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**STRENGTHENING INTELLECTUAL PROPERTY
RIGHTS IN ASIA: IMPLICATIONS FOR
AUSTRALIA**

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This paper was given as the 46th Joseph Fisher Lecture, at the University of Adelaide on November 19, 1997. The author dedicates this paper to all his Australian friends and colleagues, to whom he recommends (and to all purchasers of books and compact discs) visits to the following web sites: www.amazon.com and www.musicblvd.com. He is grateful to Christine McDaniel for timely research assistance.

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ABSTRACT

Strengthening Intellectual Property Rights in Asia: Implications for Australia

The last decade has been the period of greatest change in international protection of intellectual property rights (IPRs) in history. These changes have come about both because of external pressure on developing countries to strengthen their systems and because of evolving domestic interests in doing so. The East Asian developing economies have been the greatest focus of pressure and the area of most significant change. These countries have enacted numerous unilateral improvements in their laws. They also are working to meet the minimum standards required in the multilateral Agreement on Trade-Related Aspects of Intellectual Property Rights.

In this paper I discuss the meaning of these higher standards and how they might affect economic activity in East Asia and Australia. As the standards are strengthened, it is important for the countries involved to adopt mechanisms for ensuring that they promote effective and dynamic competition in the region. In addition to stronger rights protection and enforcement, appropriate limitations on those rights and sensible competition rules are in order.

As systems are strengthened in the region, the Australian economy should be affected in a number of ways. For one, more rapid Asian growth should increase the demand for Australian exports, perhaps by as much as \$350 million per year. Export gains could be particularly experienced in wines, food products, films, and computer software. For another, Australian consumers could gain from imports of higher-quality Asian products. Australian firms also have an emerging comparative advantage in supplying technologies, designs, and services to Asian partners, which should expand with stronger IPRs.

However, there may be some costs as well, including higher regional prices of protected products, which might spill over into Australian markets, and additional competition for inward foreign direct investment. Thus, Australia would be advised to improve its attractiveness as a location for investors. Australia also has an interest in maintaining effective competition in its own market as IPRs are strengthened regionally. One mechanism for doing so is import deregulation of good protected by copyright, such as books and compact disks. Australia should also take a leading role in fending off attempts by the United States and Europe to erect excessively protectionist new standards in IPRs.

Key words: intellectual property rights, East Asia, foreign investment, TRIPs
JEL Codes: O34, O17, F13, F21

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STRENGTHENING INTELLECTUAL PROPERTY RIGHTS IN ASIA: IMPLICATIONS FOR AUSTRALIA

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1. Introduction

In 1900, Korekiyo Takahashi, the first president of the Japanese Patent Office, announced during a visit to the U.S. Patent Office:

“We have looked about us to see what nations are the greatest, so that we can be like them. We said, ‘What is it that makes the United States such a great nation?’ and found that it was patents and so we will have patents.”¹

Indeed, Japan adopted a comprehensive patent system, though it was distinctive from the American and major European systems. Loosely stated, it was designed to promote industrial development through emphasising technology acquisition from abroad, domestic diffusion, and incremental invention, as befits a technology follower. On behalf of perceived economic and social interests, it placed serious limits on patent scope and coverage, including a refusal to provide patents for pharmaceutical products until the 1970s. How important the system was in Japan’s becoming a “great nation” is a matter for continuing debate, but in my view it played a positive role. As Japan matured into an industrial power and technological leader, features of its patent regime became the subject of increasing complaints by both foreign and domestic firms, prompting its re-examination.

This example illustrates several cross-currents characterising intellectual property rights (IPRs), the catch-all phrase encompassing provision and enforcement of patents, trademarks, copyrights, legal protection of trade secrets, and many related devices. First, IPRs can markedly assist a nation’s efforts to encourage its own technological, industrial, and cultural development and a failure to provide some protection can be costly for inventive domestic firms. Second, the terms on which a country may wish to protect IPRs depend on its position on the global technology ladder and on social concerns, among other things. The demand for protection rises with the level of economic development and the character of technology, making IPRs dynamic in nature.

Third, Japan adopted its patent system at the end of the last century, during an era of considerable change in global IPRs. The two international treaties that codified the classical conceptions of intellectual property rights – the Paris Convention (1883) covering industrial property (1883) and the Berne Convention (1886) covering copyrights – were negotiated, in part because of frustration over alleged infringements in the “newly industrialising countries” of the day, such as the United States and

¹ Quoted in Heath (1997, p. 305).

Japan.² Thus, that period provided an interesting parallel to the recent outpouring of attention lavished on this most arcane of policy areas.

Still, no period in history compares with the last 15 years for the evolution of global IPRs. Recall that in 1982 the United States was alone in calling for developing GATT disciplines against trade in counterfeit products, an idea that was viewed as an irritation by most countries. In contrast, many of the developing countries were engaged in a long-running attempt to revise the Paris Convention to tilt the global balance further in the direction of uncompensated international dissemination of new technologies. This effort resonated with the import-substitution commercial policies of the day.

The United States (joined shortly thereafter by the European Union and Japan) won this battle, sweeping the field before it. By 1986 a commitment was reached at Punta del Este to include trade-related IPRs on the agenda of the new Uruguay Round negotiations. This was simply the beginning of a tidal wave of lawyers and negotiators working feverishly to promote exports of intellectual property. Economists largely have sat and watched this happen, sometimes cheering it on and sometimes raising fundamental concerns about it, albeit rather feebly.

How successful has this wave been? Since 1987, we have witnessed sharply increasing levels of legal protection for intellectual property, surely among the most significant changes in recent international commercial policies. In that period, over 40 developing countries have unilaterally undertaken significant strengthening of these rights, both because of external pressure from the United States and the EU to do so, and because of changes in their own perceived domestic economic interests. Regional trade agreements now routinely include provisions for protection of intellectual property rights, with distinctive approaches adopted that may have implications for regional trade and investment flows, an issue that is completely unstudied in the literature (Maskus, 1997a).

The culminating achievement is the adoption of the Agreement on Trade-Related Intellectual Property Rights (TRIPs), a founding component and pillar of the World Trade Organisation (WTO). This agreement requires minimum standards for IPRs that are, in many instances, far stronger than current norms in developing countries. Countries that join the WTO in the future must adhere to these standards. Therefore, as the agreement is implemented over the next several years the global system will move toward a considerable degree of IPRs harmonisation and higher levels of protection.

For their part, developing Asian economies, among the main targets of the tidal wave, have been at the center of intense efforts to upgrade protection for intellectual property. The most visible complaints still are directed at the copying of foreign compact disks, movies, books, and computer software and at the passing off of counterfeit consumer goods under unauthorised use of trademarks. Such activities, colourfully and pejoratively referred to as piracy, continue largely unabated in China, Thailand, the Philippines, and elsewhere, though significant enforcement activities

² In fact, the United States did not join the Berne Convention until a century later because its manufacturing requirements for publishers were inconsistent with the convention.

Table 1. Selected Recent IPRs Legislative Changes in Developing East Asia

P. R. China	Joined Madrid Agreement on Trademarks, 1989 Enacted Copyright Law, June 1991 Joined Universal Copyright Convention and Berne Convention, 1992 Enacted Unfair Competition Law, December 1993 Joined Patent Cooperation Treaty, 1994 US-China Bilateral IPRs Enforcement Agreement, March 1995 Joined Madrid Protocol on Trademarks, 1996
Hong Kong	Enacted Copyright Bill, June 1997 Enacted Patent Bill, June 1997
Indonesia	Adopted amendments to Copyright Law, 1987 Implemented Trademark Law, 1993 Action Plan to combat copyright piracy, 1996 Enacted TRIPs-consistent Patent, Trademark, and Copyright Laws, 1997
R. of Korea	Enacted Korea Patent Act of 1995 Enacted new copyright, software, and customs laws in 1996 Trademark Law of 1996 is under review
Malaysia	Enacted Copyright Act of 1987 Joined Paris Convention, January 1989 Amended Patents Act of 1983 to remove bar against software patents, 1997
Singapore	Enacted Copyright Act of 1987 Enacted Trademarks Act of 1991 Enacted Patents Act of 1994
Taiwan	Enacted Copyright Law of 1992 Adopted amendments to Trademark Law, December 1993 Enacted New Patent Law, 1994 Enacted Integrated Circuits Protection Law, 1995 Agreed with US to 18-Point Action Plan on enforcement, 1996
Thailand	Enacted Trademark Act of 1992 Recognised drugs and agricultural chemicals as patentable, 1992 Enacted revisions to Copyright Law, 1994

have cleaned up much of the problem in Hong Kong, Korea, Taiwan, and Singapore. More subtle complaints arise over limits on protection for potentially patentable technologies, including medicines, seed varieties, and biotechnological inventions. In addition to external pressures for change, it became successively clearer in rapidly growing Asian economies that their own innovative firms were disadvantaged by weak IPRs.

In consequence, major legislative changes were introduced over the last decade in Korea, Singapore, Hong Kong, Taiwan, Thailand, Indonesia, Malaysia, and China (see Table 1), among other countries.³ Even Vietnam recently passed a law extending copyrights to software, though its requirement that software be produced locally has attracted criticism and must be relaxed before the country can join the WTO (Heath, 1997). Further, ASEAN members signed the Framework Agreement on Intellectual Property Cooperation in December 1995, which aims to enhance cooperation in reducing piracy in the area and to create ASEAN standards and practices that are consistent with international norms. Moreover, APEC documents exhort regional economies to enhance their IPRs systems, a fact that at a minimum will complement the implementation of TRIPs requirements. Taken together, these new laws and institutions represent a marked strengthening of the region's structure of IPRs, though aspects of several national systems still come short of TRIPs standards. The effective strength of regional IPRs will intensify as enforcement efforts are expanded and regularised and as further legislation is enacted in accordance with the requirements of TRIPs.

While the conclusion of TRIPs and the adoption of new laws in Asia may have dissipated some of its energy, the wave rolls on. Countries are currently choosing mechanisms by which they will protect geographical indications for wines and spirits, an area that before now has been neglected outside Europe but is clearly significant for Australia. Many developed economies continue to adopt ever-stronger standards of protection for biotechnological inventions, computer programs, electronic databases, and other new technologies. Moreover, the United States is pushing for stronger international protection by asking foreign governments to adopt new approaches that are questionable under standard IPRs. One example is the current request that Australia extend its pharmaceutical patents to eliminate "springboarding," or testing by rival firms of generic drugs during a patent period in anticipation of the lapsing of protection. And the TRIPs accord itself is subject to further revision in the year 2000.

To stretch my analogy, tidal waves can have two opposing effects. On the one hand, they can raise many boats to higher levels of activity. These recent policy changes constitute a major achievement for technology and entertainment developers, the vast majority of which reside in a small number of developed countries. Those firms will be significant winners from the system. Advocates of the new rules point to potential gains in innovation, product development, and technology transfer as firms have to worry less about losing their informational advantages to free-riding copiers

³ The Philippine Congress has not yet enacted proposed new copyright and trademark legislation.

and imitators in different nations. Further, countries with strong emerging innovative capacities could gain from the new system, particularly if they manage it appropriately.

On the other hand, waves can leave considerable destruction. Strong concerns arise in technologically lagging nations about the potential for tighter IPRs to encourage firms to act more monopolistically and to limit international access to their inventions and creations. Firms and consumers in the poorest countries could be made worse off unless they benefit from the more open trading regime that the WTO represents generally.

Table 2. Basic Indicators of Australia's Trade in Intellectual Property

Panel A. Trade in Selected IP-Intensive Goods (A\$ million and growth rates)

	<u>1990</u>		<u>1996</u>	
	<u>Imports</u>	<u>Exports</u>	<u>Imports</u>	<u>Exports</u>
Beverages	300	266	341(14)	676(154)
Pharmaceutical Products	901	293	1933(115)	942(222)
Electrical Machinery	7851	1339	14696(87)	3784(183)
Professional and Scientific Instruments	1941	473	3126(61)	1174(148)
Total Merchandise	48705	46169	77608(59)	70008(52)

(Nominal growth rates in parentheses.)

Panel B. Technology Balance of Payments (\$A million)

<u>1986</u>			<u>1992</u>		
<u>Payments</u>	<u>Receipts</u>	<u>R/P</u>	<u>Payments</u>	<u>Receipts</u>	<u>R/P</u>
281	102	0.36	479	276	0.58

Panel C. Royalties and License Fees (\$A million)

<u>1990</u>			<u>1995</u>		
<u>Debits</u>	<u>Credits</u>	<u>D/C</u>	<u>Debits</u>	<u>Credits</u>	<u>D/C</u>
1070	210	5.1	1362	322	4.2

Sources: Australian Bureau of Statistics, OECD *Basic Science and Technology Indicators*, IMF *Balance of Payments Statistics*

Between these extremes lies a continuum of national and industry interests that must accommodate themselves to the new global reality. Within East Asia, the high-income service-oriented and industrialising economies of Hong Kong, Singapore, Republic of Korea, and Taiwan already have strong domestic interests in IPRs. China, Malaysia, Thailand, Indonesia, and the Philippines also are experiencing rising preferences for IPRs, though the benefits for them will be longer in coming and there will be transitional costs.

For its part, Australia may be characterised roughly as a net importer of technology through trade in high-technology goods, FDI, and licensing, though it also has strong and growing interests on the export side. Table Two provides some basic indicators. In all of the four categories of IP-intensive manufactures, imports continue to exceed exports. However, exports have grown at significantly faster rates than imports, suggesting a shift in comparative advantage toward Australian production. This is especially true in beverages (including wines), pharmaceutical products, and professional and scientific instruments. Both imports and exports of these goods have risen faster than aggregate merchandise trade, indicating their growing relative importance in Australia's trade structure. More generally, Australia's growing export strength in high-technology products and services, including elaborately transformed manufactures, computer software, and pharmaceuticals, has attracted considerable attention.⁴ Much of this rising trade is with East Asia. Over the period 1990-1996, the highest growth rates of Australian exports were to China, Korea, Hong Kong, New Zealand, and Taiwan, while exports to ASEAN as a group doubled.⁵

The data in Panels B and C demonstrate that, while Australia continues to be a substantial net importer of technology, as measured in its technology balance of payments and its net royalties and license fees, receipts (credits) are rising faster than payments (debits). Indeed, the increase in the ratio of receipts to payments in Panel B continues a long-run trend; this ratio was 0.10 in 1981.

Australia already has a strong IPRs regime, which has contributed positively to its technology development. Its status as a growing exporter of intellectual-property intensive products and technologies means that it also has important interests in the emerging system of protection in Asian developing economies. However, these policy changes present Australia with both problems and opportunities. Australia has a small but sophisticated and outward-looking high-technology sector, and a successful record of product and trademark development. These are significant advantages that should be enhanced by regional IPRs. It is also open to foreign direct investment and technology imports, both of which might become relatively scarcer as regional economies converge on Australia's already-strong IPRs.

The challenge for Australia is to maintain the attractiveness of its market to foreign investors while ensuring that there is sufficient coherence between IPRs and broader regulatory systems to maintain open and dynamic competition in the economy. Indeed, Australia could be in the vanguard of nations that maintain a pro-competitive counterweight to emerging over-protection of intellectual property in the United States

⁴ See *Australian Financial Review* (May 17, 1995).

⁵ Source: Australian Bureau of Statistics.

and Europe. In this regard, it is positioned to be a leader in subsequent multilateral negotiations over IPRs.

2. The Evolving International System

There are no universally applicable guidelines about IPRs from economic theory. Intellectual property rights operate in inherently second-best markets and are crude attempts to address the potential market failures arising from the conflict between finding adequate incentives to innovate and ensuring effective knowledge diffusion. Depending on one's point of view, various aspects of the system may provide inadequate protection or excessively strong protection.

Thus, it is no surprise that policies on IPRs, which, with few exceptions, are taken at the national level, vary greatly over time within each country and across countries (David, 1993). For example, Japan and Italy only began offering pharmaceutical product patents in the 1970s. Canada eliminated its compulsory licensing procedures in medicines in 1993 and retains the right to review and control patented drug prices (Torrens, 1996). Significant differences persist between the United States and the European Union over geographic indications, biotechnology patents, fair-use exceptions in copyrights and patents, parallel imports, and misappropriation of trademarks, among other issues. Moreover, there are substantive and controversial differences of opinion within countries about the optimal scope and even wisdom of some forms of rights.

The essential dynamic behind changes in IPRs is that they rise with levels of economic development (Rapp and Rozek, 1992; Sherwood, 1997). As a stylised fact, as poor countries begin to develop significant capacities to imitate foreign technologies and to copy artistic products, their IPRs actually become effectively weaker as they find it more advantageous to free ride in the "technology draught" (Maskus and Penubarti, 1995; Evenson, 1992). Only as countries develop innovative capabilities and a capacity to purchase and use new technologies effectively under license do economic interests emerge in favour of strong rights to deter local imitation. Put loosely, technology developers and exporters prefer stronger and more harmonised IPRs, while technology users and importers prefer weaker and more variable IPRs.

Thus, the stronger system of rights embodied in TRIPs and in Asian legislative changes reflects a recent and dramatic shift upward in the demand for globally consistent IPRs and a perhaps grudging willingness of developing nations to supply them. This shift may be traced to three fundamental changes. First, a system of highly variable national rights became increasingly incompatible with expanding integration of markets through the reduction of government and natural barriers to trade, investment, and technology flows. In this globalising economy, the creation of knowledge and its adaptation to product designs and production techniques are increasingly essential for commercial competitiveness and economic growth. As has been amply demonstrated, since the early 1980s international trade in intellectual-property-intensive goods has risen faster than trade in other goods (Maskus, 1993) and FDI in high-technology sectors has risen at roughly twice the rate of merchandise trade

(Markusen, 1995). International technology licensing has also risen rapidly (Mansfield, 1995).

In this environment, firms wish to exploit their technical and product advantages on an international scale. This is made easier with strong international standards on IPRs, which markedly expand the strategic options for firms, allowing them less-constrained choices among inter-firm and intra-firm trade, FDI, setting licensing conditions, and pricing to segmented markets. For their part, the process of globalisation has convinced governments in many developing countries that access to investment resources and technology are critical for growth and that stronger IPRs can play an important role in attracting them. Considerable anecdotal evidence suggests that limited IPRs frustrate domestic entrepreneurs seeking to conclude licensing deals and joint ventures with international firms (Mansfield, 1994; Sherwood, 1993).

A second factor is that technologies for copying software, entertainment products, books, transmissions, and certain technologies have become cheaper and more reliable, expanding opportunities for international free riding. This fact has markedly raised the profile of copyright and patent protection on the international policy agenda as innovative firms perceive substantial losses in export markets from unauthorised copying.

Finally, the area of intellectual-property law itself remains in considerable flux because of the advent of new technologies that do not lend themselves easily to protection by standard industrial-property or artistic-property devices (Barton, 1993; Reichman, 1994). For one example, computer programs are widely protected as literary text, yet many of them have industrial utility, novelty, and non-obviousness, suggesting that patent protection is warranted. In general, patent protection is considerably stronger than copyrights, because the former does not admit fair-use reverse engineering for purposes of employing the idea in related programs. Related legal ambiguities relate to computer chip topographies and to electronic databases available over integrated networks

For another, the proper scope of patents for biotechnological inventions is widely debated on legal grounds, even ignoring the ethical issues it raises. Biotechnological research is expensive but the therapeutical and genetic results it achieves are easily copied. Thus, patents are considered crucial for the development of the industry. However, some question the applicability of standard patents in that products stemming from recombinant DNA techniques may be more the result of luck and patience than of originality. Thus, it is not clear whether particular products are “inventions” (and therefore patentable) or “discoveries of nature” (and therefore not patentable in the classical approach). National systems of protection for micro-organisms reflect several approaches to this question. At one extreme, many developing economies provide no protection at all. At the other, the United States Patent and Trademark Office recently has moved decisively toward providing broad patents covering all potential products from genetic engineering of a particular plant or a critical research tool such as a genetic sequence developed for one drug but that

could be required in developing numerous pharmaceutical products, all of which would be subject to the initial patent (Barton, 1995).⁶

The largest differences in intellectual property protection occur between developed and developing economies. From the standpoint of the industrialised (and, increasingly, the industrialising) countries, there are several primary shortcomings in the regimes of many developing countries. Inadequate copyright and trademark protection promotes extensive copying of entertainment and software products and misappropriation of well-known trademarks. Pharmaceutical products and agrochemicals are widely excluded from patent protection. Neither is there patent protection for biotechnological inventions or patents or *sui generis* rights for plant varieties. Compulsory licenses are issued with inadequate compensation to firms that are seen to be exercising their rights insufficiently to achieve desired technology transfer or consumer benefits. Rules protecting trade secrets are weak or absent and procedures for administrative and judicial enforcement of IPRs are deficient.

The most significant response to these problems is the TRIPs Agreement, which introduces the concept of MFN treatment into IPRs (Primo Braga, 1996; Maskus, 1997a). While TRIPs mandates dozens of significant changes in legal and institutional norms and practices, it is worth mentioning major requirements that fundamentally alter the IPRs landscape. The standards discussed are minimum requirements in all WTO members but nothing precludes countries from adopting stronger practices.

- Computer programs and databases must be protected with copyright protection for at least 50 years. In most countries this obligation means that literal copying must be ended, while the scope for fair-use decompilation and reverse engineering may be determined in each member.
- Countries must protect well-known trademarks and rights must be extended to service marks and collective marks. Compulsory licenses of trademarks are prohibited.
- WTO members must protect geographical indications of origin and prevent producers from misleading the public about the geographic origin of goods.
- Integrated circuits designs must be protected for a minimum of ten years. Rights owners have the right to prevent imports and sales of products that incorporate the unauthorised devices, even if the merchants are unaware of the infringement.
- WTO members no longer may exclude any area of technology, such as pharmaceutical products, from patent eligibility and the burden of proof in process infringement cases is placed on the accused. Patent protection must extend for at

⁶ See U.S. Patent 5,159,135, 7 December 1994, Agracetus cotton patent covering genetic engineering of cotton plants and lines; and U.S. Patent 5,328,987, 12 July 1994, Maliszewski (Immunex) IgA FC receptors.

least 20 years from the application filing date. Patent holders cannot be obliged to work their patents with local production (imports are sufficient). Compulsory licenses are subject to severe limitations and must bear adequate compensation.

- Countries must protect new plant varieties, either within their patent systems or with a separate system of breeders' rights.
- Countries must develop a system for protecting trade secrets from unfair competition, according to specified minimum standards.
- WTO members must develop effective enforcement measures, including border controls, to prevent international and domestic transactions in counterfeit goods and unfair competition. Such measures must include the potential for paying damages to rights-holders and for criminal sanctions against wilful counterfeiting and copying.
- The agreement recognises the potential for abusive practices in the exercise of IPRs and gives countries wide latitude to control such abuses. The competition rules used for this purpose must be consistent with other provisions of TRIPs and the agreement also calls for opportunities for consultation in this area.
- Developed countries were given one year to introduce TRIPs-consistent laws.⁷ Developing countries and countries in transition must meet the detailed obligations by January 1, 2000 and least-developed countries must meet them by January 1, 2006. Countries may choose to accelerate their implementation of TRIPs and, indeed, many Asian members have done so.
- Disputes in the treatment of intellectual property will be subject to the integrated dispute settlement mechanism agreed in the WTO. However, there is a five-year moratorium on the use of dispute settlement against indirect violations of TRIPs, allowing nations to select implementation strategies without interference.

Regarding this last point, one of the primary benefits of TRIPs is that it will move conflicts over IPRs into an established multilateral forum for settling disputes. These conflicts likely will become frequent given the high administrative expenses of IPRs and institutional resistance to strong enforcement that will emerge in many developing countries.

3. Policy Guidelines for East Asia

A curious aspect of the debate over IPRs is that while economists devote nearly all their attention to issues of innovation, technology diffusion, and growth, the international policy arena has been driven largely by questions of trademark and

⁷ Australia did so at the end of 1994.

copyright pirating. The latter area generates the most visible damages to firms operating in Asia and is the proximate source of political pressures on trade negotiators.

Thus, in the short- to medium-term, the primary task for East Asian developing economies and newly industrialising economies is to devote more resources to administration and enforcement efforts. This will require some time because of the significant costs of training intellectual property officials, judges, and customs authorities and because effective enforcement will encounter considerable opposition from interested parties. For example, a common complaint about China is that, despite its modernised national IPRs laws, infringement takes place at regional levels, often with the acquiescence of local governments (Oksenberg, Potter, and Abnett, 1996). As one observer puts it, “While the legal instruments may all be in place, rampant pirating has highlighted the dire state of enforcement. Lack of enforcement is one reason why China has not yet been admitted to the WTO.”⁸

It is fair to expect that over time levels of piracy will subside considerably in major East Asian developing countries. While this change would require absorbing some adjustment costs, open, dynamic economies could experience several benefits from the effort. Consider two examples. First, tentative evidence indicates that many firms engaged in piracy are capable of profitable production under license and also of developing incremental innovative gains themselves. For example, generation of indigenous trademarks for culturally distinctive apparel and processed foods is an elastic process in developing countries and there are considerable consumer gains from the quality guarantees inherent in trademarks (Maskus, 1997b). Development of applications software for local markets is also frequently a rapid and dynamic response. There is scope for benefiting from the designation of local geographic appellations, though building international markets for such products is expensive.

Second, econometric evidence suggests strongly that countries with effective IPRs and enforcement attract significantly greater amounts of international trade (Maskus and Penubarti, 1995). The essential reason for this is that as pirating activities are reduced the market for legitimate products expands, more than offsetting any tendency toward higher monopoly prices. Such monopolisation is rare in open markets in any event. Thus, there are allocative efficiencies from limiting the trade-distorting impacts of weak IPRs. Note that because of both its geographical proximity to the region and its natural complementarities in comparative advantage, Australia will earn a considerable share of the rising trade that results.

While markedly reducing counterfeiting will go a long way toward satisfying rights-holders in the developed countries, the important long-term issues relate to how stronger IPRs might affect technical innovation, international diffusion, and growth in the region. Economic theory is surprisingly uninformative on this question because of its limited conception of what IPRs are and how they operate internationally. For example, if the sole effect of stronger patents is to raise imitation costs, then as Asian nations strengthen their patent systems they would suffer from lower technology transfer and growth (Helpman, 1993). However, if we recognise that well-established

⁸ Heath (1997), p. 306.

patent rights can raise the certainty and lower the costs of licensing, the opposite conclusion is supported (Yang and Maskus, 1997). Survey evidence indicates that both the amount and the quality of technologies transferred depend positively on the strength of local intellectual property rights (Mansfield, 1994). Finally, weak IPRs can discourage local firms from engaging in innovative activity, a factor that takes on increasing salience as countries develop.

What seems clear is that for countries to maximise any net gains from stronger IPRs they must devise appropriate systems that interact coherently with other policies. Given the need to implement new laws under TRIPs, the time is ripe for Asian countries to establish norms that promote effective, dynamic competition on their markets and in the region, which is of direct relevance for Australia. For this purpose, simply following highly protective American and European IPRs standards is neither necessary nor desirable. Indeed, I share the view of many scholars that the emerging structure of Asian practices could serve as an effective counterweight to the excessive standards evolving in the major industrial countries, which involve ever more extensive forms of protection and relaxed treatment of horizontal collaboration in applied research.⁹

If they consider the issue carefully, Asian developing economies may be expected to implement IPRs that meet the TRIPs requirements but maintain a balance in favour of diffusion and incremental innovation. It is important to recognise that a critical source of technical change and growth is competition among followers seeking to improve inventions and to develop specialised applications without infringing the original terms of protection (Scotchmer, 1991). Clearly, such possibilities are determined by both the scope of protection and broader competitive factors.

Regarding scope of protection, it is not widely recognised that there is considerable room within the mandates set out by TRIPs to promote such competition and to achieve other goals (UNCTAD, 1996). Because this is another complicated area, I only highlight key points. Countries may wish to establish or extend protection for small inventions through utility models. Countries are free to set liberal policies on exemptions to exclusive rights in patents and software copyrights in order to promote reverse engineering aimed at developing non-infringing inventions. Fair-use exemptions in copyright for purposes of scientific research and education may also be pursued.

Managing the TRIPs obligations to provide patents in biogenetic engineering and rights in plant varieties is critically important in countries with substantial agricultural sectors and plant resources. This is a delicate issue because it requires striking a balance between needs of users of improvements in agricultural technologies and opportunities for developing local research opportunities. In biotechnology, countries may wish to establish strict standards for disclosure in patenting and set a higher bar in identifying novelty and an inventive step than the weak one that has emerged in the United States. In protecting plant varieties, governments could take full advantage of exemptions for farmers' privilege and for research needs, as spelled out in the International Union for the Protection of New Varieties of Plants (UPOV).

⁹ Reichman (1996) effectively develops this argument.

More broadly, recent experience in Latin America suggests that establishing plant breeders' rights can generate considerable local research activity (including in public research institutes) and improve access to foreign germplasm supplies, without markedly raising seed costs to farmers (UNCTAD, 1996). How effectively such benefits could be transferred to poor countries with limited research capabilities remains to be seen. Finally, new legislation covering plant varieties may be devised to help conserve biodiversity and share rents from exploitation of products developed from native species.

Another critical issue relates to impacts of patent protection on pharmaceutical output and prices. These anticipated effects depend strongly on competitive aspects of the industry and may be relatively small (Maskus and Konan, 1994). Moreover, patents will be phased in over a lengthy period, moderating such effects. Nevertheless, in countries with uncompetitive markets that have developed local pharmaceutical sectors behind the absence of patents, such as India, Thailand, and China, new protection will destroy companies that do not arrange licenses with major international pharmaceutical firms and could also increase drug prices. The TRIPs agreement does not prevent the use of public monitoring and control of prices in the pursuit of public-health goals. Governments that take recourse to such controls must weigh their advantages against costs of deterring technology transfer and local production, however.

Perhaps the most significant issue in establishing new IPRs regimes is the need to develop complementary and appropriate competition rules for deterring abuse of property rights. Like IPRs, interests in competition policies varies across countries for many reasons and their harmonisation into a global anti-trust code is unlikely.¹⁰ Nonetheless, each country needs to consider its policies in three key areas relevant to the exercise of IPRs. First, because patents, copyrights, and trademarks provide protected market positions, it makes little sense to reinforce that market power by sustaining limits on competition at the distribution level. Thus, exclusive representation and licensing laws may need reform and countries must take a decision on whether to allow parallel imports under the doctrine of international exhaustion. Second, countries need to develop anti-monopoly guidelines for the terms of licensing contracts, particularly as these terms conspire to limit horizontal competition. Third, the judicious use of compulsory licenses under the TRIPs guidelines still provides scope for limiting severe pricing abuses and for effectuating technology transfer in cases of refusals to license.

On a broader scale, the effectiveness of IPRs in promoting innovation, diffusion, and growth depends on related policies. For example, competitive pressures associated with open trade and investment policies tend to spur local innovation and technology acquisition. Gould and Gruben (1996) report econometric estimates indicating that growth induced by patent protection among developing nations is

¹⁰ The extent of disagreement even among developed countries is remarkably wide. One noted legal scholar analysed three issues in patent abuses – monopoly pricing, contracts to limit parallel imports, and refusals to trade – and found that European and American laws would support quite different court rulings (Fox, 1996).

approximately 0.66% higher per year in open economies than in closed economies. One reason for this is that access to imported high-technology inputs improves under patent protection. This finding bears the important implication that as countries liberalise their commercial policies, accompanying strength of IPRs provides a more affirmative path to growth. Moreover, recent econometric evidence supports a growing consensus that countries with stronger IPRs attract significantly more FDI than do countries without them, other things equal (Mansfield and Lee, 1996; Maskus, 1998). Such evidence seems especially relevant for East Asian economies with relatively open economies and sustained liberalisation programs associated with ASEAN and APEC.

Asian countries will also find it advantageous to improve their national innovation systems in order to maximise the potential gains from tighter IPRs. Much promising research goes on in universities and government research institutes, the results of which often are not commercialised effectively. Here, promoting effective markets for venture capital and linkages to domestic and foreign private firms who would undertake applications R&D can be valuable. Note also that liberalisation of telecommunications markets improves access of researchers to the internet and other sources of technical information.

4. Implications for Australia

Imagine that this optimistic scenario comes to pass in East Asia over the next five-to-ten years. The results should include a significant reduction in piracy in the region, considerably stronger minimum standards for rewarding technological innovation and protecting trade secrets, and complementary regulatory systems that promote diffusion and competition. Such a systemic reform would be valuable in preparing Asian economies for a shift from labour-intensive manufacturing with lagging technologies to more innovative technological and service-based economies. What would be Australia's gains and losses from this change? It is impossible to assess such impacts quantitatively but important qualitative factors are worth discussing.

4a. Potential Gains and Losses

As mentioned earlier, Australia is a largely open economy that, at least among developed economies, is particularly dependent on trade and foreign direct investment as sources of competition, exports, and technology. At the same time, Australia unmistakably has a growing comparative advantage in particular high-technology goods and services that are sold extensively in Asian markets. These characteristics suggest that Australia faces a complex set of tradeoffs in the emerging Asian IPRs regime.

The advantages of stronger Asian property rights include the following. The first, and probably most significant effect, is indirect. If the new system sets the stage for more rapid economic growth and structural change in Asia, it will directly expand demand for imported products and services. Australia is well suited to realise a

significant share of this rising demand because of its trading ties to Asia, its proximity, and comparative advantages. For example, additional income growth should elastically expand demands for Australian food and meat products as diets become richer. To the extent that stronger IPRs accelerate Asian structural transformation, they will also expand demand for Australian natural resources, capital goods, and business services.

To gain an idea of how much merchandise trade might be affected by this factor alone, consider that Australian exports to ASEAN rose by approximately 15% per year from 1990-1996, suggesting an income elasticity of import demand of around 2. At current trade levels, if stronger IPRs in ASEAN were to raise its growth rate by 0.5% per year, annual Australian exports to the region would be one percent higher, or some A\$116 million higher than otherwise.¹¹ Similar computations suggest a gain in exports to China of A\$57 million, to Hong Kong of A\$37 million, A\$110 million to Korea, and \$34 million to Taiwan. These are crude calculations and should not be assigned normative content, but they indicate the potential significance of the regime change.

Stronger IPRs would also have beneficial direct impacts in various sectors. Perhaps most evident is that protection of Australia's geographical indications, especially important to the wine industry, should support higher export prices and additional export growth. Already there seems to be growing recognition in Asia of the names Barossa, Margaret River, Hunter Valley, and Coonawarra.¹² More generally, stronger protection of Australian trademarks and copyrights should be to the advantage of the sporting goods, fashion, food products, and entertainment sectors, among others. This may be of particular significance to Australian film producers and software developers as they find greater legitimate markets in Asia.

Further, to the extent that Australia's comparative advantage lies in its intellectual property with respect to Asia, its position will strengthen with additional Asian compliance and enforcement of the TRIPs standards. An Australian firm's contribution to a joint venture is likely to be knowledge-based technology, design, and services, while the Asian firm's contribution is more likely to be labor, capital, and land. Evidence noted earlier suggests that stronger IPRs should expand Australian firm's willingness to share technologies in this manner because of the additional certainty of retaining proprietary control over them. Returns to foreign investment and technology licensing in Asia should be higher as a result. Plant breeders in Australia might benefit particularly from additional Asian technology protection.

Australia should also experience some gains on the import side. As noted earlier, it is expected that additional trademark protection in Asia will be instrumental in encouraging local trademark development and product differentiation, some of it bound for export markets, such as Australia. In turn, Australian consumers should

¹¹ Recall the Gould and Gruben (1996) estimate that stronger IPRs tend to raise growth rates by 0.66% in open economies. These computations are based on trade data from Australian Bureau of Statistics and recent GDP growth rates.

¹² *Australian Financial Review* (May 17, 1995).

benefit from greater product variety and quality in imports, with attendant gains in competitive pressures on Australian producers.

Stronger Asian IPRs are not an unambiguous gain for Australia, however. One problem particularly facing small, open economies that already have comprehensive IPRs in place is that as Asian systems become more protective their markets become relatively more attractive to foreign investors and licensors. That is, there may be a substitution effect in investment away from Australia toward Asian economies to the extent that local economic characteristics do not otherwise discourage it. Similarly, Australian firms will face greater competition in trying to gain access to protected foreign technologies. This effect is completely unstudied and it is not clear how significant it might be. It does point to the importance of Australia improving its attractiveness to foreign investors on other grounds in the future.

A second factor is that strengthened IPRs in the region will place upward pressure on the prices of protected goods, such as pharmaceuticals. This effect may be slight in Australia because it already protects patents and copyrights. However, as the availability of generic drugs and pirated copies dries up in the region, rights-holders will feel less constrained to maintain competitive prices. In economic terms, regional import demand curves will become less elastic while rights-holders will find it easier to segment markets. Thus, there may be some rise in prices, suggesting the need to pay some attention to pharmaceutical markets in particular. This factor also supports consideration of further import deregulation in areas where distributional monopolies exist, which is advisable in its own right.

4b. Australian Policy Responses

It is impossible to assess accurately the net balance of these various factors, though I expect Australia to experience net gains from the emerging system of Asian IPRs. However, the potential gains would be enhanced and the potential problems would be attenuated to the extent that Asian countries pursue the pro-competitive regulatory approach sketched earlier and Australian negotiators might be advised to advocate such an approach.

Australian negotiators have at least one other relevant concern in the IPRs area. It will be important to voice the country's interests in any attempts to push for even stronger global standards. Australia has already followed the U.S. lead in declaring computer software and algorithms patentable, which is of dubious value for the local software industry and might sacrifice long-run competitive advantages in favour of firms operating in more open Asian systems. It is unlikely that similarly choosing to adopt broad scope of patent protection in biotechnology would make competitive sense, nor would tighter restrictions against software decompilation. The United States also advocates low standards of creativity in protecting electronic databases, which promises to limit information diffusion on the internet without commensurate social gain.

As an open economy that remains sensitive to terms of competition in acquiring key technologies, products, and services, Australia is in a unique position to argue against this emerging system of over-protection. This could be done by working to see

that the TRIPs revision exercise in 2000 is more devoted to consolidating its gains than to extending protection to new fields of endeavour.

In the short term, one highly visible means of making Australia's case is to declare that the market is open to effective competition even as regional IPRs are upgraded. This declaration could be made through additional import deregulation, in particular allowing parallel imports in copyrighted goods. It is also important to remain vigilant in its competition policy.

Ultimately, Australia has a variety of complicated interests in the international system of intellectual property rights. The evolving Asian regime presents both challenges and opportunities that must be deliberated carefully by both Australian firms and policy makers. Maintaining an effective system of rights in the region with due regard for competitive balance is in the mutual interests of the countries involved.

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