

**ROLE OF INTELLECTUAL PROPERTY IN ECONOMIC
DEVELOPMENT**

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INTRODUCTION

Globalization has proceeded at an unprecedented pace in the late 20th and 21st centuries. One of the most dramatic changes with respect to the global economy is the development of international economic law. The advent of an international economic order has fundamentally changed the nature of the global economy, affecting countries as well as the firms and individuals in every nation and region. In particular, the creation of the World Trade Organization (WTO), which succeeded the General Agreement on Tariffs and Trade (GATT) in 1994, heralded the start of international economic law. International economic law, the dispute settlement mechanism of the WTO, and the associated rules that implement the WTO agreement together comprise a new regime of global economic regulation. This newly instated legal and regulatory framework raises many questions and has already caused much uncertainty, especially with respect to one of its provisions, trade related aspects of intellectual property rights (TRIPS). The distribution of technology is essential to the process of economic growth and has several implications for economic development.¹

Intellectual property is a 'power tool' for economic development and wealth creation that has not yet been used to optimal effect in all countries, particularly in the developing world. Within every regime, building IPR protection systems through laws, mainly consider two reasons. One is to promote investments in knowledge creation and innovation by establishing exclusive rights to use and sell newly developed technologies, goods, and services; for knowledge is a kind of non-rival merchandise, which is easy to be obtained by the public. Without protection from the laws, the imitators can easily reproduce the advanced technology without paying any cost for the research work. The imitators can easily offer a more competitive price and gain more profit than the innovators, with a lower cost. Hence, they would be less willing to invest on the research and innovation process in the under protection situation. All producers would like to share the free advanced knowledge developed by others rather than investing a lot of money, human capital, and time on high risk and expensive research work. With protection from the IPR system, the innovators and creators could gain additional profit through monopoly protection; they would be

¹ http://ipindia.nic.in/whats_new/Introduction_IPR_Economic_Importance.pdf date 02/05/2014 at 5.45pm

more willing to spend physical capital and human resources on innovation activities with the expectation of gaining more monopoly profit.²

In the 1990s, an increasing number of policy-makers in the emerging economic powers recognized the important role played by the IP system in the institutional infrastructure for encouraging private investment in R and D, especially in the industrial and scientific fields. Many studies suggest a healthy IP system as a key element in encouraging foreign direct investment (FDI). An increased and steady level of FDI in India, for example, has been evident ever since the patent and trademark reform was introduced in the early 1990s (Reserve Bank of India data). An even more dramatic development has taken place in Brazil with spectacular growth in FDI, following the introduction of a new industrial property law in 1996 (\$4.4 billion in 1995 to \$32.8 billion in 2000) (Banco Central do Brasil data). Foreign direct investment occurs when a Trade Negotiations Committee (TNC) has a sufficient cost or technological advantage over firms in the host country to offset the higher costs of operating internationally.³

² http://ipindia.nic.in/whats_new/Introduction_IPR_Economic_Importance.pdf date 02/05/2014 at 5.45pm

³ http://www.wipo.int/export/sites/www/freepublications/en/intproperty/888/wipo_pub_888_1.pdf date 04/05/2014 at 3.00 pm

INTELLECTUAL PROPERTY EVOLUTION

Renaissance northern Italy is thought to be the cradle of the IP system – so the concept is not a new one. A Venetian law of 1474 made the first systematic attempt to protect inventions by a form of patent, which granted an exclusive right to an individual. In the same century, the invention of movable type and the printing press by Johannes Gutenberg around 1440 contributed to the birth of the first copyright system in the world. Towards the end of the 19th century, inventive new ways of manufacture helped trigger large-scale industrialization accompanied by such phenomena as rapid city growth, expanding railway networks, the investment of capital, and growing transoceanic trade. New ideals of industrialism, the emergence of stronger centralized governments, and stronger nationalism led many countries to establish their first modern IP laws. The international IP system also started to take root at that time with two fundamental intellectual property treaties, the Paris Convention for the Protection of Industrial Property in 1883, and the Berne Convention for the Protection of Literary and Artistic Works in 1886. The premise underlying IP throughout its history has been that the recognition and rewards associated with ownership of inventions and creative works stimulate further inventive and creative activity that, in turn, stimulates economic growth.⁴

⁴ http://ipindia.nic.in/whats_new/Introduction_IPR_Economic_Importance.pdf date 02/05/2014 at 5.45pm

INSTRUMENTS OF INTELLECTUAL PROPERTY

There are many types of intellectual property. Over the course of history, different legal instruments for protecting intellectual property have emerged. These instruments differ in their subject matter, extent of protection, and field of application, reflecting society's objective to balance the interests of creators and consumers for different types of intellectual works.⁵

Patents are legal titles granting the owner the exclusive right to make commercial use of inventions. To qualify for patent protection, inventions must be new, non-obvious, and commercially applicable. The term of protection is usually limited to 20 years, after which the invention moves into public domain. The patent system is one of the oldest and most traditional form of IPRs protection. Almost all manufacturing industries make use of the patent system to protect inventions from being copied by competing firms. Since the early 1980s, patents have also been granted for agricultural biotechnology products and processes and for certain aspects of computer software. As an adjunct to the patent system, some countries have introduced utility models (or petty patents). The novelty criteria for utility models are less stringent and are typically granted for small, incremental innovations. Their term of protection is far shorter than for "regular" invention patents (typically four to seven years). Similarly, industrial designs protect the ornamental features of consumer goods such as shoes or cars. To be eligible for protection, designs must be original or new. They are generally conferred for a period of five to fifteen years.⁶

Trademarks are words, signs, or symbols that identify a certain product or company. Trademarks seek to protect a product's and firm's reputation for quality. Customers are offered the assurance of purchasing what they intend to purchase. Trademarks can endure virtually indefinitely provided they remain in use. Almost all industries use trademarks to identify their goods and services. The use of trademarks has turned out to be of high significance in certain

⁵ http://www.iatp.org/files/Intellectual_Property_Rights_and_Economic_Deve.pdf

⁶ http://www.iatp.org/files/Intellectual_Property_Rights_and_Economic_Deve.pdf

consumer goods industries, such as clothing and watches. Similar to trademarks, geographical indications identify a product (e.g., wine or olive oil) with a certain city or region.⁷

Copyright and neighboring rights protect original works of authorship. Copyright protection differs from patent protection in that copyright solely protects the *expression* of an intellectual creation, whereas the ideas or methods advanced in the title can be freely copied. Copyright protection typically lasts for the life of the author plus 50 to 70 years. It is applicable to literary, artistic, and scientific works. During the past decade, copyright protection has also developed as the main form of protection for computer software. Neighboring rights are accorded to phonogram producers, performers, and broadcasting organizations. Limits to exclusive rights exist in certain “fair use” exemptions, such as educational or library use or for purposes of criticism and scholarship.⁸

Besides these traditional forms of IPRs, ongoing technological change and the unique characteristics of certain industries and products have led to additional, so-called *sui generis* forms of protection. **Layout designs for integrated circuits** protect producers of semiconductors. Protection is limited to the design of an integrated circuit and thus does not restrict reverse engineering of a semiconductor. In this regard, protection of layout designs is similar to copyright. However, the term of protection is shorter than under copyright—typically ten years. Title holders have the right to prevent unauthorized reproduction, importation, sale or other distribution of the layout design for commercial purposes. **Plant breeders’ rights** (PBRs) protect new plant varieties that are distinct from existing varieties, uniform, and stable. Exclusive rights, in principle, include the sale and distribution of the propagating materials for a minimum of 15 years. Exclusive rights are typically subject to two general exemptions: the “research exemption,” which permits the use of a protected variety as a basis for the development of a new variety; and the “farmers’ privilege,” which gives farmers the right to re-use seeds obtained from their own harvests. With the advent of biotechnology, however, many breeders in industrial countries are increasingly using the regular patent system for protecting agricultural products and

⁷ http://www.iatp.org/files/Intellectual_Property_Rights_and_Economic_Deve.pdf

⁸ <http://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1133&context=njtip>

processes. Breeders enjoying patent protection can not only prevent their competitors from using their protected material for breeding purposes, but also prevent farmers from reusing harvested seed. Finally, the *protection of trade secrets* is part of many countries' IPRs systems. Trade-secret protection differs from other forms of protection in that it does not grant an explicit title to the creator of an original work. Instead, it protects businesses from the unauthorized disclosure or use of confidential information. Such confidential information includes inventions not yet at the patenting stage, ways of organizing business, client lists, purchasing specifications, and so on. In agriculture, breeders rely on trade secrets to protect hybrid plant varieties, if they can be kept secret. Copying through reverse-engineering does not infringe trade-secret laws. In essence, all industries possessing secret business information rely on trade-secret protection to safeguard their (often otherwise unprotectable) intangible assets.⁹

Database rights are a relatively new phenomenon in IP law. Usually, protection for collections of facts was only available under copyright law if the collection was somehow original. The European Union passed in 1996 a Directive to create a separate (*sui generis*) right to protect databases. This right controls extraction and reutilization of the contents of a database.¹⁰

⁹ <http://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1133&context=njtip>

¹⁰ [http://nopr.niscair.res.in/bitstream/123456789/3698/1/JIPR%2010\(6\)%20465-473.pdf](http://nopr.niscair.res.in/bitstream/123456789/3698/1/JIPR%2010(6)%20465-473.pdf)

ROLE OF INTELLECTUAL PROPERTY IN ECONOMIC DEVELOPMENT

For many years, economists have tried to provide an explanation as to why some economies grow fast while others do not; in other words, why some countries are rich and others are not. It is generally agreed that knowledge and innovation have played an important role in recent economic growth. The renowned economist Paul Romer suggests that the accumulation of knowledge is the driving force behind economic growth. For countries to promote growth, economic policies should encourage investment in new research and development (R&D) and subsidize programs that develop human capital. This can be seen in the economic growth achieved by some countries in the 1990s. Rapid knowledge creation, including the emergence of new technologies, resulted in policy changes regarding intellectual property and the adoption of new knowledge asset management practices.¹¹

One of the consequences of the emerging importance of IP and the new pattern of global trade that started at the beginning of the 1990s was the forging of a deliberate connection between the two. Some developed countries began to use trade measures to curb piracy of intellectual property abroad. Among other things, this led to the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), one of the World Trade Organization (WTO) agreements resulting from the multilateral trade negotiations under the Uruguay Round.

In the 1990s, an increasing number of policy-makers in emerging economic powers recognized the important role of the IP system in encouraging private investment in R&D, especially in the industrial and scientific fields. Many studies suggest a healthy IP system is a key element in encouraging foreign direct investment (FDI). A steady increase in the level of FDI in India, for example, has been evident ever since patent and trademark reform was introduced in the early 1990s.¹²

Legal Doctrine Governing Intellectual Property Rights: TRIPS

¹¹ http://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1133&context=njtip_date
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¹² http://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1133&context=njtip_date
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The Paris and Berne Conventions of 1867 and 1871 provided a legal framework for IPRs in the international arena that lasted for more than a century. These embodied the two major doctrines relating to IPRs under public international law. The first is territoriality, stating that property rights are to be honored by each state's rules. The second is the doctrine of independence, which states that the grant of property rights within one country does not have force in another. However, after World War II, an increasing concern of the balance between the innovator and the benefits of diffusing knowledge, particularly to developing countries, challenged the existing legal norm. The needs of developing countries, particularly the least developed countries (LDCs), for technology and industrialization seemed to justify a reduction of benefits to innovators by the LDCs' governments. Two typical examples of limitations imposed on innovators included:

(1) A patent could only be granted if the intellectual property was worked and exploited within the boundary of a country (a working requirement) and

(2) The terms and royalties for licenses of intellectual property could be determined by the government in the absence of agreement by the innovator (compulsory licensing).

The two doctrines were rendered irrelevant with the advent of international economic law. International economic law is premised instead on the norm that the harmony or uniformity of laws is the ideal for the free flow of goods and services globally. Since 1995, the LDCs have been compelled to eventually adopt TRIPS, which are closer to U.S. standards of protection. This framework reinforces the view that the justification for granting IPRs is to present to the innovator some monopolistic return from an investment that will benefit society and which would otherwise not occur, with some provisions allowing for the issues of concern to developing countries.

The WTO, in short, will enforce a set of internationally recognized standards for intellectual property into national laws, while providing both a dispute settlement mechanism, the Dispute Settlement Understanding under the WTO (DSU) and consultation process, the Dispute Settlement Body (DSB), to resolve disputes among nations over these international norms. A one-year transition period for developed countries to bring their legislation and practices into

conformity with the TRIPS Agreement was provided. In contrast, developing countries and countries in the process of transition from a centrally planned into a market economy have a five-year period and LDCs, 11 years, which has since been extended. Developing countries that do not have product patent protection in an area of technology would have up to ten years to introduce such protection. Within the next few decades, every member should have adopted the guidelines of TRIPS.

However, difficult problems remain, particularly in terms of implementation for developing countries. Common features of LDCs' legal systems are that IPRs are subject to inconsistent coverage, uncertain terms of protection, arbitrary transferability, and inadequate enforcement. Early evidence shows that the developed nations use the dispute settlement mechanism more often than developing countries and always against developing countries.

The Relevant Provisions of TRIPS:

In Part I of TRIPS, Articles 3 and 4 set up the principle of the harmonization of laws. Article 3 provides for National Treatment. This means that domestic and foreign firms must be given the same treatment by a government, which accords with general WTO principles. Article 4 gives Most Favoured Nation treatment, which stipulates that any advantage given to one firm must be given to all other firms, which is again consistent with WTO aims.

Part II of the agreements specifies the standards concerning the availability, scope, and use of intellectual property rights. First, Articles 9 through 21 govern copyrights, trademarks, and industrial designs, and we focus on some notable provisions. Article 9 articulates the standard for copyright protection, extended to "expressions and not to ideas, procedures, methods of operation or mathematical concepts as such." This is a formulation in line with the U.S. standard for copyright protection. Article 10 provides that computer programs will be treated as literary works, including compilation of data or other materials, while the actual data or material is not encompassed. Article 12 provides that copyright protection extends for 50 years from publication (other than a photographic work or a work of applied art). This again reflects the standard of the U.S. Article 18 provides for trademark protection that is initially for seven years from registration and is renewable indefinitely. Compulsory licensing of trademarks is not permitted,

according to Article 21. Finally, industrial design protection will last for at least 10 years. Section 5 addresses the important issue of patents. Patents shall be “available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application” in Article 27. Patent rights are further to be enjoyable “without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.” This provision prevents parallel imports. Article 28 provides that exclusive rights are conferred as follows on products and processes, respectively:

(1) A patent holder can prevent third parties from making, using, offering for sale, selling, or importing a product and

(2) A patent holder can prevent the same action for any products obtained from the process. Patent owners have the right to assign, or transfer by succession the patent and to conclude licensing contracts.

A condition for the grant includes Member countries demanding an applicant for a patent disclose corresponding foreign applications and grants. Article 31 allows Member countries to use the subject matter of a patent without the authorization of the right holder, subject to specific provisions. These include use predominantly for the supply of the domestic market and that the right holder shall be paid adequate remuneration. This latter provision of “compulsory licensing” reflects the use permitted to LDCs subject to a “working requirement,” stated earlier in the article. The term of protection extended to patents is no less than 20 years counted from the filing date, according to Article 33. Interestingly, U.S. law provides for protection of 17 years and this is thought to bring the U.S. in line with the rest of the industrialized countries, such as the UK which provides up to 20 years. Another difference is whether the basis of the grant is to the “first to invent” or “first to file.” The U.S. is perhaps the only country which grants patents on the basis of the first to invent the subject matter. The first to file standard is the predominant one. Member countries which do not have a system of original grant are to compute the period from the filing date in the system of original grant. The prominent recent issue on this score has been pharmaceutical companies which produce drugs to treat HIV. Their prices are unaffordable for many developing countries, but under the current framework, the firms can refuse to permit generic versions of the drugs to be made by LDCs. Pharmaceutical companies fear that these

generic versions will find their way out of the LDCs and into their overseas markets, eroding their profits and reducing their incentive to innovate. As part of the Doha Round negotiations, the TRIPS declaration calls for flexibility to allow LDCs to decide on the extent of intellectual property protection in the face of public health crises which can constitute national emergencies.¹³

Finally, Article 40 deals with the control of anticompetitive practices in contractual licenses. Member countries are permitted to specify in their domestic legislation those practices which restrain competition and adversely affect trade or impede the transfer and dissemination of technology. Consistent with the TRIPS Agreement, Member countries must enter into consultations with any other Member country to which the IPR owner is a national or domiciliary. The remaining articles address enforcement and details of the DSU. Damages and injunctions are possible remedies in a domestic economy. When disputes among nations cannot be resolved, the DSU is invoked. It is important to note that parties to the DSU are countries and not individuals or firms. However, the actions undertaken by a government on behalf of a firm conform to an agency framework where political influence and perceived national interests tend to coincide.¹⁴

Therefore, the TRIPS provision provides for IPRs protection in all member countries on a fairly uniform basis with many aspects mirroring the U.S. IPRs system. The intent is to reduce the risk of expropriation and therefore promote innovation. The protection accorded to IPRs though, is of monopoly pricing that will increase the costs of any use of such technology, such as when transferred to a developing country, which no longer has the option of instigating their own terms. Although implementation has been delayed for many developing countries as well as exemptions provided for pharmaceuticals, the growth implications of the eventual adoption of TRIPS warrant consideration.¹⁵

¹³ http://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1133&context=njtip_date
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¹⁴ http://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1133&context=njtip_date
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¹⁵ http://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1133&context=njtip_date
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THE EFFECTS OF TRIPS ON ECONOMIC GROWTH

The effect of TRIPS on technology diffusion holds significant implications for economic growth. The justification for IPRs generally relates to the need to protect the incentive to innovate weighed against the social cost of allowing monopoly profits to accrue and the loss to society of not having free access to the protected goods. Nordhaus, for instance, finds that the optimal patent policy equates the dynamic marginal benefit with the static marginal efficiency loss. Landes and Posner make similar arguments regarding the scope of protection, which they posit should be narrow in order to lower the cost of innovation. In the simplest case, the appropriate period of protection is that which allows the innovator to cover the risk-adjusted cost of innovative activity. The breadth or scope of such protection will depend on the nature of the market. In a closed economy in which this framework is largely based, Arrow showed that the design of IPRs protection poses a trade-off to a welfare-maximising Government. However, in an open economy, Grossman and Lai argue that the trade-offs are less clear. Countries do not reap all the global benefits that come from protecting IPRs within their borders and they will differ in their capacities for innovation due to differences in skill endowments and technical knowledge. Further, domestic and foreign firms are likely to have different abilities to innovate. In the context of two trading countries, an efficient patent regime would equalize the marginal deadweight loss in the two countries. They further show that harmonization of patent protection does not meet this need as this is achieved in their model through one country lengthening its patent protection period. Preceding TRIPS, technology transfer agreements were included as annexes to domestic-foreign joint venture agreements. Such agreements provided for the transfer of know-how in manufacturing to managerial practices. These explicit transfers were negotiated in addition to implicit transfers that occurred simply through the introduction of foreign personnel and techniques. This type of transfer had the effect of shifting the productive frontier of an economy and improving short-term economic performance. Any resultant technological progress would be crucial to the long-run growth process.¹⁶

For developing countries in particular, technology diffusion provides what is termed in the literature as the possibility of “catching up.” By adopting the technology of more developed

¹⁶ http://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1133&context=njitip_date
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nations, developing countries are able to reduce the cost of innovation and introduce productivity advances into their own economies. Through this process, especially when starting at low levels, developing countries are thought to be able to achieve growth at high rates and thus “catch up” to developed ones.¹⁷

Since the promulgation of TRIPS, it remains to be understood how the balance between innovating companies and the need for technology diffusion is struck. In terms of optimal mechanism design, a regime which provides for technology diffusion with positive cost will necessarily result in lower levels of efficiency. The question for further consideration is whether the benefits from innovation are evident, particularly with respect to developing countries, which may or may not be expected to move toward global convergence in their growth rates.¹⁸

Using IP Assets in Business Transactions:

It is being increasingly realized that IP is now one of the most valuable, or often the most valuable, asset in commercial transactions, whether licensing agreements, manufacturing, purchase or distribution agreements, or mergers and acquisitions. Licenses to use patents, copyrighted material and trademarks are often combined with transfer of know-how in the form of training, and are an increasingly important element of such transactions. The notion that the IP system confers exclusive rights that are exercised by blocking competitors is increasingly being disproven – in practice, IP is used as often to license products and technologies as to prohibit others from using them. These licenses provide royalty revenues to the owners of the IP, and distribute products and technologies to licensees who might not otherwise have had access to them. In such transactions, the licensees may also gain rights to create improvements or derivative works and to develop their own IP assets, which can then be cross-licensed or licensed to others. This creates a very productive cycle of invention and business transaction.¹⁹

¹⁷ <http://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1133&context=njtip> date 05/05/2014 at 4.00pm

¹⁸ <http://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1133&context=njtip> date 05/05/2014 at 4.00pm

¹⁹ http://www.wipo.int/export/sites/www/freepublications/en/intproperty/888/wipo_pub_888_1.pdf date 02/05/2014 at 5.30pm

Modern IP Management and the New Economy:

Because of increasing recognition of its economic value, IP is becoming a major element in corporate business management. Intellectual property managers are helping to accumulate hefty corporate IP asset portfolios, for use in mergers and acquisitions, joint ventures, cooperative R&D agreements, and licensing agreements, in much the same way as product managers help to build up product portfolios. These IP asset portfolios are developed strategically, targeting cluster areas based on product and technology markets and cross-licensing opportunities. Companies are forging alliances with each other in order to heighten the value of their IP assets and to obtain mutually beneficial competitive advantages through cross-licensing. Such alliances can give the companies involved substantially increased weight in their area of technology, or enable them to set technological standards in their particular field.²⁰

India's approach towards the entire issue of IPR vis-à-vis foreign direct investment has, fortunately, been in consonance with the above general assumptions. Indeed, the bilateral trade agreements with the European Union allowing foreign direct investment is only one of the major indications for the same, primarily shown by the fact that EU is currently India's largest trading and investment partner with nearly a quarter of India's trade and about a seventh of actual foreign direct investment inflows. Deliberations on modifying the present IP laws in consonance with TRIPS is also a hint towards the general attempt to enhance FDI in the country via this sector. The Government has initiated plans for better understanding of IPR, such as, setting up of internal IPR protection teams, examining the work that can be copyrighted or patented, 'offshore vendor history', curbing the availability of unauthorized software products, performing periodic IP audits, etc., thus signifying the latent agenda to promote foreign investments in the country.²¹

²⁰ http://www.wipo.int/export/sites/www/freepublications/en/intproperty/888/wipo_pub_888_1.pdf
date 02/05/2014 at 5.30pm

²¹ [http://nopr.niscair.res.in/bitstream/123456789/3698/1/JIPR%2010\(6\)%20465-473.pdf](http://nopr.niscair.res.in/bitstream/123456789/3698/1/JIPR%2010(6)%20465-473.pdf)

POSITIVE IMPACTS OF IPRS ON ECONOMIC DEVELOPMENT

Economists recognize several channels through which IPRS could stimulate economic development and growth. These processes are interdependent and it is appropriate to adopt a comprehensive view of the incentives associated with intellectual property protection. Intellectual property rights could play a significant role in encouraging innovation, product development, and technical change. Developing countries tend to have IPRS systems that favor information diffusion through low-cost imitation of foreign products and technologies. This policy stance suggests that prospects for domestic invention and innovation are insufficiently developed to warrant protection. However, inadequate IPRS could stifle technical change even at low levels of economic development. This is because much invention and product innovation are aimed at local markets and could benefit from domestic protection of patents, utility models, and trade secrets. In the vast majority of cases, invention involves minor adaptations of existing technologies and products. The cumulative impacts of these small inventions can be critical for growth in knowledge and productive activity. To become competitive, enterprises in developing countries typically must adopt new management and organizational systems and techniques for quality control, which can markedly raise productivity. Such investments are costly but tend to have high social returns because they are crucial for raising productivity toward global norms (Evenson and Westphal, 1995). They are more likely to be undertaken in an environment where risks of unfair competition and trademark infringement are small. Moreover, IPRS could help reward creativity and risk-taking among new enterprises and entrepreneurs. Countries that retain weak standards could remain dependent on dynamically inefficient firms that rely on counterfeiting and imitation.²²

An example of this process is that protection for utility models has been shown to improve productivity in countries with lagging technologies. In Brazil, utility models helped domestic producers gain a significant share of the farm-machinery market by encouraging adaptation of foreign technologies to local conditions (Dahab, 1986). Utility models in the Philippines

²²http://www.iatp.org/files/Intellectual_Property_Rights_and_Economic_Deve.pdf date 02/05/2014 at 5.30pm

encouraged successful adaptive invention of rice threshers (Mikkelsen, 1984). Maskus and McDaniel (1999) considered how the Japanese patent system (JPS) affected postwar Japanese technical progress, as measured by increases in total factor productivity (TFP). The JPS in place over the estimation period 1960-1993 evidently was designed to encourage incremental and adaptive innovation and diffusion of technical knowledge into the economy. Mechanisms for promoting these processes included early disclosure of, and opposition proceedings to, patent applications, an extensive system of utility models, and narrow claim requirements in patent applications. The authors found that this system encouraged large numbers of utility model applications for incremental inventions, which were based in part on laid-open prior applications for invention patents. In turn, utility models had a strongly positive impact on real TFP growth over the period, while patent applications had a weaker but still positive effect. They concluded that utility models were an important source of technical change and information diffusion in Japan, while patent applications provided both a direct and an indirect stimulus to productivity. It is interesting to note that as Japan has become a global leader in technology creation, its patent system has shifted away from encouraging diffusion and more toward protecting fundamental technologies.²³

Recent studies suggest that innovation through product development and entry of new firms is motivated in part by trademark protection, even in poor nations. Copyright industries, such as publishing, entertainment, and software, are likely to be dominated by foreign enterprises (which can absorb temporary losses and afford the costs of deterring infringement) and pirate firms in countries with weak protection and enforcement. Thus, lower-quality copies would be widely available but the economy's domestic cultural and technological development would be hampered. In China, the domestic software industry has grown rapidly in the area of particular business applications, which did not suffer extensive unauthorized copying, but has faced obstacles in developing larger and more fundamental programs. Thus, domestic commercial

²³ http://www.iatp.org/files/Intellectual_Property_Rights_and_Economic_Deve.pdf date 02/05/2014 at 5.30pm

interests in stronger copyrights have emerged and are now playing a role in promoting enforcement.²⁴

Intellectual property rights also could stimulate acquisition and dissemination of new information. Patent claims are published, allowing rival firms to use the information in them to develop further inventions. Knowledge formation is cumulative and as new inventions build on past practices the process of technical change could accelerate (Scotchmer, 1991). Patents, trademarks, and trade secrets also afford firms greater certainty that they face limited threats of uncompensated appropriation. This certainty could induce them to trade and license their technologies and products more readily, enhancing their diffusion into the economy.²⁵

In strengthening their IPRS regimes, either unilaterally or through adherence to TRIPS, developing countries hope to attract greater inflows of technology. There are three interdependent channels through which technology is transferred across borders. These channels are international trade in goods, foreign direct investment (FDI) within multinational enterprises, and contractual licensing of technologies and trademarks to unaffiliated firms, subsidiaries, and joint ventures. Economic theory finds that technology transfers through each channel depend in part on local protection of IPRS, albeit in complex and subtle ways.²⁶

It is widely recognized by economists that imports of goods and services could transfer and diffuse technology. Imports of capital goods and technical inputs could directly reduce production costs and raise productivity. The extent of this benefit would depend on the

²⁴ http://www.iatp.org/files/Intellectual_Property_Rights_and_Economic_Deve.pdf date 02/05/2014 at 5.30pm

²⁵ http://www.iatp.org/files/Intellectual_Property_Rights_and_Economic_Deve.pdf date 02/05/2014 at 5.30pm

²⁶ http://www.iatp.org/files/Intellectual_Property_Rights_and_Economic_Deve.pdf date 02/05/2014 at 5.30pm

technological content of imports, suggesting that close trade linkages with innovative developed economies could engender considerable productivity gains through trade flows.²⁷

IPRS should encourage the development of interregional and international distribution and marketing networks that are critical for achieving economies of scale. Weak IPRS could limit incentives for such investments because rights owners would be unable to prevent their marketing outlets from debasing the quality of their products, nor could they readily deter counterfeiting of their trademarks. Thus, IPRS should permit effective monitoring and enforcement of activities throughout supply and distribution chains, providing both innovators and distributors an incentive to invest in marketing, service, and quality guarantees.²⁸

²⁷ http://www.iatp.org/files/Intellectual_Property_Rights_and_Economic_Deve.pdf date 02/05/2014 at 5.30pm

²⁸ http://www.iatp.org/files/Intellectual_Property_Rights_and_Economic_Deve.pdf date 02/05/2014 at 5.30pm

NEGATIVE IMPACTS OF IPRS ON ECONOMIC DEVELOPMENT

While strengthening IPRS bears potential for enhancing growth and development in the proper circumstances, it might also raise difficult economic and social costs. Indeed, developing economies could experience net welfare losses in the short run because many of the costs of protection could emerge earlier than the dynamic benefits discussed above. This situation explains why it is often difficult to organize interests in favor of reform in developing countries. In most developing economies there are significant amounts of labor employed in copying unauthorized goods. As these nations upgrade their laws and enforcement activities, these workers must find alternative employment. This displacement problem should pose the initial challenge for policymakers in introducing stronger IPRS. A second major concern is the potential for IPRS to support monopoly pricing. The provision of product patents in pharmaceuticals, agricultural chemicals, and biotechnology, along with plant breeders' rights, should confer greater market power on rights holders. Such firms might then reduce sales to establish monopolistic prices in key medical therapies and industrial and agricultural inputs. There is evidence that patents generate considerably higher prices for protected drugs than for copied and generic drugs (Lanjouw, 1997; Maskus 1998d). Watal (1996) computed that static price impacts of patent coverage in India could raise average patentable drug prices by perhaps 50% from a 1994 base.²⁹

However, the extent to which such price increases would emerge depends on several variables, such as the competitiveness of the local pharmaceutical market, the share of drug production that is copied from patentable drugs, and the elasticity of demand for medicines. Evidence from India suggests that pre-patent market structures are relatively competitive because there are significant imitative capacities. Moreover, there could well be a significant degree of market power engendered in the pharmaceutical industries in developing economies, after the introduction of patents, through product differentiation and marketing. In this context, it seems

²⁹ [http://www.iatp.org/files/Intellectual Property Rights and Economic Deve.pdf](http://www.iatp.org/files/Intellectual_Property_Rights_and_Economic_Deve.pdf) date 02/05/2014 at 5.30pm

likely that the introduction of patents could place pronounced upward pressure on patented drug prices.³⁰

There are no systematic studies of how computer software prices vary across countries with differing levels of copyright protection. It is often claimed that program prices would be much higher in light of comparisons between retail prices of legitimate and copied programs. For example, in December 1997 it was possible in Hong Kong to purchase a pirated copy of Microsoft Office 97 for approximately \$6, while the retail price for a legitimate copy was around \$1,500. In the summer of 1998 the same product sold for approximately \$1,000 in Beijing. Thus, if strong enforcement were to support the substantially higher price of legitimate programs, the price impact on computer users would be severe.³¹

A fundamental concern raised about IPRS is that their exploitation could result in diminished access to technological information. As suggested above, pharmaceutical and biotechnological patents could raise imitation costs and place considerable pressures on imitative enterprises in developing economies. Improving trade-secrets protection should make it more difficult to acquire technologies through misappropriation. Copyright protection would make it more difficult to copy computer software.³²

³⁰ http://www.iatp.org/files/Intellectual_Property_Rights_and_Economic_Deve.pdf date 02/05/2014 at 5.30pm

³¹ http://www.iatp.org/files/Intellectual_Property_Rights_and_Economic_Deve.pdf date 02/05/2014 at 5.30pm

³² http://www.iatp.org/files/Intellectual_Property_Rights_and_Economic_Deve.pdf date 02/05/2014 at 5.30pm

CONCLUSION

IPRs protection is becoming increasingly relevant to policymakers in developing economies. This trend reflects not only international commitments made in the context of multilateral negotiations (e.g., the TRIPS Agreement), but also the growing reliance on private sector R&D in areas of particular interest to developing countries. In the case of agriculture, for example, IPRs policies may affect the lives of millions of low-income farmers in the developing world by influencing the pace and focus of advances in biotechnology. The challenges these developments pose for developing countries are significant. Protection of IPRs influences how knowledge is created and diffused within and between economies. Besides the legal standards of protection, the foregoing discussion identified many other variables that determine the economic impact and net benefit of a particular IPRs regime: countries' endowments with factors and technologies, other business regulations, and the efficiency of the judicial system, macroeconomic stability, and so on. Developing countries can enhance the benefits of TRIPS-motivated reforms by building national consensus on the desirability of IPRs protection and establishing efficient and credible institutions for administering and enforcing IPRs of particular importance is the adoption of a pro-competitive approach to IPRs, which requires close interaction between IPRs regulations and anti-trust rules. Assistance from industrialized countries and multilateral organizations in implementing these reforms can make a difference not only in accelerating the process, but also in paving the way for innovative approaches to IPRs protection in the developing world.³³

³³ http://www.iatp.org/files/Intellectual_Property_Rights_and_Economic_Deve.pdf date 02/05/2014 at 5.30pm

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