
Introduction: The Issue Is Deeper than American Movies

In 1984, the United States designated inadequate protection of patents, trademarks, and copyrights as an unfair trade practice that could invoke retaliation under Section 301 of the Trade Act of 1974. In the ensuing 16 years, intellectual property rights (IPRs) have moved from an arcane area of legal analysis and a policy backwater to the forefront of global economic policymaking. Indeed, the world is witnessing the greatest expansion ever in the international scope of intellectual property rights. In the 1990s, dozens of countries strengthened their intellectual property laws and regulations (often under pressure from the United States); many others are poised to do likewise. Numerous regional trade and investment agreements, such as the North American Free Trade Agreement (NAFTA) and bilateral accords between the European Union and countries in the Middle East and North Africa, have protection of intellectual property at their core. At the multilateral level, the successful conclusion of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) as a founding component of the World Trade Organization (WTO) elevates recognition and enforcement of IPRs to the level of inviolable international commitment. International efforts are also under way to enlarge intellectual property protection for critical new technologies, such as electronic commerce.

As such agreements are implemented, global protection for creative invention and expression will markedly increase, as will the gradual harmonization of national IPRs policies. Indeed, the TRIPs agreement represents a major turning point in the global protection of intellectual property. As I will discuss in detail in this book, the agreement sets strong minimum standards in each of the areas commonly associated with IPRs, including

patents, copyrights, trademarks, *sui generis* methods for protecting new forms of technology, and trade secrets. Moreover, it mandates that countries set up mechanisms for enforcing these stronger rights. On a sectoral level, international rights protecting pharmaceutical goods, biotechnological inventions, plant varieties, computer software, entertainment products, and electronic databases will be markedly stronger.

The TRIPs agreement is important beyond its strengthening of IPRs. It is the first multilateral trade accord that aims at achieving partial harmonization in an extensive area of business regulation. Undoubtedly, it forms the vanguard of efforts to establish deep integration of domestic regulatory policies among countries.

The only previous period of comparable activity in IPRs came at the end of the 19th century with the negotiation of the Paris Convention (1883) covering various industrial property rights and the Berne Convention (1886) covering copyrights. These conventions were concluded by a small number of countries and are far less comprehensive in coverage, scope, and enforceability than is the TRIPs agreement. It is interesting that the Paris Convention was adopted during the extensive industrialization of that era, suggesting that patents were in demand as a significant component of public support for appropriating the returns to invention in the manufacturing age.

Today's even greater advances in protection anticipate the importance of IPRs in supporting the high-technology, information-based economy of the new century. The world is increasingly characterized by the international exchange of information, technologies, and creative goods and services. As detailed in chapter 3, the scope of such exchanges is huge and continues to grow rapidly through foreign direct investment (FDI) of various forms and through inter- and intrafirm trade in goods and professional services. Also important is licensing of knowledge-based assets, including technical advantages, know-how, management skills, and reputation.

In this environment, the economic value of products, services, and technologies is primarily a function of the creativity that goes into them and how they apply to market needs. However, whether such value is appropriated by original creators or by others depends on the market and policy mechanisms that protect it. Many inventions have long market lead times that give enough protection for the inventor to realize the returns to her work without public intervention. Many others suffer from low-cost appropriation by second comers through copying or imitation.

The ongoing process of economic globalization is a result of technical change, reduced transport and communication costs, and market integration through reduction of impediments to investment and trade. Firms increasingly look to international markets as these changes raise local demand and expand market access. A crucial component of this process is that, while the focus of competition shifts increasingly toward invention

and innovation, the costs of many creative activities rise even as it is becoming much easier to copy them. Examples include pharmaceutical products, biotechnological inventions, operating software, and theatrical films, which are costly to produce and subject to considerable uncertainty in costs and demand but are often straightforward to reproduce in bulk. In consequence, firms are interested in international policies for protecting their proprietary information and trademarks.

The use of intellectual property rights in international commerce is nearly universal. Virtually any traded product or service carries some form of trademark or trade name. Computer software is a key input into nearly all production processes. Recorded entertainment constitutes one of the most dynamic sectors of the global economy. Advanced technologies provide the main stimulus to FDI in many industries. In this context, the international protection of IPRs forms a core component of the advancing global regulatory framework.

The Evolving Global System

By tradition, policy choices in IPRs are a matter of national discretion because intellectual property law applies solely within designated territories. A country's system of intellectual property rights encompasses the *standards* it enacts to establish a creator's rights to exclude others from exploiting the economic value of her inventions or artistic expressions, *limitations* imposed on those rights for purposes of domestic economic and social policy, and *enforcement* of the rights. Standards define the scope of patents, trademarks, copyrights, and related rights, including recognition of trade secrets. Limitations may include, among many other elements, compelled licensing of technologies to ensure their use, fair use of copyrighted material for educational and scientific advancement, and anti-monopoly rules to maintain adequate competition. Enforcement entails administrative and judicial actions by public authorities to safeguard the rights granted.

With this many policy components, no two countries outside the European Union have identical IPRs protection.¹ Indeed, there remain substantial differences in IPRs systems, even among developed economies. For example, the United States and the EU differ in their treatment of geographical indications, biotechnology patents, fair-use exceptions in patents and copyrights, parallel trade, and misappropriation of trademarks, among other issues. Furthermore, there are substantive and controversial disagreements within countries about the appropriate scope of some rights and even the wisdom of granting them.

1. For example, the EU is moving toward an EU-wide patent. However, even within the EU there are significant differences in certain national practices.

The largest policy divergences run along North-South lines, with some developing countries maintaining weak standards and limited enforcement for IPRs. In the view of industrialized—and increasingly of industrializing—economies, several primary shortcomings that existed before TRIPs remain during the implementation period. Inadequate copyright and trademark protection promotes copying of software and entertainment products and misappropriation of well-known trademarks. Pharmaceutical drugs and agricultural chemicals are widely considered not patentable; so are biotechnological inventions. Many countries do not protect new plant varieties. Rules protecting trade secrets are absent or weak. Perhaps most significantly, procedures and resources for enforcement of IPRs are often inadequate to protect rights under even the existing weak standards.

In recent years, this system of highly variable national rights has become increasingly incompatible with the globalization of markets, where firms must exploit their technical and product advantages on an international scale. Governments met with intense pressure for reform from multinational enterprises (MNEs) in industries like pharmaceuticals, software, and recorded entertainment that are particularly attuned to multinational activity and vulnerable to imitation. These sectors are important net exporters in the American economy, which may explain their extraordinary ability to induce a massive shift in emphasis in US trade policy toward encouraging and forcing reform in IPRs in key developing economies (Ryan 1998).

Pressure from the United States and the European Union certainly played a critical role in pushing forward a global reform agenda. Widely publicized American negotiations and threats in the 1980s and 1990s helped usher in stronger IPRs legislation in South Korea, Argentina, Brazil, Thailand, Taiwan, and China, often using Section 301 authority. European Union negotiations and assistance advanced IPRs in Egypt and Turkey.

External trade pressure, however, only partially accounts for the upgrading in the 1990s of IPRs regimes by so many developing countries and countries in transition. Business interests inside rapidly developing economies also are mounting effective campaigns for stronger protection, recognizing that their own innovative efforts are disadvantaged by weak systems (Maskus 1998a; Sherwood 1997). More generally, in advanced developing countries, governments are increasingly convinced that (1) greater linkages to globalization processes through access to technology and information are critical for growth and (2) stronger IPRs can play an important role in providing that access. Whether this view is accurate or is wishful thinking depends on a wide set of factors in each country, a point that I will develop considerably in chapter 6. It is questionable whether regime changes are sustainable in poor economies that may lack domestic economic interests to support them.

Unilateral improvements in IPRs laws contribute to the new global

system, but equally important are regional trade agreements with commitments on intellectual property. The process began in the 1980s when the United States began negotiating a series of bilateral investment treaties (BITs). A key component of BITs is a commitment on the part of the partner country to establish IPRs that are adequate for protecting proprietary technologies inherent in FDI. Intellectual property rights became a core element of broader trade agreements with the negotiation of chapter 17 in NAFTA. Chapter 17 commits all three member countries to standards of protection that are stronger in some cases than those in TRIPs (Maskus 1997a). In particular, it requires Mexico and Canada to enforce IPRs that go beyond those each had adopted earlier.

Regional agreements aim at one of four levels of coordination on IPRs:

1. The most extreme form is full policy harmonization, in which all members adopt the same standards. This is the stated goal of the European Union in IPRs, toward which considerable progress has been made.
2. Second is to commit to high minimum standards, which may exceed the standards set out in TRIPs, but not to achieve harmonization. NAFTA is an example of this approach.
3. Third is to adopt somewhat lower standards that are consistent with TRIPs but again allow for policy divergence. Often this approach consists simply of nations committing to adopt TRIPs standards. Examples here include IPRs in Mercosur and the series of bilateral agreements under negotiation between the European Union and nations in Central and Eastern Europe, North Africa, and the Middle East.
4. Finally, there is the approach based on mutual exhortation to proceed as is appropriate to each nation, without formal negotiations on IPRs. This characterizes the procedure to date in the Asia Pacific Economic Cooperation Forum (APEC).

Each approach has achieved some regional strengthening of standards.

The overarching international agreement is TRIPs, which I discuss at length in chapters 2 and 6. All WTO members must bring their IPRs standards and enforcement procedures into conformity with TRIPs requirements within designated times. Because TRIPs sets out minimum standards that countries are free to exceed, it does not aim at complete harmonization. However, many developing countries are required to maintain high standards for the protection of software copyrights, pharmaceutical patents, and plant varieties, and to ensure effective enforcement and administration of the agreement.

TRIPs also brings intellectual property rights into the realm of WTO dispute resolution procedures, which represents a major strengthening

of the global system over the previously unenforceable conventions supervised by the World Intellectual Property Organization (WIPO). As additional countries join the WTO, they must adhere to TRIPs, meaning that its disciplines ultimately will extend as far as China and Russia. Indeed, China has upgraded its intellectual property laws to be virtually consistent with TRIPs in anticipation of WTO membership.

The TRIPs agreement is the first comprehensive and enforceable global set of rules covering IPRs. However, its implementation in many countries is not complete; controversies could emerge over perceived weakness in implementing legislation. Moreover, TRIPs remains a work in progress, subject to revision and updating both within its own procedures and in any new round of trade negotiations (Maskus 1998c; Watal 2000). Questions of particular interest include further protection for biotechnological products, the relationship of competition policy to IPRs, and whether there should be global rules on the treatment of parallel imports.

Furthermore, dynamic technologies and markets already render TRIPs coverage incomplete. Thorny issues surrounding copyright protection for electronic commerce were not addressed explicitly in TRIPs, requiring the negotiation in 1996 of the Copyright Treaty and the Performances and Phonograms Treaty under the auspices of WIPO. These treaties build on but go beyond the Berne Convention and TRIPs. Clearly, the world has not seen the end of IPRs negotiations and policy reform.

Economic Issues

Massive policy shifts inevitably entail considerable controversy. In the case of IPRs, the greatest requirements for change are placed on developing countries, which are decided net importers of new technologies and high-technology products. The international strengthening of IPRs raises concerns that it will reduce the ability of poorer countries to imitate foreign products and technologies, which would be available only at higher costs, deteriorating their terms of trade. There are particular worries about potentially higher prices of patented pharmaceuticals and biotechnological inventions and for protected seeds from new plant varieties. Such impacts would raise costs for health care providers and farmers. Similar concerns extend to information and technology users in developed countries as well, with significant reservations expressed about the emergence of patents in biotechnology and software and about limitations on fair use of copyrighted internet materials.

The potential for such costs is real, as I discuss later. However, there could also be significant potential benefits from extended IPRs. Clearly, stronger rights will provide competitive advantages for innovative firms, allowing them to appropriate larger returns from creative activity and generating incentives for additional invention. By reducing contracting

costs through greater business and legal certainty, stronger IPRs should expand investment and technology flows to developing countries, raising hopes that they will enjoy closer integration with global sources of technology. It is likely that some developing nations will become greater sources of innovation themselves.

Few international economic policy questions are so important and so starkly framed as the potential distribution of benefits and costs that could emerge under a stronger global system of IPRs. Distribution effects will emerge in a static sense both within countries and between countries. Perhaps more important are the potential dynamic responses of innovation, imitation, and diffusion to globally strengthened IPRs, suggesting that there are intergenerational issues as well. Such possibilities evoke considerable passion and exaggerated claims from both advocates and opponents of stronger property rights in information. In turn, in the absence of systematic economic evidence, these claims tend to drive policymaking.

Objectives of the Study

A central objective of this book is to shed light on these competing claims through a comprehensive analysis of the economic impacts of extended international protection and partial harmonization of IPRs. To do this, I bring together recent studies of aspects of the issue as well as performing new quantitative and qualitative inquiry. Though there are extensive treatises on the subject by legal scholars and international relations specialists,² they tend to take the basic economic impacts for granted rather than analyze their subtleties and test them with empirical evidence. To date no one has gathered together in one volume the variety of economic approaches that assess the effects of strong international IPRs.

In the chapters that follow, I pose several questions that may be addressed with theoretical and empirical economic inquiry. The data available for answering many of them are scarce, so the results should be treated with caution. Taken together, however, they paint a comprehensive picture of the international economics of intellectual property protection, an area that is vastly understudied by economists. The questions are:

- What determines the international strength of IPRs and what factors explain the decisions of countries to improve their protection?
- What recent trends in international transactions in IPR-sensitive goods, services, and information help explain the rising equilibrium level of global protection?

2. See, for example, Reichman (1995) and Ryan (1998).

- What are the recent trends in international use of IPRs, as indicated by patent and trademark statistics? Are there systematic differences among countries? Are firms in developing countries making greater use of their own IPRs?
- To what extent does stronger protection support monopoly prices and what circumstances affect pricing decisions?
- How well do international variations in IPRs explain international trade, FDI, and licensing transactions? On what other key economic characteristics do these flows depend and how do these characteristics interact with IPRs?
- What are the major mechanisms by which technical information is diffused across borders? Would strengthening IPRs help or hinder this process of learning?
- What are the relationships between IPRs, innovation, and economic growth? Under what circumstances do IPRs contribute to dynamic growth rather than restrict dynamic competition?

A second fundamental objective of the study is to relate the economic analysis to the numerous policy questions that arise. Having given qualitative and quantitative answers to the previous questions, I apply those results to the following problems:

- What will be the balance of global benefits and costs from the TRIPs agreement? If TRIPs should be detrimental to some countries, what forms of compensation might be required to promote their adherence?
- Given the underlying desire that stronger IPRs contribute to a dynamically procompetitive economic environment, what implementation strategies for TRIPs might be recommended to economies at varying development levels?
- What can economic analysis contribute to the design of policies for social or noneconomic regulation of IPRs?
- How should stronger IPRs fit into broader policy packages in various countries in order to maximize the net dynamic gains?

A third set of questions relates to systemic reform. TRIPs makes many fundamental changes in global norms for IPRs but does not address some important questions that can only be answered in qualitative terms at this time. However, such analysis will inform attempts to extend TRIPs in future trade negotiations. For instance:

- How desirable is a global proscription against parallel imports of goods protected by IPRs?

- Given that the regulation of IPRs entails use of competition rules, how important is the specification of such rules in countries where they are weak or absent?

Organization of the Volume and Summary of Findings

In chapter 2, I describe in detail the structure of minimum IPRs standards that TRIPs requires so that readers will have a specific policy context within which to think about the economic analysis that follows. I highlight the changes in standards that are most significant from the perspective of economic development and technology policy. An important general conclusion is that TRIPs represents the first fully multilateral agreement aimed at setting comprehensive rules covering the commercial regulatory environment, as opposed to disciplines on literal trade distortions, such as border taxes, nontariff trade barriers, and trade subsidies. Thus, TRIPs is a critical landmark in the evolution of global trade regulation.

In chapter 3, I explain the basic nature and economics of IPRs. My first task is to analyze the economic justifications for protecting rights to exclusive use of information, with emphasis on issues emerging in open economies. There is a sound public interest in defining and sustaining such rights in order to overcome the natural failure of markets to encourage investment in new technologies and artistic works. There is also justification for distributing the fruits of such invention and creation widely to consumers at relatively low cost. IPRs must strike a balance between these fundamentally conflicting objectives. Interests in establishing either strong or weak protection vary between producer and user groups within nations and, even more starkly, between information-exporting countries and information-importing countries.

Later in chapter 3, I point out important and subtle distinctions in how different IPRs affect incentives for creative activity. As rewards for industrial invention, patents are provided on the condition that the patent owner add her information to society's technology base. Copyrights protect exclusive rights to duplicate the particular expression of an idea, such as a book, film, or computer program. Trademarks offer guarantees to consumers about the ultimate origin of a product, thereby lowering the costs of searching for preferred alternatives and encouraging firms to establish reputations for quality. Trade secrets exist to protect confidential, unpatented information from unfair or dishonest disclosure by competitive rivals. Various newer forms of technology are protected with special regulatory regimes that combine attributes of these classic devices.

I also discuss in detail the economics of IPRs in particular sectors. An identifiable "patent complex" comprises pharmaceuticals, biotechnology, and plant genetics. These industries combine significant fixed costs of

inventing and marketing new products but are vulnerable to straightforward learning of their technologies through reverse engineering. A “copyright complex” covers recorded entertainment, software, electronic databases, and internet content providers. These sectors are based intimately on the application of information technology to particular market needs. Information technologies are clear examples of high fixed-cost, low marginal-cost activities, making them vulnerable to rapid entry and cheap copying. The nature of these goods and services raises difficult questions about the protection of intellectual property. Trademarks and trade secrets are used extensively in all industries, though some forms of goods and services are more prone to their application. For example, producers of wines and alcoholic spirits claim that policymakers must recognize exclusive geographical indications as guarantors of product origin.

In the final section of chapter 3, I present data showing that the global use of IPRs, through the registration of patents and trademarks and through the demand for information technologies, is rising rapidly at virtually all levels of development. Further, there is growing exchange of technology and information across borders through trade, FDI, and licensing activity. I conclude the chapter with an explanation of why demands for greater international protection of intellectual property have become so strong: As enterprises rapidly exploit their intellectual property on a global scale, the technical ease of copying and imitating new information has also increased dramatically. There is also the complex and evolving nature of intellectual property protection in newer technologies.

In succeeding chapters, I put forward the primary analytical contributions of the book, presenting theory and evidence regarding my first set of questions, such as the international determinants of IPRs and the impact of differing standards on trade and FDI. In chapter 4, the evidence clearly supports the view that the strength of IPRs rises endogenously with economic development, in interesting ways. For example, low-income countries might choose to reduce the strength and scope of their patent rights as they acquire better abilities to imitate technical information and establish production facilities based on that imitation. Middle-income countries find a growing interest in improving protection as their markets deepen and their capacities to innovate become stronger. Protection seems to accelerate rapidly at even higher income levels. The computations suggest that many developing countries are a long way from income levels that would encourage them to adopt stronger patent rights as a matter of course. This disparity points to potential difficulties in effective implementation of TRIPs and enforcement of new policy regimes.

Of more fundamental concern for this volume, I report extensive economic theory and econometric evidence about the implications of varying international levels of protection for IPRs. Theoretical approaches cannot unambiguously determine how intellectual property owners would react to different patent and copyright regimes. Other things being equal,

international trade flows could be higher or lower for a country with strong IPRs than for one with weak IPRs. The same is true for FDI and technology licensing. This inability to make strong qualitative theoretical predictions stems from the interplay of market power, free riding, contracting uncertainties, and other features of international markets for information.

Thus, while theoretical models help considerably in understanding the mechanisms through which IPRs affect commerce, extensive empirical analysis is required to arrive at practical answers. In chapter 4, I discuss empirical studies that academic economists have undertaken. The results strongly support the view that international trade, FDI, and technology licensing react positively, and in some cases elastically, to the strength of patent protection across countries.

These findings deserve some qualification. For example, small, poor countries might experience losses from the exercise of additional market power by firms awarded stronger patents. Nonetheless, the overall impacts are strikingly positive. Moreover, these rising flows of trade, investment, and technology transfer would in turn provide potential spillover benefits in the form of faster growth. I put forward simple calculations of these growth benefits, finding them to be potentially significant. However, the growth impacts depend critically on other economic variables, including economic openness. Thus, there are potential long-term gains from the stronger global regime for those countries that choose an appropriate mix of policies. Indeed, this is the central message of the book.

In chapter 5, I analyze the relationships between IPRs and economic development. While there is some empirical evidence, the analysis is more qualitative and less amenable to systematic econometric approaches. The channels of causation between intellectual property protection and development flow in both directions. Rising income levels generate stronger incentives for upgrading protection of IPRs, which in turn lays a foundation for further growth if the protection is embedded in an appropriate system of regulation and incentives.

IPRs could have both positive and negative impacts on processes of economic development. On the positive side, survey evidence suggests that certain IPRs can stimulate innovative activity even at low levels of economic development. For example, trademarks can be instrumental in permitting domestic enterprises to achieve economies of scale in national marketing. Further, protection for incremental innovation is important in promoting learning and diffusion of technical information. Improved and more effective IPRs systems could encourage innovative enterprises to focus R&D work on the market needs of developing countries.

Negative aspects of a strengthened intellectual property regime could emerge as well. Firms that are pirating or counterfeiting must shut down, perhaps raising transitional unemployment problems. Stronger IPRs could under some circumstances invite monopoly pricing, though available

evidence suggests that the impacts could be moderate. Rights holders might attempt to extend the scope of their protection through restrictive licensing clauses. To the extent that such practices could emerge, policy authorities should remain vigilant to the need for maintaining effective competition.

This analytical framework permits a series of conclusions about policy design that I apply to the TRIPs agreement in chapter 6. That chapter begins with an extensive review of actual policy changes that must be undertaken in association with multilateral initiatives in IPRs. It attempts to characterize the extent of policy strengthening and harmonization that the new system will entail. I discuss the extensive flexibility that TRIPs provides in selecting standards of protection. The agreement requires comprehensive minimum standards but permits countries to exceed these levels and also, with adequate justification, to limit the scope of protection. For example, standards may be selected that promote economic development by encouraging technology-follower firms to compete fairly, rather than to engage in simple copying or imitation.

Considering the various TRIPs requirements and the likely strength of their implementation, it is possible to use the econometric results from prior chapters for rough calculations of potential impact on international transactions in intellectual property. The major short-term impact is a transfer of economic benefits from technology-importing to technology-exporting nations, with the largest gains accruing to the United States. Over time, however, additional cross-border activity would be generated by the incentives implicit in stronger IPRs. The analysis points out the important interactions between IPRs reform and market liberalization that should be taken into account in designing policy. In particular, there is evidence that stronger IPRs encourage growth in economies that are open to international trade and investment. One reason is that IPRs help safeguard returns on the investments in technology and productivity that are required to compete in open systems. In developing countries, these processes apply similarly to adaptive investments that ensure effective acquisition of foreign technology.

An important question is whether TRIPs moves the world closer to a global economic optimum: Does it strike the best balance between dynamic incentives and static market needs and ensure an acceptable distribution of benefits across countries? No such optimum may be defined analytically, but I discuss in qualitative terms the potential for innovation to emerge. Because this potential is significant in important sectors, TRIPs should achieve dynamic net gains for the global economy over the long run. However, the problematic international distributive consequences have not yet received sufficient policy attention.

In chapter 7, I broaden the analysis to place intellectual property rights into proper context. Taken alone, stronger IPRs may not behave as suggested by economic theory and may not have the benefits advocates

ascribe to them. Rather, they must be embedded in complementary policies and regulatory approaches that optimize the potential for dynamic competition. For example, there are subtle but important relationships between IPRs reform and liberalization of foreign trade and investment restrictions. Similarly, IPRs are complementary with human skills in encouraging technology acquisition and innovation, pointing to the importance of building human capital.

Equally significant are policies for supporting competition through anti-monopoly practices in licensing and distribution. A particular issue to which I devote considerable attention is how parallel imports encourage price competition while limiting marketing incentives. Parallel imports are governed by each country's policy on the territorial exhaustion of distribution rights associated with IPRs. Once again, economic theory and limited empirical evidence reveal that parallel imports arise from a multitude of causes and have complex impacts on economic behavior and welfare. I conclude that it is inadvisable at this time to consider a global policy banning parallel imports. Additional complications in the international distribution and regulation of pharmaceuticals and vaccines, however, could support restrictions on parallel exports.

Regulating the use of IPRs in order to meet social objectives—such as affordable medicines, accessible biotechnological inventions and seed varieties, and sustainable biodiversity—is even more complex. These are among the most controversial aspects of the new global protection regime. There are critics of strong property rights in developed as well as in developing economies. Thus, I review the essential economics of social regulation in this area, noting the inevitable conflicts that emerge between longer-term needs for innovation and product development and intermediate-term needs for affordable therapies and technologies.

The final inquiry in chapter 7 is on the need for further international initiatives in intellectual property rights, both within the WTO and beyond. Within the WTO, I argue, enthusiasm for TRIPs in the developing countries would rise if the developed countries made efforts to meet their voluntary commitments to expand technical assistance and technology transfer. Further, there is scope for using TRIPs as a springboard for a limited future agreement on regulating competition. Finally, I believe it sensible to incorporate into TRIPs the Copyright and the Performances and Phonograms treaties recently concluded under the auspices of WIPO.

Beyond TRIPs, it is desirable to provide further incentives for firms to develop new vaccines for the diseases of poverty and to transfer those vaccines at low cost to poor countries, though the subtle economic questions implied in this approach require further analysis. I also briefly discuss mechanisms for managing the extraction of genetic resources, encouraging sustainable biodiversity, and promoting other environmental goals within a regime of effective intellectual property protection. Compromise and coordination will clearly be important in such initiatives.

No specific set of optimal regulations can deal with the complexities of the national and international regulation of intellectual property in all circumstances, but it is important to understand the stakes they raise for policymakers as the global IPRs system continues to strengthen.

In chapter 8, I provide conclusions and policy recommendations. The initial questions surround the TRIPs implementation decisions being taken by developing countries throughout the world. The analysis helps inform the levels at which countries may choose to implement TRIPs standards in order to enhance competition and achieve certain noneconomic objectives. Over the medium term, critical IPRs issues arise in relation to any future round of trade negotiations. These include the suitability of a global ban on parallel trade in IPR-protected goods and whether competition rules covering IPRs should be introduced into the WTO.

The protection of intellectual property rights is at the forefront of controversies over the impacts of globalization. The frustrations of some developing countries about the potential implications of TRIPs and the concerns of nongovernmental organizations about its environmental aspects have made it a focus of contention about the future of the WTO. I argue that there are legitimate reasons for including IPRs in the WTO ambit and that developing countries could gain in the long run from greater rationalization of dynamic economic incentives as a result of the new global regime. However, achieving those gains will not be costless.

This book will not satisfy all readers, precisely because there are so many divergent views on the international protection of intellectual property. Moreover, the empirical evidence put forward, though intriguing, is not definitive; it would benefit from further study. However, I hope that by setting out the arguments and evidence in a consistent economic framework, the book will stimulate more thinking and ideas that may be applied to the resolution of key policy questions. If it stimulates further discussion of these controversial questions, the volume will have served its primary purpose.