made.⁶³ Canada, by contrast, has comparatively little stake in the state of semiconductor manufacturing.⁶⁴ The United States benefits more than Canada even when a Canadian engineer makes the next big improvement. A country captures the benefits of an invention when it has the capability to design, manufacture, and conduct further research for products based on that invention.⁶⁵

A country may also benefit from the opportunity to consume patented products invented and produced in another country. Imagine that a new disease breaks out in a country with a limited pharmaceutical sector--like Estonia.⁶⁶ A country with a sophisticated pharmaceutical sector--like Israel⁶⁷--might be capable of developing a cure quickly, but have no domestic need for the treatment. Which country benefits more from an international regime granting worldwide patent protection for pharmaceuticals? Although royalties will flow from Estonia to Israel, Estonia may benefit more from the treaty than Israel does because the treaty allows the Israeli scientists to attend profitably to the Estonian disease. In the absence of the treaty, Israeli scientists would most likely direct their attention to other, perhaps more local problems. Estonians could lose the opportunity to receive treatment altogether. Consumption, and not just production, leaves people better off.⁶⁸

The benefits of encouraging innovation reach beyond the parties directly involved in a transaction of a patented product. A premise of the patent system is that knowledge spills over, and that even a patent-protected advance has benefits for the technology surrounding it. The new knowledge disclosed in a patent application may stimulate other discoveries, and, even if not disclosed,⁶⁹ new discoveries *206 are often leaked or reverse-engineered.⁷⁰ Patented or not, advancements in human knowledge are public goods,⁷¹ and often, the benefits of public goods are not constrained by national borders.⁷²

Estimating the benefit that a country receives from international patent protection is not as simple as measuring royalty flows. Rather, the model presented below evaluates patent policy based on the total benefit received (B) by a given national economy as a result of invention being rewarded wherever it occurs.

C. Patent-Antitrust Rules Are a Factor in a Patentee's Expected Rewards

Antitrust immunity for a particular patentee practice benefits patentees while inflicting costs on the jurisdiction granting the patent.⁷³ Both the length of the patent term in a given jurisdiction (L) and the array of rights included in the patent grant () affect the global expected return to inventors under an international patent regime.⁷⁴

To illustrate the significance of patent-antitrust policy on inventor reward, consider an inventor holding a patent essential to the 802.11 (Wi-Fi) standard. Some jurisdictions have an essential facilities doctrine that requires reasonable and non-discriminatory licensing in extraordinary circumstances.⁷⁵ Invoking this antitrust doctrine would substantially reduce the cost of both granting the patent to the inventor and that inventor's expected reward. Alternatively, the jurisdiction could shorten the term of all patents relating to wireless technologies, similarly reducing the costs of the monopoly and the benefit to the inventor. For some technologies, forcing reasonable and non-discriminatory licensing would reduce the incentive to invent more than shortening the patent term would.⁷⁶ In the case of a rapidly evolving *207 field, such as wireless communications, the final years of the patent are probably not worth much because there is a high probability that new developments will make the technology obsolete by then.⁷⁷ However, being forced to offer reasonable non-discriminatory licenses would be a great loss for the patentee, since he could no longer hold out for the full value of the patented technology.

Effective patent cooperation requires coordination of both the patent term and the rights of the patentee under the patent grant. However, this degree of cooperation is not equivalent to the complete harmonization of antitrust laws. Antitrust law is only implicated to the extent it creates liability for practices related to procuring, owning, licensing, and enforcing patents.

D. Putting It Together: The Costs and Benefits of a National Patent Policy

Based on the assumptions discussed above, the decision to provide national patent protection can be modeled as follows:⁷⁸

A country setting out to design a patent system can set the length of the patent term (L_0) and the rights, including antitrust immunities, granted to a patentee (a vector $R \square_0$). Offering domestic patent protection causes some deadweight loss (C) given by the function:

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Meanwhile, this national patent system produces an expected reward (P) to an inventor, given by the function:

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As Kaplow suggested, the country in question derives some benefit B as a function of P. However, the next step in Kaplow's model, maximizing $(P_0) - C$, no longer tells the whole story. Rather, as discussed in Part II.A, P_0 is only part of the reward expected by an inventor. The inventor's full expected reward (Z) is given by the sum of the rewards available from all the patent systems in the world:

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where P_n is the expected reward to an inventor from the patent system of country n, and L_n and R_n are, respectively, the temporal length and the set of rights granted to a patentee by a given country n. Note that P_n describes an expectation--the reward ***208** available in a given jurisdiction multiplied by the probability that an inventor will choose to file there.⁷⁹

A country's benefit from invention being rewarded by patent systems around the world, B, is a function of Z:

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As discussed in Part II.B, various countries will benefit from Z with varying degrees of effectiveness--that is, each country has its own function B(Z).

1. National Patent Policy without Coordination

A national patent policymaker acting in his country's self-interest will seek to maximize the benefits received from the global patent system while minimizing the costs of running the country's domestic patent system. In other words, he maximizes

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where L_0 and R_0 are the levers the policymaker has at his disposal. Replacing Z with a summation of patentee rewards P_n (see equation 3), the policymaker actually maximizes

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Because the national policymaker does not make patent policy in other countries, the benefits received from other countries' patent systems are beyond his control. Taking the partial derivatives of equation 6 with respect to the variables he can control (L_0 and R_0) and setting them to zero results in

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which tells our policymaker that his country's benefits less costs are maximized when

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***209** and

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Even though a national policymaker can only control his country's patent policy, the optimal amount of protection in his country depends on the total amount of protection provided by other countries.⁸⁰ If the marginal benefit of rewarding invention diminishes as the total reward available to inventors increases,⁸¹ a national policymaker will offer more patent protection when others offer less and vice versa. That is, when Z is close to zero, the increase in B is large for each additional increase in patentees' rights in any jurisdiction--this might occur, for example, when an adventurous country is the first to

offer some new kind of intellectual property right. A proposed new patentee right or a patent term extension would have a very low patentee reward per unit of deadweight loss hurdle to overcome, suggesting that the first patent jurisdiction will offer strong patent rights.

At the other extreme, when Z is large, such as when all the significant jurisdictions are already offering generous patent rights, the increase in B is likely small for any additional increase in patentees' rights. A proposed new patentee right or a patent term extension would now have a very high patentee reward per unit of deadweight loss hurdle to overcome, suggesting that later-blooming patent jurisdictions will offer comparatively weak patent rights.⁸²

Without some form of informal or formal cooperation, this arrangement is unstable. If Country A sets strong patent rights, Country B will rationally decide to set weak patent rights. However, Country A may decide that this arrangement is unfair and weaken its patent rights in retaliation for B's free riding. In response, Country B may then decide to set strong patent rights-- and the situation has reversed *210 itself. It is possible they will reach a natural equilibrium,⁸³ but on its face, this situation calls for coordination.

2. Coordinated Patent Policy

Suppose that a group of countries decides to coordinate their patent policies. One way they could do this is by committing to follow the decisions of a national policymaker in a lead country.⁸⁴ The participating countries, "member countries," would agree to have identical patent policies, while non-member countries would continue to set their policies unilaterally. The sum of the expected reward to patentees from the patent systems of these member countries is given by X , where

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and the sum of the expected reward to patentees from the patent systems of non-member countries is given by Y , where

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such that

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The policymaker maximizes

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Because the national policymaker does not make patent policy in non-member countries, the benefits received from these countries' patent systems are beyond his control. Taking the partial derivatives of equation 14 with respect to the variables he can control (L_0 and $R\Box_0$) and setting them to zero results in

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and

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*211 which imply

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and

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However, by taking the partial derivatives of equation 11, note that

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and

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If $\langle\langle\text{equation}\rangle\rangle$ and $\langle\langle\text{equation}\rangle\rangle$ are greater than zero for all member countries,⁸⁵ then $\langle\langle\text{equation}\rangle\rangle$ and $\langle\langle\text{equation}\rangle\rangle$. Comparing equations 17 and 18 to equations 9 and 10, it is apparent that members of a patent treaty will elect to have stronger patent protection than they would if they were making policy without coordination. A unilateral increase in patent scope will need to overcome the threshold set out in equations 9 and 10. *212 But, if other countries commit to making the same increase, the contributions to X made by the other countries' increase in patent scope will help the proposed policy over the threshold. Thus, regardless of the total level of patent protection in the world, countries will tend to grant stronger patent protection when they cooperate than when they do not.

This does not mean that it always makes sense for a group of cooperating countries to offer patent protection at all. When the worldwide level of patent protection is high, the marginal return to rewarding invention will be small, and it may be inefficient for even a cooperating group of countries to start offering patent protection. For example, it is possible that a group of countries will jointly decide that free riding on the rest of the world's patent systems would maximize their own welfare. However, holding $\langle\langle\text{equation}\rangle\rangle$ constant, a national policymaker will find stronger patent protection more desirable when other countries agree to implement similar protection.

3. Partially Coordinated Patent Policy

Finally, suppose a group of countries coordinates their patent policies but leaves patent-antitrust questions to the discretion of the individual members.⁸⁶ For example, consider a patent policymaker whose choice of patent term (L) will be followed by other countries, but who only has authority to set the scope of antitrust immunities for his own country.

The told expected reward to inventors is now given by:

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because the reward offered by all member countries depends on L_0 , but only the reward offered by the policymaker's countries depends on $R\Box_0$.

The policymaker now seeks to maximize

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He does this by setting the derivatives with respect to both L_0 and $R\Box_0$ to zero. When the policymaker takes the derivative with respect to L_0 , he obtains the same result as in equation 15:

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*213 That is, the policymaker will set the length of the patent term the same as if the countries were coordinating all aspects of their patent policy.

When the policymaker takes the partial derivative with respect to $R\Box_0$ he gets

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However, because member countries will follow only the policymaker's lead for the patent term, P_0 , is the only component of X that depends on $R\Box_0$. Therefore, $\langle\langle\text{equation}\rangle\rangle$ and the policymaker actually seeks to achieve:

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Compared to the result stemming from equation 8, the policymaker will set patent-antitrust policy in the same way as if the countries were not coordinating their patent policies at all. Uncoordinated antitrust immunities will be weaker than they would be if the member countries were also coordinating their patent-antitrust policies.

If a national policymaker follows the guidance of equations 23 and 25, he will set his national patent policy such that

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and

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Note that partial coordination creates a preference for extending patent terms rather than for increasing patent-antitrust immunities. Suppose the policymaker can choose to implement either Policy A, an increase in the patent term, or Policy B, an increase in antitrust immunity. Even if Policy A is a less efficient technique for rewarding invention (i.e., it provides less reward to patentees per unit of cost), it *214 is possible that the policymaker will select Policy A over Policy B, because Policy A's increase in the patent term will be matched by the other member countries. Because of the distorting influence of the partial coordination regime, policymakers will select term extensions with lower marginal returns over increases in antitrust immunity with higher marginal returns.

Of course, it is unrealistic that a single national policymaker has complete authority to adjust patent terms in all the member countries. Rather, when countries coordinate the patent term, they typically negotiate it in advance, and fix it in a treaty that is not easy to modify.⁸⁷ As a result, the primary tool remaining in the hands of any national policymaker will be control of patent-antitrust policy.⁸⁸ Optimizing patent-antitrust policy unilaterally under equation 27, the policymaker will often find it unfavorable to grant any further patentee rights. If a large number of significant patent jurisdictions have joined the treaty, Z will already be high, and <>will be small. In other words, the marginal benefit to the country from an additional reward to inventors is slight. Without coordination, there may be few antitrust immunities that can overcome the high hurdle set by these conditions. Therefore, it is expected that a treaty fixing the patent term, but leaving patent-antitrust policy to the discretion of member states, would lead to increased antitrust liability for patentees.

Countries could mitigate this effect by separately coordinating patent-antitrust policies informally, a possibility considered in Part III.D. First, however, this Article evaluates the formal agreements coordinating international patent policy today.

III. A Visit to the Real World: The TRIPS Agreement

The model presented above predicts that preferences for national patent policy will depend on the extent and form of international cooperation. This Article now turns to the most significant patent treaty in force today, the TRIPS Agreement, to evaluate the national incentives created by this prevailing treaty regime.

A. The Patent Protection Requirements of TRIPS

TRIPS includes several basic principles as well as specific minimum standards of intellectual property protection. With regard to patents, TRIPS requires member states to issue a patent for any invention that is new, involves an inventive *215 step, and is capable of industrial application.⁹⁰ This patent protection must extend for 20 years from the filing date,⁹⁰ and must include the right to exclude others from "making, using, offering for sale, selling, or importing" infringing products.⁹¹ The patent grant can not depend on the place of invention or the field of technology.⁹²

If a member state offers intellectual property protection exceeding these minimum standards, either to its own nationals or to a group of foreign nationals, it must offer that same protection to nationals of all member states.⁹³ This provision is likely to hamper future bargaining for reciprocal recognition of additional patentee rights with a subset of member states. If a member state chooses to increase patent protection, it must offer this increase in protection to nationals of all member states, whether or not other member states make a reciprocal increase in protection.

By ratifying TRIPS, member states committed to offering a patent system that was blind to the location of invention and open to all the nationals of all other member states.⁹⁴ But the member states also committed to a specified patent term, thereby sacrificing their abilities to decrease (though remaining free to increase) the length of time those patents remain in force.⁹⁵

B. TRIPS and Antitrust

Despite setting minimum requirements for national patent protection, the TRIPS Agreement left most of patent-antitrust policy to the discretion of the member states. The treaty twice acknowledges the right of member states to enforce antitrust laws against patent holders. First, there is the general principle of Article 8(2) that “[a]ppropriate measures, provided that they are consistent with the provisions of this Agreement, may be needed to prevent the abuse of intellectual property ^{*216} rights by right holders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology.”⁹⁶

Various commentators, and at least one WTO panel, have suggested that this reservation of antitrust enforcement powers to the member states should be interpreted broadly.⁹⁷ Abuse of intellectual property rights does not require market domination, or even behavior ordinarily thought to be anticompetitive. The use of the intellectual property right need only be “illegitimate” or contrary to the goals of encouraging innovation or disseminating technology.⁹⁸

With regard to licensing practices, Article 40(2) of the TRIPS Agreement is even more explicit regarding the scope of Member State authority:

Nothing in this Agreement shall prevent Members from specifying in their national legislation licensing practices or conditions that may in particular cases constitute an abuse of intellectual property rights having an adverse effect on competition in the relevant market. As provided above, a Member may adopt, consistently with the other provisions of this Agreement, appropriate measures to prevent or control such practices, which may include for example exclusive grantback conditions, conditions preventing challenges to validity and coercive package licensing, in the light of the relevant laws and regulations of that Member.⁹⁹

Under Article 40(2), “licensing practices or conditions” have been understood to include refusals to license, discriminatory grants of licenses, and restrictive license clauses.¹⁰⁰ Member states have great latitude in determining the practices that constitute abuses of intellectual property rights, so long as the measure of abuse is a given practice’s deleterious effect on competition.¹⁰¹ It is also acceptable to have *per se* rules declaring patentee conduct anticompetitive, provided those rules are based on actual competitive concerns.¹⁰²

^{*217} Although these Articles appear to recognize member state antitrust enforcement authority, they are widely interpreted as implying limits on that authority.¹⁰³ Phrases like “appropriate measures” and “consistent with the provisions of this Agreement” are generally understood to restrain member states’ authority to take certain measures against intellectual property right-holders.¹⁰⁴

However, if these Articles are an example of formal antitrust cooperation, they are an extremely limited one. The restraints in Articles 8 and 40 would only be triggered if a member state took extreme--perhaps unprecedented-- antitrust positions against holders of intellectual property rights.¹⁰⁵ TRIPS does not attempt to establish substantive antitrust immunities, nor does it coordinate patent-antitrust policy more generally.

What good is antitrust cooperation if it only amounts to an agreement not to be extraordinarily hostile to patentees? Perhaps these limited provisions address the concern that a member state might use antitrust policy to dismember its TRIPS obligations entirely.¹⁰⁶ TRIPS does not require any particular patent-antitrust policy within the universe of reasonable options; it is implicated only if when antitrust enforcement leads to the “general curtailment of intellectual property protection.”¹⁰⁷

Because of the wide latitude given to member states to set patent-antitrust policy, TRIPS is best categorized as an example of the partially coordinated patent policy described in Part II.B.3. The treaty formally coordinates certain policies affecting patentee reward, such as term length and the enforcement rights, while member states have discretion over other policies, such as those involving antitrust immunities. Although TRIPS may impose some requirements on permissible antitrust ^{*218} policies, these requirements are so minimal that almost any policy capable of increasing competition--even to the great detriment of patentees--can satisfy the TRIPS requirements. To the extent that the treaty addresses antitrust policy, it is only to ensure that member states offer something resembling intellectual property rights--not that they offer minimally substantive antitrust immunities.

The model presented in Part II therefore predicts that membership in TRIPS would be associated with increased antitrust

liability for patentees, particularly in jurisdictions that extended their patent terms to join TRIPS.¹⁰⁸ Antitrust policies that would be beneficial to many countries if uniformly adopted likely remain unimplemented, because the benefits of granting antitrust immunities are shared globally and the costs are borne locally. Patent protection is not necessarily too weak; it is possible that the negotiators of TRIPS set longer patent terms to compensate for expected weak antitrust immunities. But regardless of the optimal total level of patentee rewards achieved by TRIPS, the model suggests that this level is obtainable at a lower cost through more comprehensive coordination of patent-antitrust policy.

C. Non-Consensual TRIPS

Lurking in the background of any discussion of the purpose and effect of a TRIPS provision is the divergence of interests between developing and developed countries. The consensus is that mandatory IP protection was not in the best interest of developing countries, and that these countries agreed to TRIPS only in response to coercion from more developed countries.¹⁰⁹ After all, stronger patent protection is not necessarily better for everyone.

Diverging preferences for the level of patent protection is consistent with the model presented in Part II. Under this model, countries will enjoy varying levels of *219 benefits in response to increased global patentee rewards (i.e., they will have different B functions). Without outside influences, a country that would only slightly benefit through a coordinated increase in patentee rewards will rationally sit out the increase.¹¹⁰

Moreover, it makes sense that countries obtaining greater marginal benefits from increased patentee rewards would make side payments to countries obtaining less marginal benefits in order to reach an agreement on stronger patent regimes.¹¹¹ When a country with greater capacity to benefit from increased patentee rewards wants to increase patentee rewards, it has two options. First, the country could increase the strength of its own patent system. However, these increases in patentee reward will come at a high cost. If a country gets a large benefit from patent protection, it likely will have already offered relatively strong domestic rights, and providing additional reward will require resorting to less economical policies.

Second, countries could pay other countries to strengthen their patent systems. Because countries receiving less reward from patent protection will have relatively weak domestic rights, greater gains in patentee reward will be available at lower cost by cooperating with other jurisdictions. Bargaining allows countries enjoying large benefits from rewarding patentees to transfer a portion of these benefits to countries who would otherwise have no interest in increasing patentee rewards.

The divergence of interests underlying TRIPS could lead to several conclusions regarding the failure to standardize patent-antitrust policy. One possible conclusion is that the failure to restrain antitrust enforcement more significantly was a major oversight on the part of the developed countries that traded other benefits for TRIPS accession. Although Articles 8 and 40 of TRIPS would not allow developing countries to declare all patent activity anticompetitive, they do give developing countries latitude to offer extremely weak antitrust immunities to patentees.

An alternate conclusion is that the current latitude in antitrust was not an oversight, but rather was part of the bargain. The developing countries may have required side payments in excess of the value that these antitrust policies would have had to developed countries. But this theory does not answer the efficiency concerns; in fact, it contradicts the intuition that the developed countries have as *220 much or more to gain from trading for antitrust immunities as they do from trading for patent term guarantees. If the patent term offered by developing countries has already been increased through side payments, the next marginal dollar would be better spent buying antitrust immunities than it would be spent buying a longer patent term. Perhaps the developed countries should relax their patent term demands and instead increase pressure on developing countries to commit to strong patentee antitrust immunities.

One response to this criticism is that antitrust immunities are more difficult to define and more costly to enforce. The length of a patent term is readily verifiable, and a country that failed to meet its obligations--for example, by passing a law that granted patentees nineteen years of protection--would be subject to WTO sanctions. Antitrust enforcement is significantly more nuanced and fact-intensive. Unless a member state made patentee practices protected by TRIPS per se unlawful, it would be difficult for other member states to intervene on behalf of individual patentees. Moreover, a member state that wants to shirk its antitrust obligations could often achieve the same result using a rule-of-reason analysis. Though individual cases of overzealous prosecution of patentees could be brought before the WTO, developed countries may have concluded that an increase in patent term was simply a cleaner concession.

Even if it were unfeasible to extract further antitrust concessions from developing countries, it seems that it would have been beneficial for developed countries to coordinate patent-antitrust policies more extensively amongst themselves. As discussed in Part II, coordination can produce benefits even without full participation. Those countries with an interest in providing greater patent protection than the baseline requirements of TRIPS could enter an additional agreement to offer supplementary patent protection such as explicit patentee antitrust immunities. TRIPS, however, does not accommodate such multi-tiered arrangements; it is a one-size-fits-all package.¹¹² If there is such an agreement among developed countries, it does not exist within TRIPS.

D. Extra-Treaty Coordination

The lack of patent-antitrust coordination within TRIPS does not preclude such coordination taking place either informally or under another treaty. The latter can be shortly dismissed: there is no other treaty that coordinates patent-antitrust policy among a subset of countries desiring to implement stronger patent protection. *221¹¹³ However, the possibility of informal coordination calls for more detailed consideration. When certain conditions are met, a series of interdependent moves may result in an equilibrium equivalent to what the parties would have agreed to had they entered a formal treaty.¹¹⁴ This stable equilibrium could be achieved either by coincidence of interest, coercion, or true cooperation.¹¹⁵

Coincidence of interest occurs when states obtain private advantages from a particular action irrespective of the actions of other states.¹¹⁶ There is likely some coincidence of interests among countries that obtain significant benefits from increases in patentee rewards; consequently, there may be several patent jurisdictions that will elect to raise patentee rewards unilaterally. However, the gains from unilateral action have already been assumed. By hypothesis, countries are dealing with the deficiencies that cannot be solved by coincidence of interest.

Coercion occurs when one state forces other states to engage in actions that serve the first state's interests.¹¹⁷ Like coincidence of interest, coercion likely occurs at the international intersection of patent and antitrust law. The United States has a longstanding history of coercing countries to enforce IP rights,¹¹⁸ and has made more lenient patent-antitrust policy a condition for settling a WTO dispute with Argentina.¹¹⁹ However, under the WTO framework, member states may impose trade sanctions only for cause.¹²⁰ If a member state is compliant with its TRIPS obligations--which, as discussed above, have an extremely weak patent-antitrust component--there may be no basis for another member state to impose sanctions. Thus, the WTO may have limited the ability of states to use coercion to increase patentee rewards.

Finally, genuine cooperation can occur when the costs and benefits facing the states create a repeat prisoner's dilemma.¹²¹ For example, this situation would occur *222 if two states received the greatest possible benefit when both increased patentee antitrust immunities at the same time, but a state increasing antitrust immunities by itself would obtain the worst possible outcome. So long as the game continues, each round increases the odds that the states will arrive at the optimal outcome.¹²² Once both states have implemented mutually beneficial patent-antitrust policies, they will keep those policies until an exogenous event destabilizes the equilibrium.¹²³

Several characteristics for the patent-antitrust dilemma diminish the prospect of reaching an optimal outcome informally. First, there are over 170 potential patent jurisdictions to coordinate.¹²⁴ Also, many of these jurisdictions have divergent interests,¹²⁵ and there may be genuine disagreement about the optimal level of patentee reward, even among similarly situated countries. Finally, monitoring the antitrust immunities given to patentees is extremely challenging. Patent-antitrust cases arise infrequently, and even after the fact it can be difficult to estimate the degree of harm actually caused by a patentee's conduct.¹²⁶ Noise in monitoring can cause policymakers to misjudge each other's intentions, and coordinated behavior may soon fall apart.¹²⁷ If patent-antitrust policy is too costly to monitor and meaningfully compare through the formal TRIPS framework, it is unlikely that informal interdependent cooperation can solve the problem.

For these reasons, the deficiencies of TRIPS are real. It is unlikely that informal cooperation can supply what the Agreement omitted.

E. Evaluating TRIPS

The TRIPS Agreement does too little to coordinate patent-antitrust policy and will lead to more expensive provision of patentee rewards than would be available through more extensive cooperation. This result is troubling regardless of one's

view of the proper level of inventor reward. Whatever a patentee's expected reward ought to be (a complicated and often divisive question), it could be delivered at lower cost through increased cooperation.

*223 Although full-fledged antitrust cooperation may be implausible, there is reason to think that patent-antitrust cooperation could succeed where general harmonization efforts have failed. A convincing explanation for the contrast between the success of the TRIPS negotiations and the failure of antitrust harmonization efforts is the difference in foreseeability of outcomes.¹²⁸ A patent treaty creates clear distributional winners and losers, while the effects of antitrust agreement are murky and unpredictable.¹²⁹ Clear distributional outcomes enable side payments and issue linkages, while uncertainty triggers risk aversion.

Framing the failure of antitrust harmonization discussions in this way, the components of patent-antitrust policy absent from TRIPS look more like patent and less like antitrust policy. Increased patentee rewards in the form of new antitrust immunities would create clear winners and losers, at least at the national level, with distributional effects that are knowable and compensable. Unlike antitrust harmonization in general, patent-antitrust harmonization looks like a problem that negotiations should be able to solve.

Increased patent-antitrust coordination is both possible and desirable. Cooperation could bring about the twofold benefits of increased patentee rewards and reduced social costs--an opportunity to make everyone better off. The patent-antitrust intersection is thus ripe for further international negotiation.

IV. Refining the Model

This section evaluates several of the assumptions of the model presented in Part II and discusses how that part's conclusions would change if those assumptions did not hold.

A. Domestic Patent Protection Creates Costs Abroad

In the model presented in Part II, the Author assumed that the full cost of offering patent protection was borne by the country granting the patent. Since the costs of rewarding invention were fully internalized, but the benefits were not, there was an incentive for countries to provide weaker protection than they would if costs and benefits were fully captured. In reality, however, some of the costs of limiting competition through the grant of a patent may be borne by other countries. Taken to the extreme, it may be that countries are overprotecting invention because they are getting a share in the benefits of rewarding invention, while dumping the costs onto other countries.

There are several ways that domestic patent-antitrust policy could negatively affect foreign markets. Restricted competition in one market may naturally spill *224 over into another market. For example, an expensive royalty or injunction in one patent jurisdiction could reduce competition in other jurisdictions by preventing potential competitors from obtaining economies of scale.¹³⁰ A potential entrant in a patent-free market may find entry uneconomical unless he can enter the patent-protected market as well.

This economy-of-scale theory presupposes that patent protection is available in countries comprising a large portion of the market. A single country's grant of a domestic patent monopoly scarcely affects international competition, provided that enough markets without patent protection remain available. For most goods, this would be the case until many countries agreed to offer strong patent protection. A country offering no patent protection would experience deadweight loss once most other countries began offering patent protection. In other words, loss of economy of scale serves as a kind of natural restriction on free riding. It imposes costs on countries that hold out from offering patent protection but has little impact on the decision of the first country to reward invention. Standing alone, a country's failure to internalize the loss of economies of scale in foreign markets seems unlikely to result in the overprotection of inventions.

On another extreme, it is possible to imagine an aggressive country that defined infringement under its patent laws as production or use anywhere in the world. For example, if a U.S. patent created liability for activities abroad, the United States could impose deadweight losses on other countries' economies.¹³¹ Doing so, however, would violate existing norms of international comity that counsel against giving national laws extraterritorial effect.¹³² In fact, this might be the oldest and most consistent form of informal cooperation; courts around the world are reluctant to impose patent infringement liability

for conduct that occurred entirely outside national borders.

In between these extremes, there lies a wide range of patentee conduct that could reduce international competition if tolerated domestically. For example, a domestic cross-licensing arrangement could have the effect of dividing markets internationally. A patent settlement could be used as a cover for fixing prices worldwide. *225 ¹³³ Refusing to license a patent in one jurisdiction could be a way of disciplining price competition in another jurisdiction.

However, the antitrust laws of the country granting the patent are not the only protection against the patent's anticompetitive effects. Under the widely used "effects test," a country has authority to regulate anticompetitive conduct that has an effect in its borders, without regard to where the conduct itself occurred.¹³⁴ Thus, parties agreeing to territorial restrictions around a patent license in one country could nonetheless be liable for antitrust violations in another country where the presence of a patent at the center of the arrangement may provide no defense.

The apparent discrepancy in norms of international comity in these two areas¹³⁵ reduces the total rewards expected by patentees. In order to prove infringement, a patentee must point to conduct in the jurisdiction that granted the patent. At the same time, licensing that patent could subject the patentee to liability anywhere in the world, wherever the agreement has the effect of limiting competition. The combination of these contrasting rules for extraterritorial application of domestic law limits the ability of a national policymaker to shift the costs of patent protection onto other economies.

The possibility of costs being borne by other jurisdictions would only change the conclusions of the model if these externalized costs were large in comparison to the benefit a country accrues from inventions being rewarded worldwide. Empirical observations suggest that this is not the case. Every modern patent treaty has established patent minima; concern for domestic overprotection is not the motivation for international cooperation.¹³⁶

***226 B. Inventors in Different Locations Have Different Incentives to Invent**

Part II treated all inventors as valuing the array of available patent jurisdictions without regard to where any particular inventor is located in the world. This is not the same as valuing all patent jurisdictions equally; it only means that an inventor in India and an inventor in China value the U.S. patent system equivalently. It may go too far, however, to assume that the inventor in India values the Chinese system as much as the inventor in China does. Therefore, the Author will evaluate the effects of an inventor's home patent system comprising a disproportionate share of the inventor's expected reward.

If inventors place more value on their home patent system, then Z varies by location; inventors in jurisdictions with stronger patent protection will have greater incentives to invent than inventors in jurisdictions with weaker patent protection. For example, an inventor in late 19th century Switzerland--which, at the time, had no patent system¹³⁷--may have had less incentive to invent than a similarly situated inventor in Germany. Under the Paris Convention, both inventors had equal access to the German patent system. Yet the Swiss person's inventions would not have been protected in his home market; he could not enjoy a reward until he either entered the German market or licensed his German patent. External barriers to either of these routes may leave the Swiss inventor less inclined to invest in research compared to his German peer.

If inventors prefer their home patent systems, and if a country gets an extra benefit from inventions occurring inside its borders,¹³⁸ then the model will tend to overstate the benefits of free riding on other countries' patent systems. A country that under-protects invention will lose opportunities for additional inventive activity to occur within its borders. Nonetheless, as long as some of the benefits of rewarding invention are shared with countries where the invention did not occur, national *227 incentives will lean towards policies that systematically under-reward invention.

V. Conclusion

As Louis Kaplow pointed out in 1984, issues at the intersection of patent and antitrust law should be decided with reference to the cost of benefits available through other mechanisms of patent law. Patents are designed to reduce competition--exactly so that the promise of market power will lead inventors to expend resources in research and development. The goal of patent policy is to grant that market power in a way that is most attractive to patentees at minimal cost to everyone else.

However, today's national policymaker is not alone in the endeavor. There are significant spillovers, mostly of benefits,

flowing both in and out of the typical patent jurisdiction. These cross-border interactions do not change the basic goal of patent policy, but they do distort incentives. A national policymaker has every reason to under-commit and under-deliver--to let the rest of the world reward invention while his jurisdiction enjoys the benefits at reduced cost.

Coordination is the solution to distortions caused by uncapturable externalities. Efforts to harmonize policy internationally have been partially successful but have failed to coordinate patent and antitrust law with equal force. Under norms of international comity, in the literature, and within the TRIPS Agreement itself, patent policy is treated as worthy of being coordinated, while patent-antitrust policy is largely left out. As a result, some of the policy levers affecting the incentive to invent are controlled through detailed agreements enforceable by WTO sanction; others are left to the outcome of a 170 player prisoner's dilemma.

The results of this schism are twofold. First, patent policy has not yet been truly coordinated across international borders. There remains both the incentive and the opportunity for countries to under-reward invention without fully suffering the consequences. Second, patent policy has not yet been truly coordinated with itself. Kaplow's model of an improved patent system, in which the most reward is offered to inventors at the least cost to society, has been lost in the shift to an international patent regime.

Increased cooperation has the potential to deliver two distinct benefits. Coordinating patent antitrust immunities could increase the worldwide incentive to invent to its optimal level, resulting in more investment research and faster advances in human knowledge. But even for those who are skeptical of the need for increased inventor rewards, more extensive coordination could deliver the desired level of inventor reward (whatever it is) at a lower cost. A reunited approach to patent policy offers something for everyone--more reward at lower cost. Even if general harmonization of antitrust policy is infeasible or undesirable, questions at the patent-antitrust intersection are ripe for further cooperation.

Footnotes

¹ J.D., University of Chicago. I would like to thank Lisa Bernstein, Anu Bradford, Daniel Crane, Shahar Dillbary, Lee Fennell, Alexandra Levy, Thomas Miles, and Randall Picker for their generous help.

² See Willard K. Tom & Joshua A. Newberg, *Antitrust and Intellectual Property: From Separate Spheres to Unified Field*, 66 *Antitrust L.J.* 167, 171 (1997) (explaining that the purpose of patent law is to protect the patentee in the monopoly of his invention, forming a mirror image to the purpose of anti-monopoly laws in antitrust).

³ See Louis Kaplow, *The Patent-Antitrust Intersection: A Reappraisal*, 97 *Harv. L. Rev.* 1813, 1815 (1984) (stating that patent-antitrust doctrine has been inconsistent for nearly a hundred years).

⁴ *Id.*

⁵ *Id.* at 1816.

⁶ See, e.g., Daniel A. Crane, *Intellectual Liability*, 88 *Tex. L. Rev.* 253, 272 (2009) (using Kaplow's analysis as a starting point for analyzing patent rights); Yonatan Even, *The Right of Integrity in Software: An Economic Analysis*, 22 *Santa Clara Computer & High Tech. L.J.* 219, 222-23 (2006) (criticizing the lack of economic analysis in intellectual property law).

⁷ See, e.g., Stuart Minor Benjamin & Arti K. Rai, *Fixing Innovation Policy: A Structural Example*, 77 *Geo. Wash. L. Rev.* 1, 2 (2008) (criticizing prior analysis of patent policy as too narrow).

⁸ Although it only tells part of the story, the frequency of cross-border patent filing illustrates the magnitude of international spillovers across patent systems. Of the ten companies filing the most U.S. patent applications in 2008, six were headquartered in another country. See Press Release, IBM, IBM Shatters U.S. Patent Record; Will Openly Publish Many More Future Inventions; IBM Research to Work on Patent Quality Index (Jan. 14, 2009), <http://www-03.ibm.com/press/us/en/pressrelease/26471.wss>

(listing the ten companies). In 2008, almost 50% of all U.S. patent applications designated a country of origin outside the United States. Economics & Statistics Division, WIPO, World Intellectual Property Indicators 2010, 48 (Sept. 2010), <http://www.wipo.int/ipo/stats/en/statistics/patents>. Worldwide, non-resident applications accounted for 44% of total patent applications in 2008. *Id.* at 35. During the same year, U.S. inventors filed more than 37% percent of all new international applications before the World International Property Organization (WIPO). *Id.* at 48.

⁸ See *infra* Part II.B (discussing how various economies capture the benefits of rewarding invention with varying effectiveness).

⁹ Agreement on Trade-Related Aspects of Intellectual Property Rights, art. 36, Dec. 15, 1993, 33 I.L.M. 81 [hereinafter TRIPS Agreement].

¹⁰ Daniel A. Crane, Substance, Procedure, and Institutions in the International Harmonization of Competition Policy, 10 Chi. J. Int'l L. 143, 143 (2009).

¹¹ See, e.g., Judith C. Chin & Gene M. Grossman, Intellectual Property Rights and North-South Trade, in *The Political Economy of International Trade: Essays in Honor of Robert E. Baldwin* 90, 90-106 (Ronald W. Jones & Anne O. Krueger eds., 1990) (discussing the effects of patent protection in a country that does not produce new inventions); Meir Perez Pugatch, *The International Political Economy of Intellectual Property Rights* 49-64 (2004) (discussing the effects of an international intellectual property system on the production of intellectual property related products); Arvind Subramanian, Putting Some Numbers on the TRIPs Pharmaceutical Debate, 10 Int'l J. Tech. Mgmt. 1, 1-17 (1994) (discussing the effects of patent protection on pharmaceuticals).

¹² 35 U.S.C. §271(a) (2006); TRIPS Agreement, *supra* note 9, at art. 28.

¹³ 35 U.S.C. §281 (2006). U.S. patents can also serve as the basis of a complaint of unfair competition before the U.S. International Trade Commission. 19 U.S.C. §1337(a)(1)(B) (2006).

¹⁴ For the purposes of this Article, “patentee antitrust immunity” refers the set of patent-related practices a patentee may undertake without incurring antitrust liability. See *United States v. Line Material Co.*, 333 U.S. 287, 310 (1948) (“The monopoly granted by the patent laws is a statutory exception to this freedom for competition.”); *SCM Corp. v. Xerox Corp.*, 645 F.2d 1195, 1206 (2d Cir. 1981) (“[W]here a patent has been lawfully acquired, subsequent conduct permissible under the patent laws cannot trigger any liability under the antitrust laws.”). The European Commission also has explicit--though malleable--antitrust exceptions for intellectual property holders. See *Commission Regulation 772/2004*, art. 2, 2004 O.J. (L 123) 11, 11-13 (EC) [hereinafter Commission Regulation] (exempting certain technology transfer agreements from antitrust agreements).

¹⁵ See 35 U.S.C. §271(d)(3)-(4) (2006) (giving patent holders rights to refuse to license and to sue for infringement); 35 U.S.C. §283 (2006) (authorizing injunctive relief).

¹⁶ See *Eastman Kodak v. Image Technical Servs.*, 504 U.S. 451, 461-62 (1992) (holding that a tying agreement violates the Sherman Act); *Brulotte v. Thys Co.*, 379 U.S. 29, 33 (1964) (holding that royalties on expired patents are unenforceable and are impermissible monopolies); *Int'l Salt Co. v. United States*, 332 U.S. 392, 395-96 (1947) (holding that a patent cannot be used to restrict the use of an unpatented product by tying the unpatented product to a patented product); *United States v. Univis Lens Co.*, 316 U.S. 241, 251-52 (1942) (holding that an unreasonable resale restriction on a patented item violates the Sherman Act). In recent years, however, there has been a shift in enforcement of antitrust laws such that courts more often evaluate patentee practices under a rule of reason. See Robert D. Anderson, *The Interface Between Competition Policy and Intellectual Property in the International Trading System*, 1 J. Int'l Econ. L. 655, 663 (1998) (explaining that antitrust enforcement has become less regimented and more liberal).

¹⁷ *Gen. Talking Pictures Corp. v. W. Electric Co.*, 305 U.S. 124, 127 (1938) (upholding field-of-use licenses); *Atari Games Corp. v. Nintendo of Am., Inc.*, 897 F.2d 1572, 1578 (Fed. Cir. 1990) (holding that limiting the number of licensed game cartridges does not constitute a *per se* violation of antitrust law).

¹⁸ Leegin Creative Leather Prods., Inc. v. PSKS, Inc., 551 U.S. 877, 882 (2007) (overturning the rule that it is *per se* in violation of the Sherman Act for a manufacturer to set minimum prices that distributors must charge); see Anderson, *supra* note 16, at 662-65 (describing changes in U.S. regulations).

¹⁹ See Anderson, *supra* note 16, at 665-67 (noting EC and Japanese approaches to licensing). The United States is also comparatively more tolerant of restrictions on the location of resale. See Cont'l T.V., Inc. v. GTE Sylvania Inc., 433 U.S. 36, 57 (1977) (holding there is no *per se* bar against restrictions on territory).

²⁰ Compare Commission Regulation, *supra* note 14, at art. 4 (singling out price maintenance clauses as “hardcore restrictions”), with Leegin, 551 U.S. at 889-92 (noting numerous justifications for resale price maintenance). See also Alan S. Guterman, *Innovation and Competition Policy: A Comparative Study of the Regulation of Patent Licensing and Collaborative Research & Development in the United States and the European Community* 265-326 (1997) (providing a detailed comparison of patent-antitrust policies in Europe and in the United States).

²¹ See Brulotte, 379 U.S. at 32 (stating that “a patentee’s use of a royalty agreement that projects beyond the expiration date of the patent is unlawful *per se*”); Guidelines for the Use of Intellectual Property Under the Antimonopoly Act, Japan Fair Trade Commission, 21 (2007), http://www.jftc.go.jp/e-page/legislation/ama/070928_IP_Guideline.pdf (imposing royalties after the patent term expires is an “unfair trade practice if it tends to impede fair competition”); Commission Decision of 2 December 1975 76/29/EEC, 1976 O.J. (L 6) 8 (“The obligation to pay royalties after the expiration of the most recent patent in force when the agreement was made constitutes, in this case, an infringement of Article 85 because the licensee does not have the right to terminate the agreement.”). Paradoxically, this rare instance of international agreement reaches a result that is widely thought to be unjustifiable. See Scheiber v. Dolby Labs., Inc., 293 F.3d 1014, 1017-18 (7th Cir. 2002) (discussing the Brulotte decisions and problems with it); Harold See & Frank M. Caprio, *The Trouble with Brulotte: The Patent Royalty Term and Patent Monopoly Extension*, 1990 Utah L. Rev. 813, 814, 851 (explaining that royalties paid after the expiration of the patent term do not “represent an extension in time of the patent monopoly”).

²² Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502, 511 (1917) (quoting U.S. Const. art. I, §8).

²³ United States v. Gen. Electric Co., 272 U.S. 476, 490 (1926).

²⁴ See *id.* (allowing a price-restricted license so long as it was “reasonably adapted to secure pecuniary reward for the patentee’s monopoly”).

²⁵ See, e.g., Int’l Salt Co. v. United States, 332 U.S. 392, 395-96 (1947) (holding that tying a patent license to the purchase of commodity inputs was *per se* anticompetitive).

²⁶ Motion Picture Patents, 243 U.S. at 513.

²⁷ Gen. Electric, 272 U.S. at 489.

²⁸ See E. Bement & Sons v. Nat’l Harrow Co., 186 U.S. 70, 91 (1902) (noting that agreements will generally be upheld unless they impose conditions that are illegal).

²⁹ See Kaplow, *supra* note 2, at 1822-23 (stating that patent law and antitrust law should operate together to provide a given level of protection at the lowest cost).

³⁰ *Id.* at 1816.

³¹ *Id.*

³² Id. at 1829-30.

³³ Id. at 1831.

³⁴ Kaplow, *supra* note 2, at 1829-30.

³⁵ Id. at 1830-31; see also Crane, *supra* note 5, at 271-72 (evaluating antitrust privileges as a stick in the bundle of rights that may be given to patentees).

³⁶ See Kaplow, *supra* note 2, at 1842-43 (noting potential problems in implementing the framework).

³⁷ Cf. *id.* at 1819 (referring only to U.S. policymakers).

³⁸ See TRIPS Agreement, *supra* note 9; Daniel S. Abrams, *Did TRIPS Spur Innovation? An Analysis of Patent Duration and Incentives to Innovate*, 157 U. Pa. L. Rev. 1613, 1614 (2009) (citing numerous regional treaties).

³⁹ See Damien Geradin, *The Perils of Antitrust Proliferation: The Globalization of Antitrust and the Risks of Overregulation of Competitive Behavior*, 10 Chi. J. Int'l L. 189, 193-96 (2009) (discussing the failure of the International Trade Organization (ITO), the United Nations, and the WTO to develop an antitrust agreement); Diane P. Wood, *The Impossible Dream: Real International Antitrust*, 1992 U. Chi. Legal. F. 277, 282-87 (1992) (discussing failed attempts of the ITO and the United Nations in developing an international antitrust agreement); Anu Bradford, *When the WTO Works and How it Fails* 12-13 (U. Chi. Pub. Law & Legal Theory, Working Paper No. 300, 2010), available at <http://ssrn.com/abstract=1569838>.

⁴⁰ United Nations Conference on Trade and Employment, Havana, Cuba, Mar. 24, 1948, art. 46, U.N. Doc. E/CONF.2/78 (Mar. 24, 1948).

⁴¹ Wood, *supra* note 39, at 282-84.

⁴² *Id.* at 282-87.

⁴³ See Decision of the General Council, *Doha Work Programme--Decision Adopted by the General Council on 1 August 2004*, WT/L/579 (Aug. 2, 2004) (“Interaction between Trade and Competition Policy will not form part of the Work Programme ... and therefore no work towards negotiations ... will take place within the WTO during the Doha Round.”); Geradin, *supra* note 39, at 195 (“Such negotiations were cut short by the issuance of the August 2004 Decision by the General Council of the WTO, which stated that the ‘Interaction between Trade and Competition Policy’ would not form part of the Doha Work Program.”); see also Andrew T. Guzman, *The Case for International Antitrust*, in *Competition Laws in Conflict: Antitrust Jurisdiction in the Global Economy* 99 (Richard A. Epstein & Michael S. Greve eds., 2004) (discussing the desirability of unified antitrust policy); David S. Evans, *Why Different Jurisdictions Do Not (and Should Not) Adopt the Same Antitrust Rules*, 10 Chi. J. Int'l L. 161, 162-63 (2009) (“[C]ompetition authorities should seek antitrust rules and enforcement measures that balance their local needs against the costs of divergence to competition by multinational firms in a global economy.”).

⁴⁴ There are, however, several important regional antitrust treaties. See Geradin, *supra* note 39, at 193-94 (mentioning the European Union (E.U.), North American Free Trade Agreement (NAFTA), and Mercosur). However, with the exception of the E.U., none of these arrangements are sufficiently specific to regulate patent-antitrust policy.

⁴⁵ Paris Convention for the Protection of Industrial Property art. 2, Mar. 20, 1883, 21 U.S.T. 1538, 828 U.N.T.S. 305 [hereinafter

Paris Convention].

⁴⁶ All the major capitalist economies had acceded to the Convention by the end of the 19th century; today there are 173 signatories. World Intellectual Property Organization, Contracting Parties, http://www.wipo.int/treaties/en>ShowResults.jsp? treaty_id=2 (last visited Oct. 20, 2010).

⁴⁷ Subject only to the constraint that applicants be nationals of or have commercial establishments in signatory countries. Paris Convention, *supra* note 45, at arts. 2 & 3. This limitation is slight due to the sheer number of signatories.

⁴⁸ Id. Indeed, Switzerland had no patent system for the first ten years of its membership until succumbing to pressure from Germany. See Pugatch, *supra* note 11, at 65 (discussing Switzerland's patent system adoption). The Paris Convention's lack of minimum protection guarantees is in marked contrast to the approximately contemporaneous Berne Convention, which promised copyright holders both national treatment and minimum terms. Berne Convention for the Protection of Literary and Artistic Works art. 7, Sept. 9, 1886, S. Treaty Doc. No. 99-27.

⁴⁹ Patent Cooperation Treaty art. 3, June 19, 1970, 28 U.S.T. 7645, 1160 U.N.T.S. 231; Convention on the Grant of European Patents, Oct. 5, 1973, 13 I.L.M. 268 [hereinafter European Patent Convention]; Patent Law Treaty and Regulations Under Patent Law Treaty arts. 3 & 6, June 1, 2000, S. Treaty Doc. No. 109-12. The European Patent Convention partially standardized substantive patent policy by providing a single examination procedure that would lead to the grant of a patent enforceable in all signatory states. However, after going through this procedure, an inventor is only entitled to whatever national rights were previously offered by the various patent systems. See European Patent Convention, *supra*, at art. 64. The Paris Convention did not standardize the contents of those national rights.

⁵⁰ General Agreement on Tariffs and Trade, Apr. 15, 1994, 1867 U.N.T.S. 187 [hereinafter GATT 1994].

⁵¹ There are now 153 member states and additional "observer" states. World Trade Organization, Understanding the WTO: The Organization-Members and Observers, http://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm (last visited Oct. 20, 2010) [hereinafter Members and Observers]; see also Richard H. Steinberg, *In the Shadow of Law or Power? Consensus-Based Bargaining and Outcomes in the GATT/WTO*, 56 Int'l Org. 339, 345 (2002) (discussing the issue-linkage of intellectual property and free trade).

⁵² TRIPS Agreement, *supra* note 9, at arts. 28 & 33.

⁵³ Id. at arts. 27 & 29.

⁵⁴ See *id.* at arts. 8(2) & 40(2) (providing limited antitrust provisions).

⁵⁵ This Article evaluates the antitrust requirements of the TRIPS Agreement in greater detail in Part III.B, *infra*.

⁵⁶ TRIPS Agreement, *supra* note 9, at arts. 27-34 (discussing standards for patent law regimes); Bradford, *supra* note 39, at 2.

⁵⁷ For an overview of Kaplow's framework, see *supra* Part I.B.

⁵⁸ Paris Convention, *supra* note 45. Although the goal of this discussion is ultimately to inform on international patent cooperation, the Paris Convention's longstanding establishment and widespread acceptance merits treating it as background material.

⁵⁹ An issued patent may also be understood as a series of options. See Mark A. Lemley & Carl Shapiro, *Probabilistic Patents*, *J. Econ. Perspectives*, Spring 2005, at 75, 80-83 (2005) (analogizing patents to lottery tickets); Alan C. Marco, *The Option Value of Patent*

Litigation: Theory and Evidence, 14 Rev. Finan. Econ. 323, 323-24 (2005) (treating patents as options).

⁶⁰ This assumption is admittedly overbroad. The Author returns to evaluate the consequences of this assumption in Part IV, *infra*.

⁶¹ See Thomas K. Cheng, Striking a Balance between Competition Law Enforcement and Patent Policy: A Developing Country's Perspective, in *The Effects of Anti-Competitive Business Practices on Developing Countries and Their Development Prospects* 633, 646-48 (Hassan Qaqaya & George Lipimile eds., UNCTAD 2008) (noting that the optimal balance between patent monopoly deadweight loss and rewarding invention will vary for different categories of developing countries).

⁶² See generally Philip M. Parker, *The 2006-2011 World Outlook for Semiconductor and Related Device Manufacturing* (ICON Group International 2005) (discussing the market potential for semiconductor and related device manufacturing in countries around the world).

⁶³ See *id.* at 139, 163 (showing the projected percentage of semiconductor and related device manufacturing done in the United States (23.13% in 2010) and Canada (1.81% in 2010)).

⁶⁴ See *id.* at 139 (showing the projected percentage of semiconductor and related device manufacturing done in Canada (1.81% in 2010)).

⁶⁵ See Cheng, *supra* note 61, at 654 (noting that the gains from domestic innovation are greatest for innovative countries).

⁶⁶ Panas Kanavos et al., World Health Org. Reg'l Office for Eur., *Review of the Estonian Pharmaceutical Sector: Towards the Development of a National Medicines Policy* 80 (2009).

⁶⁷ Alastair Bell et al., *Microeconomics of Competitiveness: Israeli Biotechnology Sector* 14-15, 20-22 (May 5, 2006) (unpublished report, Harvard Business School) (on file with Harvard Business School), available at www.isc.hbs.edu/pdf/Student_Projects/Israel_Biotechnology_2006.pdf.

⁶⁸ See Chin & Grossman, *supra* note 11, at 19-20 (noting that protection of foreign intellectual property is beneficial if foreign research and development is highly productive and if domestic consumption of the product developed is high).

⁶⁹ This stimulation might happen, for example, if a firm undertakes research motivated by the possibility of patent protection, but later it decides to keep its discoveries as trade secrets instead.

⁷⁰ See generally J.T. Westermeier et al., *Reverse Engineering*, 984 PLI/Pat. 289, 304-05 (2009) (explaining that reverse engineering is lawful in trade secret law).

⁷¹ See Chin & Grossman, *supra* note 11, at 1 (noting that knowledge is generally a public good).

⁷² See generally Todd Sandler, *Intergenerational Public Goods: Transnational Considerations*, 56 Scottish J. Pol. Econ. 353, 353-69 (2009) (analyzing the benefits of public goods across transnational borders and generations).

⁷³ The Author discusses the possibility that patentee practices exert costs outside the jurisdiction granting the patent in Part IV.

⁷⁴ See Cheng, *supra* note 61, at 643-44 (noting that increasing the patent term or adding patent rights increases the reward to an inventor).

75 The European Court of Justice generated an enormous amount of excitement when it invoked this doctrine in *Magill*. See Joined Cases C-241/91 P & C-242/91 P, *Radio Telefis v. Comm.*, 1995 E.C.R. I-743, P 46-58 (holding that refusal to license copyrights was an abuse of dominant position and ordering compulsory licensing); Thomas C. Vinje, *The Final Word on Magill: The Judgment of the ECJ*, 17 Eur. Intell. Prop. Rev. 297, 301 (1995) (holding that in regards to copyrights, “the exercise of an exclusive right by a proprietor might, in exceptional circumstances, involve abusive conduct”).

76 Kristen M. Nugent, *Patenting Medical Devices: The Economic Implications of Ethically Motivated Reform*, 17 Annals Health L. 135, 167-69 (2002) (recognizing that compulsory licensing may have advantages, but increasing the patent term is simpler).

77 Nancy J. Linck et al., *A New Patent Examination System for the New Millennium*, 35 Hous. L. Rev. 305, 312 (1998) (noting that the value of a software patent at the end of the patent term is low, but the value of pharmaceutical patent at the end of the patent term remains high).

78 The Author feels heavily indebted to Louis Kaplow for much of the framework that follows. This model is essentially an adaptation of the one he presented in *The Patent-Antitrust Intersection: A Reappraisal to account for the availability of international patent protection*. See Kaplow, *supra* note 2.

79 Small jurisdictions may contribute only slightly to Z even if they offer very strong patent protection, since tiny economies may not be worth the filing cost. Z reflects the value to an inventor of the option to file anywhere in the world, even though it is rare for an inventor to file everywhere.

80 Assuming that [see org] is not constant for all Z .

81 See Kaplow, *supra* note 2, at 18, 25-26 n.29

82 At least until they are punished as free riders, a possibility discussed later.

83 See *infra* Part III for a discussion of the likelihood of reaching equilibrium with regard to patent-antitrust policy.

84 Of course, this is an oversimplification--the various members of this arrangement would want to have their own input into policymaking. However, the distribution of power within the member countries is irrelevant. The Author needs only assume that they are able to reach agreement somehow.

85 In other words, increasing patent term and patentee rights never decreases patentee reward.

86 As discussed in Part III, this is essentially the substance of the TRIPS Agreement.

87 Although other methods of coordination are theoretically possible, cooperation through a binding treaty appears to be the only form that has been successfully implemented. See *infra* Part III.D (discussing extra-treaty cooperation).

88 Technically, the policymaker may be able to extend the national patent term beyond the minimum requirements of the treaty, but a unilateral increase in the patent term faces the same hurdles as a potential increase in patentee antitrust immunities: the marginal benefit of increasing patentee rewards will likely be low, and the country that extends the scope of the patent will bear the full cost of increasing patentee rewards while receiving only part of the benefit.

89 TRIPS Agreement, *supra* note 9, at art. 27(1).

90 Id. at art. 33.

91 Id. at art. 28.

92 Id. at art. 27(a).

93 Id. at arts. 3(1) & 4; see Jerome H. Reichman, *Universal Minimum Standards of Intellectual Property Protection Under the TRIPS Component of the WTO Agreement*, in *Intellectual Property and International Trade: The TRIPS Agreement* 23, 26 (Carlos M. Correa & Abdulqawi A. Yusuf eds., 1998) (discussing the equal treatment provisions in article 4). However, the requirement to open intellectual property benefits to everyone is subject to certain exceptions. *TRIPS Agreement*, *supra* note 9, at arts. 5, 65 & 66.

94 Paris Convention, *supra* note 45, at art. 2. In some cases, states re-committed, because many were already parties to the Paris Convention, which provided a basic right to national treatment.

95 In the case of the United States, TRIPS ratification required changing the mechanism for calculating a patent term. This change effectively extended the term of patents in some technology areas while shortening the term in others. See Abrams, *supra* note 38, at 1621 (stating that the patent term was changed from a term of seventeen years from the date of the patent grant to twenty year from the date of the application, which increases the length of the patent term if the patent processing time is less than three years, and decreases the length of the patent term if the patent processing time is more than three years).

96 TRIPS Agreement, *supra* note 9, at art. 8(2).

97 Tu Thanh Nguyen & Hans Henrik Lidgard, *The CFI Microsoft Judgment and TRIPS Competition Flexibilities*, 16 *Currents: Int'l Trade L.J.* 41, 44 (2008); Panel Report, *Mexico--Measures Affecting Telecommunications Services*, WT/DS204/R (Apr. 2, 2004).

98 UNCTAD-ICTSD, *Resource Book on TRIPS and Development* 548 (2005).

99 TRIPS Agreement, *supra* note 9, at art. 40(2).

100 UNCTAD-ICTSD, *supra* note 98, at 556.

101 Id. at 559.

102 Id.; Andreas Heinemann, *Antitrust Law of Intellectual Property in the TRIPS Agreement of the World Trade Organization*, in *From GATT to TRIPS: The Agreement on Trade-Related Aspects of Intellectual Property Rights* 239, 246 (Friedrich-Karl Beier & Gerhard Schriener eds., 1996). The industrialized countries reportedly resisted the possibility of *per se* rules for anticompetitive patentee behavior, but they conceded them once they realized that a circumstantial individual review of a patentee's practice could obtain the same result. See UNCTAD-ICTSD, *supra* note 98, at 545-46.

103 See, e.g., UNCTAD-ICTSD, *supra* note 98, at 559-60 (recognizing that "on the one hand, Article 40.2 fully confirms Members' sovereign power to specify in their national legislation which licensing practices or conditions they consider to be abusive and anti-competitive; and on the other, it seems to limit that discretion by stating that such practices or conditions 'may in particular cases constitute an abuse of intellectual property rights having an adverse effect on competition in the relevant market'"); Eleanor M. Fox, *Trade, Competition, and Intellectual Property--TRIPS and its Antitrust Counterparts*, 29 *Vand. J. Transnat'l L.* 481, 485-90 (1996) (stating that TRIPS sets limits on competition laws because it recognizes that aggressive antitrust enforcement could harm intellectual property protection); Nguyen & Lidgard, *supra* note 97, at 46 (discussing how Articles 8(2) and 40(2) limit member states' power to adopt anti-competition legislation to be consistent with TRIPS).

¹⁰⁴ UNCTAD-ICTSD, *supra* note 98, at 560 (stating that Article 40(2) “requires Members to limit the measures to prevent anticompetitive practices to what is ‘appropriate’”).

¹⁰⁵ See Fox, *supra* note 103, at 492. Fox suggested that Articles 8 and 40 provide something like a good faith standard--any antitrust policy with reasonable bounds will be compliant with TRIPS. For example, she argued that “existing developed systems of antitrust are presumptively legitimate, even though they may function as a limitation on intellectual property rights.” *Id.*

¹⁰⁶ See Fox, *supra* note 103, at 486-87 (acknowledging potential clashes between TRIPS protection and competition law, and drawing a line where competition law may not go).

¹⁰⁷ UNCTAD-ICTSD, *supra* note 98, at 551-52; Fox, *supra* note 103, at 552.

¹⁰⁸ Some countries, particularly those who benefit greatly when worldwide patentee rewards are high, may always desire stronger patentee rewards than other jurisdictions are willing to provide. Therefore, they may continue to offer generous antitrust immunities to patentees post-TRIPS even if the treaty does not oblige them to do so. Countries that have increased patent terms to join TRIPS are more likely to have little interest in increasing the worldwide reward available to patentees, and may be less likely to try to increase rewards through unilateral action, such as offering generous antitrust immunities.

¹⁰⁹ See Pugatch, *supra* note 11, at 64-69 (suggesting that trade retaliation caused many developing countries to increase their IP protection when it was not otherwise in their best interests); Bradford, *supra* note 39, at 14-16 (suggesting that trade retaliation and the requirement to agree to TRIPS to receive the benefits from GATT and WTO membership caused developing countries to agree to TRIPS, even though they were primarily customers of IP related products); Anu Bradford, International Antitrust Regime, TRIPS and Different Paths to Regulatory Convergence 9-10 (Feb. 4, 2009) (unpublished manuscript, on file with the American Society of International Law) (recognizing that developing countries had little to gain from TRIPS because they were primarily consumers of IP products but that they agreed to TRIPS out of fear of trade retaliation, and because the United States and E.U. withdrew from previous trade obligations of the previous GATT, forcing developing countries to accept TRIPS as a precondition to any benefits negotiated in new the GATT).

¹¹⁰ This cost-benefit takes place against the backdrop of the Paris Convention, which ensures that nationals of non-participants have a right to file for patents in TRIPS jurisdictions, even if their home country did not offer any patent protection at all. Paris Convention, *supra* note 45, at art. 3 (“Nationals of countries outside the Union who are domiciled or who have real ad effective industrial or commercial establishments in the territory of one of the countries of the Union shall be treated in the same manner as nationals of the countries of the Union.”)

¹¹¹ As discussed in Part II, coordination among countries with equivalent abilities to capitalize on patentee reward certainly has its benefits as well. However, when everyone has the same interests, there is often little that requires bargaining.

¹¹² This is an overstatement. Developing countries have the option of delaying full implementation of TRIPS for up to ten years. TRIPS Agreement, *supra* note 9, at arts. 65 & 66. However, this leniency is temporary and does not address the inefficiencies resulting from the failure to coordinate antitrust policy.

¹¹³ The only exception is the Treaty of Rome, which provides for unification of antitrust policy more generally but only for E.U. member states. Treaty Establishing the European Economic Community art. 85, Mar. 25, 1957, 298 U.N.T.S. 3.

¹¹⁴ See Jack L. Goldsmith & Eric A. Posner, *A Theory of Customary International Law*, 66 U. Chi. L. Rev. 1113, 1120-21 (1999) (discussing how countries cooperate without explicit agreements).

¹¹⁵ *Id.* at 1122-27.

¹¹⁶ *Id.* at 1122.

¹¹⁷ Id. at 1123.

¹¹⁸ Susan K. Sell, Intellectual Property Protection and Antitrust in the Developing World: Crisis, Coercion, and Choice, 49 Int'l Org. 315, 321-32 (1995).

¹¹⁹ See Notification of Mutually Agreed Solution, Argentina--Patent Protection for Pharmaceuticals and Test Data Protection for Agricultural Chemicals, WT/DS171/3, 2002 WL 1342807, at *2 (June 20, 2002) (discussing the agreement).

¹²⁰ See World Intellectual Property Organization, Understanding the WTO: Settling Disputes--A Unique Contribution, http://www.wto.org/english/thewto_e/whatis_e/tif_e/disp1_e.htm (last visited Oct. 21, 2010) (stating that disputes between WTO countries are decided unilaterally).

¹²¹ Goldsmith & Posner, *supra* note 114, at 1124-25.

¹²² Id. at 1125.

¹²³ Id. at 1125-27.

¹²⁴ Members and Observers, *supra* note 51. There could also be significant gains from coordinating as few as the five or six of the largest patent jurisdictions. However, spite for free riding players has the potential to destabilize the cooperative effort.

¹²⁵ See generally Pugatch, *supra* note 11 (noting at various points the differing intellectual property interests of different groups).

¹²⁶ See Bradford, *supra* note 39, at 27 (stating that patent-antitrust coordination is unpredictable).

¹²⁷ See James D. Morrow, Modeling the Forms of International Cooperation: Distribution Versus Information, 48 Int'l Org. 387, 394 (1994) ("If the noise in monitoring leads the players to misjudge the other's prior move, tit-for-tat quickly loses its desired characteristics.").

¹²⁸ See Bradford, *supra* note 39, at 26-27 (stating that the outcomes from TRIPS were "clear and quantifiable *ex ante*" while it is not clear who would benefit from antitrust coordination).

¹²⁹ Id.

¹³⁰ They could also prevent other cost reductions that result from increased experience.

¹³¹ This is true, at least, for suits involving companies having sufficient resources or activities in the United States to be subject to judgment in a U.S. court.

¹³² For example, in the United States, Acts of Congress are subject to a presumption against extraterritoriality because "foreign conduct is generally the domain of foreign law." *Microsoft Corp. v. AT&T Corp.*, 550 U.S. 437, 454-55 (2007) (quotations omitted); see Paul B. Stephan, *Against International Cooperation, in Competition Laws in Conflict: Antitrust Jurisdiction in the Global Economy* 66, 81-82 (Richard A. Epstein & Michael S. Greve eds., 2004) (discussing the history of the effects test in the United States); see generally Joined Cases C-89/85, C-104/85, C-114/85, C-116/85, C-125/85, C-126/85, C-127/85, C-128/85 &

C-129/85, *A. Ahlstrom Osakeyhtio v. Comm'n of the European Comtys.*, 1988 E.C.R. 5193 (discussing the rule of noninterference used in Europe).

¹³³ There is intense debate about the likelihood of patent settlements being used to facilitate illegal domestic arrangements. See *In re Cardizem CD Antitrust Litig.*, 332 F.3d 896, 900 (6th Cir. 2003) (holding that an agreement not to enter the United States market is per se illegal under the Sherman Act); *Andrx Pharm., Inc. v. Biovail Corp. Int'l*, 256 F.3d 799, 809-10, 812, 815 (D.C. Cir. 2001) (stating that a generic drug company that is the first to file an ANDA agreeing with the patent holder of the pioneer drug to delay entry into the market when the generic drug company has FDA approval could be unlawful restraint on trade); Roger D. Blair & Thomas F. Cotter, *Are Settlements of Patent Disputes Illegal Per Se?*, 47 Antitrust Bull. 491, 538 (2002) (stating that whether a patent settlement in a pharmaceutical case is anticompetitive depends on the facts and circumstances); Herbert Hovenkamp et al., *Anticompetitive Settlement of Intellectual Property Disputes*, 87 Minn. L. Rev. 1719, 1728-29 (2003) (stating that an IP dispute does not affect whether a practice is anticompetitive, but only affects whether the anticompetitive practice is acceptable).

¹³⁴ Stephan, *supra* note 132, at 81-82; see *Hartford Fire Ins. Co. v. California*, 509 U.S. 764, 796 (1993) (discussing the effects test).

¹³⁵ Compare *Microsoft Corp.*, 550 U.S. at 454-55 (understanding that United States patent law does not extend to foreign activities), with *Hartford Fire*, 509 U.S. at 764 (finding that the Sherman Act applies to foreign conduct that intended to and did produce a substantial effect in the United States).

¹³⁶ This is because countries have adopted antitrust jurisprudence that protects them from the overreaching effects of foreign patent systems. See, e.g., *Zenith Radio Corp. v. Hazeltine Research, Inc.*, 395 U.S. 100, 114 (1969) (finding that a U.S. company had been damaged by antitrust behavior in Canada).

¹³⁷ See *Pugatch, supra* note 11, at 65 (noting that Switzerland had no patent system until 1887).

¹³⁸ This is partly, but not entirely, the case. Investment in science provides desirable jobs, increases the skill set of the local workforce, and may foster development of a regional pocket of expertise. See Giles Duranton & Diego Puga, *Micro-foundations of Urban Agglomeration Economies*, in *Handbook of Regional and Urban Economics* 2063 (J. Vernon Henderson & Jacques F. Thisse eds., 2004) (“Sustained growth ... requires that new innovations are proportional to the quantity of past innovations.”); Bruce Fallick et al., *Job-Hopping in Silicon Valley: Some Evidence Concerning the Microfoundations of a High-Technology Cluster*, 88 Rev. of Econ. & Stat. 472, 481 (2006) (stating that employee mobility in the computer industry in Silicon Valley hampers investment in innovation by reducing the reward for doing so). But there are other benefits that have nothing to do with the location of an invention. Increases in human knowledge will produce benefits regardless of where that knowledge comes from. For example, the beneficiary of a new drug treatment is likely indifferent to the location where the research underlying that treatment occurred.