

# Do Stronger IPRs Deliver the Goods (and Services) in Developing Countries?

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# Abstract

The 1990s witnessed a global wave of intellectual property rights reform. Anchored in a series of international accords, this wave resulted in the strengthening of intellectual property rights in countries around the world. Despite a continuing and emotive debate about amending or relaxing those accords, global minimum standards are taking root and some countries are even going beyond. Based on more than a decade of experience, the empirical evidence indicates that an appropriate degree of IPR protection does help to deliver access in developing countries to goods, services and FDI from abroad, as well as boosting domestic innovation. Market mechanisms are operating to deliver improved technology. But, more can be done to improve upon these results. Abuse of intellectual property continues in some areas. Opportunities are missed to promote innovation and sustainable development. This note discusses the experience in developing countries, highlighting why intellectual property matters for economic development.

## Property Rights

“Property rights are an instrument of society and derive their significance from the fact that they help a man form those expectations which he can reasonably hold in his dealings with others.”

Harold Demsetz (1967, p 347)

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## Introduction – why do IPRs matter?

Sustainable economic development entails doing more with available resources. Technology is central to this challenge, being the means through which resources are combined to deliver goods and services. Raising the level of technology employed in an economy requires a mechanism to encourage both the diffusion of the best existing technologies and further innovation. Properly structured market mechanisms can help to encourage such developments, efficiently allocating scarce resources and providing economic incentives and rewards for innovation.

Property rights provide a necessary precondition to the functioning of markets, by facilitating and incentivising transactions. In order to make an offer of a good or service secure for potential takers, the provider's right to deliver the product should be clearly understood. The increasing importance of intangible goods and services in the global economy poses a challenge in this regard.<sup>2</sup> Absent special supplemental rules, the property rights for an important class of these intangibles called intellectual property – including inventions, as well as designs, music, movies, texts and trademarks, among other items – may not be obvious or may be easily abused in light of the wide availability of digital technologies capable of their replication.<sup>3</sup>

Consequently, in recent decades governments around the world have reinforced their intellectual property rights (IPRs) regimes to permit developers of such intangibles to have clear title to the fruits of their labor for use or transfer as they see fit.<sup>4</sup> While physical goods are rivalrous and possession of a given object at a point in time is exclusive to the holder, intellectual property is non-rivalrous and may be held simultaneously by multiple users. The non-rivalrous nature of intellectual

property facilitates ready exploitation via globally-integrated markets, with the potential for rights-holders to appropriate benefits in a highly scalable manner. Particularly where the transactions are market-mediated, it is likely that both parties see a utility in conducting the exchange (i.e., there is a value given to the item). Thus, the specification of IPRs can provide a powerful incentive for both innovation and diffusion of innovation, including goods and services that embody technologies associated with economic development.

The World Trade Organisation's 1995 *Agreement on Trade-Related Aspects of Intellectual Property Rights* (TRIPS) was an important element in the international wave of IPR reform. In the context of the present discussion, it is particularly notable that the accord includes explicit objectives of technological innovation and diffusion.<sup>5</sup> The implementation of the TRIPS Agreement transformed the global landscape for intellectual property rights, establishing a global minimum standard for protection of intellectual property rights and providing WTO member governments with means to enforce these standards vis-à-vis other members.<sup>6</sup> Although the TRIPS Agreement provided for substantial transition periods in developing countries, most of these had expired by 2005 (with the exception of certain provisions applicable to Least Developed Countries, LDCs, whereby a waiver was granted through 2016).<sup>7</sup>

Despite the IPR reforms in recent decades, there remains significant diversity in IPR policy around the world. First, the TRIPS Agreement provides a fair amount of policy space to WTO members. For example, countries may opt for protection that goes beyond the TRIPS Agreement (e.g., with respect to digital rights management) and in certain areas they have a fair amount of latitude in the manner the commitments are implemented (e.g., the accord mandates protection of plant breeder rights, but

## What is innovation?

“The implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.”

OECD-EC (2005), *Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data*, 3rd Edition.

does not specify a particular approach). Second, in some cases, the strengthening of IPRs was further reinforced by the inclusion in regional trade agreements of provisions going beyond the minimum requirements of the TRIPS Agreement or by ratification of other international accords not referenced in the TRIPS Agreement (e.g., the so-called Internet Treaties of the World Intellectual Property Organisation, WIPO). Third, some countries have unilaterally gone further in strengthening and promoting IPRs as part of their development strategies. Fourth, other countries have lagged in implementing their various commitments.

In light of the scale of the IPR reform efforts and the continued variation in IPR policies between countries, it is important to consider how this change and variation might influence economic performance. What can we say about the experience of developing countries in relation to the strengthening of IPRs? Has this policy shift led to a meaningful promotion of technological transfer and innovation in developing countries?

## Intangibles and a change in nature & pace of innovation: “something is different”

The environment for innovation has changed considerably over the past 20 years. A key factor appears to be the emergence of globalisation, which was given impetus by a wave of economic liberalisation associated with the economic transition in the formerly socialist countries and the market opening conclusion of the Uruguay Round. Globalisation has also been facilitated by substantial technological progress during this period including the advent of the Internet and other innovations in logistics and communication that have radically decreased trade costs. This has contributed to the emergence of approaches to innovation activities

that are now more international and collaborative. Firms now conduct research with employees based in Beijing, Bangalore, Bristol and Boston.

Meanwhile, the intangible portion of the economy has continued to expand. Evidence from advanced economies points to a substantial upward trend in investment in intangibles in recent decades. For example, in the United States, by 1990 the share of business investment in intangibles came to exceed the share going to tangibles (Corrado, Hulten and Sichel, 2006) and the gap appears to be increasing. By 2004, US business investment in intangibles amounted to some 11.7 per cent of GDP, while the corresponding figure for tangible investment was only about 8.5 per cent.

In order to provide an idea of the composition of the investment flows into intangibles, Chart 1 presents the situation in the United States during 2000–03 (Corrado, Hulten and Sichel, 2009). Of the five categories of intangible investment identified by Corrado *et al.*, the largest covers investment in firm-specific resources, both human and structural, which together amounted to the equivalent of about 4 per cent of GDP. This category includes employer-provided worker training and management time devoted to enhancing the productivity of the firm, both of which are important divers of innovation and productivity. The second-ranked category is non-scientific research and development (R&D, 2.3 per cent of GDP), which covers investment in developing new motion picture films and other forms of entertainment, investments in new designs, and estimated spending for new product development by financial services and insurance firms. Scientific R&D ranks third, at 2.2 per cent of GDP; this category captures investment in innovation that builds on a scientific base of knowledge. The fourth-ranked category concerns investment in computerised information (1.6 per cent of GDP) including software. Brand equity (1.5 per cent) is the final category; a major portion of this is comprised of investment in advertising expected to have a long term effect.

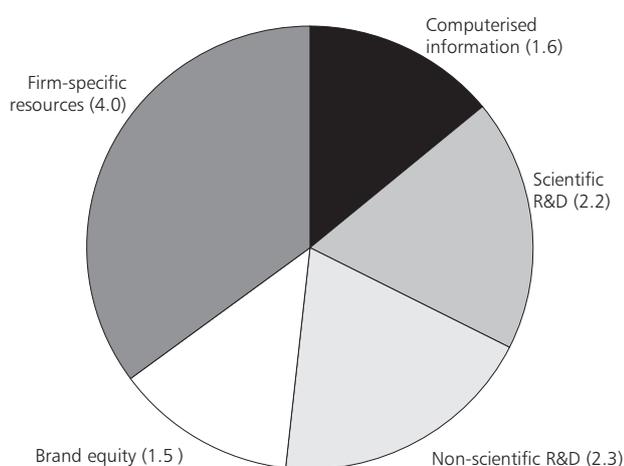
Although the United States is a leader with respect to investment in intangibles, other advanced countries are also investing heavily (Chart 2). Fragmentary evidence of the dynamics of this investment reveals substantial increases in several of these countries (Barnes and

McClure, 2009). It appears likely that the increase in these investment flows has contributed to an increase in the stock of intellectual property. For example, as highlighted in Chart 3, there has been a substantial rise in patent applications for the EU and US since 1990.<sup>8</sup> Similar trends can be found for the registration of trademarks.

Taken together, one can see an innovation-related shift in these major economies. Intangibles have become more important economically and now attract substantial investment flows that appear related to an expansion of the stock of intellectual property. One consequence is a greater intensity in development and diffusion of technology across these major economies. This presents an opportunity and a challenge for developing countries.

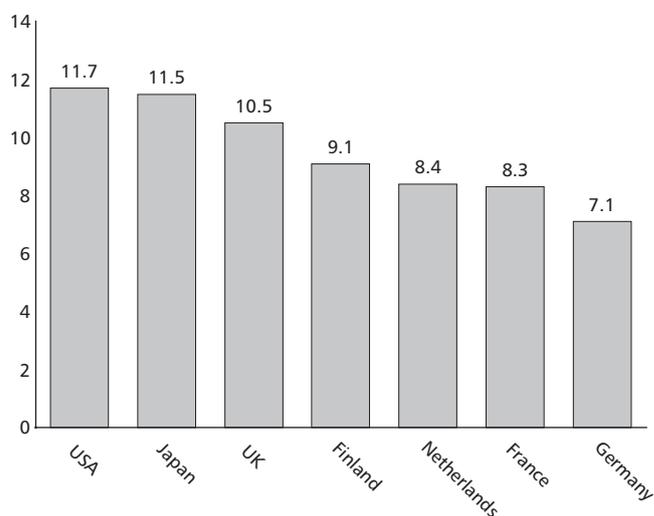
On the one hand, developing countries may benefit from inward technology transfer and greater international markets for their domestic innovation. On the other hand, their domestic innovators will face increased competitive pressures and may be at a disadvantage if the local policy environment impedes their ability to respond. Globalisation is offering increased economic potential but in many cases the local policy environment

Figure 1 **Composition of business investment in intangibles as per cent of GDP, United States (2000–03)**



Note: For reference, in this period investment in intangibles amounted to about 11.7 per cent of GDP and investment in tangibles to 8.5 per cent of GDP.  
Source: Corrado et al. (2009).

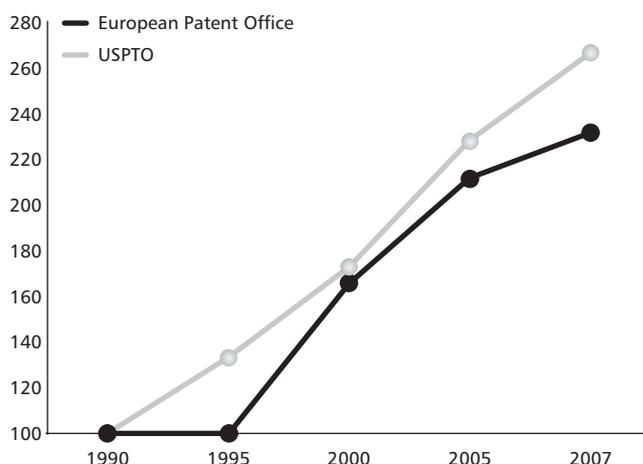
Figure 2 **Business investment in intangibles as a share of GDP, by country (various recent years)**



Source: Barnes, P. and McClure, A. 2009, *Investments in Intangible Assets and Australia's Productivity Growth*, Productivity Commission Staff Working Paper, Canberra.

will need to adapt to allow the economy to adjust to changing circumstances. Where inappropriate policies are pursued, there is a potential to fall further behind economically.

Figure 3 **Numbers of patent applications, index, 1990 = 100**



Note: There is a similar trend for trademarks. Copyright protection is automatic.  
Source: World Intellectual Property Rights Organisation (2009), *Statistics On Patents*, on-line

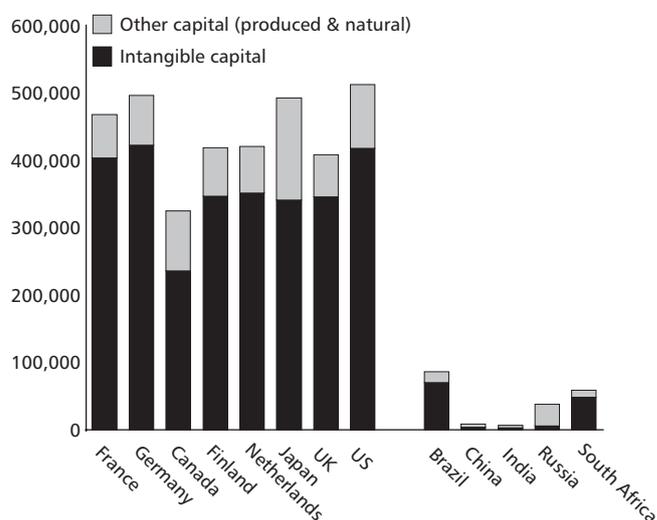
## Intangible capital, R&D and economic development

National statistical systems are only slowly adapting to these changes, particularly with respect to innovation and intangibles. Much of the work on quantifying these economic developments has focused on the advanced economies. Nonetheless, there are some indications to be found for the developing world as well. For example, using a different methodology from the foregoing assessments of investment in intangibles, the World Bank prepared wealth estimates for the stock of intangible capital in 120 developing and OECD countries for the year 2000. The World Bank indicator for intangible capital is constructed – as a residual in the analysis – in such a manner as to include human capital, skills and know-how embodied in the labour force; social capital (trust and ability to collaborate positively); institutions and elements of governance (e.g., efficiency of the judicial system, clear property rights, and government effectiveness); net foreign assets; some natural capital (fisheries and sub-soil water, included for data reasons); as well as some measurement error.<sup>9</sup> The authors estimate that approximately 60 per cent of the variation in the indicator is associated with rule of law and approximately 35 per cent is associated with education.

As of 2000, the World Bank estimates point to a striking gap in intangible capital between the so-called BRICS countries (Brazil, Russia, India, China and South Africa) and the advanced economies (Chart 4). While it is likely that the gap has closed somewhat in the years since (in part due to improvements in the environment for protection of IPRs), continuing differences in per capita income provide an indication that it probably remains quite substantial.<sup>10</sup> Building the stock of intangibles is important, because the lack of such capital means that these developing economies would have fewer resources to leverage in their quest to raise living standards. It also constrains their ability to benefit from participation in some of the fastest growing parts of the economy (e.g., the so called virtual economy). Thus, despite the substantial economic progress in these countries, more work remains to be done.

One way to build up the stock of intangibles is via investment in R&D (Chart 5). While the efficacy of R&D

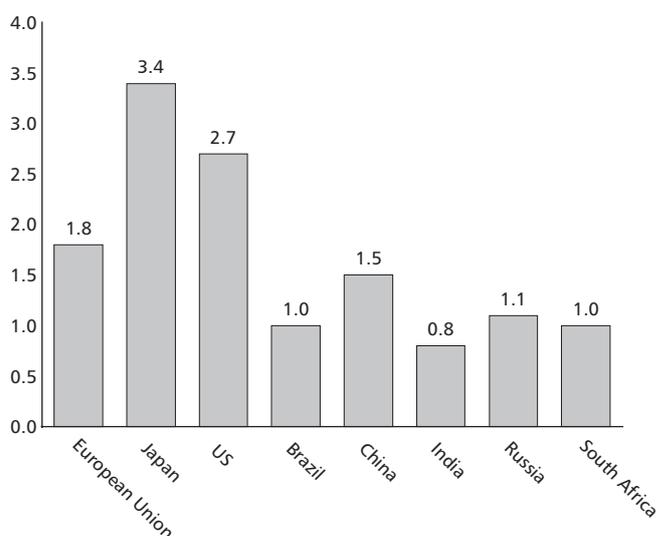
Figure 4 **Wealth estimates by country: total stock per capita (2000, in US\$)**



Source: World Bank (2006), *Where is the Wealth of Nations?*

expenditure may vary and success cannot be guaranteed, the results of under-investment are more certain. Taking the BRICS countries as an example, one can see that they continue to lag somewhat behind large developed

Figure 5 **Gross expenditure on R&D as per cent of GDP (2007)**



Source: UNESCO Institute for Statistics (2009), Custom Tables, on-line

countries, though both China and South Africa have made strides to expand R&D activity in recent years. China is approaching on the average level in the EU, in terms of R&D expenditure as a share of GDP.

## Getting the incentives right

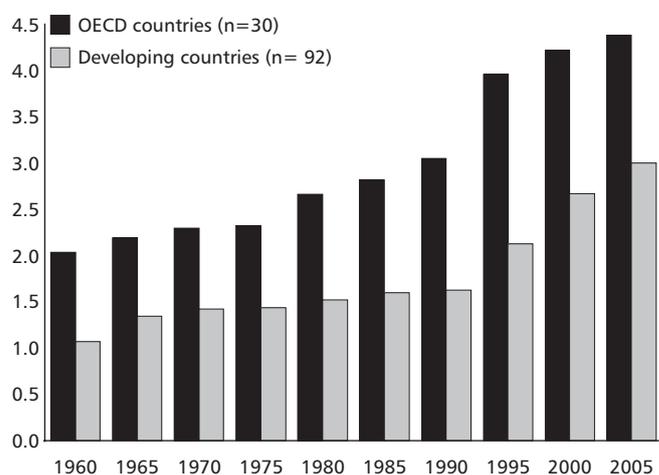
Beyond policies to invest directly in R&D, what might developing country governments do to close the intangibles gap with the advanced economies? One possibility is to provide better incentives for innovators from across their economies and abroad to add to the stock of intangibles in developing countries. In cases where protection of IPRs continues to lag, this might be done via appropriate IPR reform to ensure clear and efficient legal recognition of intellectual property.

International accords affirm the rights of intellectual property holders to licence, rent or assign their intellectual property to others. This gives innovators better incentives to capitalise on their innovations internationally, whether for monetary or non-monetary rewards. In other words, the effective recognition of intellectual property may open the way for markets to deliver increased flows of intangibles (*e.g.* technology, digital content, designs), including the types of technology needed for improved economic efficiency and competitiveness. At the same time, the existence of abuse such as counterfeiting can damage these incentives.<sup>11</sup> If IPRs are undermined, the result may be a decrease in innovation, whereby society as a whole stands to lose out.

Just how important are these incentives in developing countries? One can look back at the recent wave of reforms to examine developments. The evidence is striking. As a starting point, it is necessary to consider an indicator of the evolution of the strength of IPRs. One set of indices has been developed by Walter Park and colleagues at American University in order to characterise the strength of IPRs based on laws on the books (*e.g.*, see Park, 2008). An examination of these indices confirms the strengthening of IPR protection in the advanced economies and across a broad sample of developing countries.

Chart 6 presents the most frequently cited index in the set, the Patent Rights Index. As can be seen in the chart,

Figure 6 **Index of Patent Rights based on laws on the books (0 = weak, 5 = strong)**

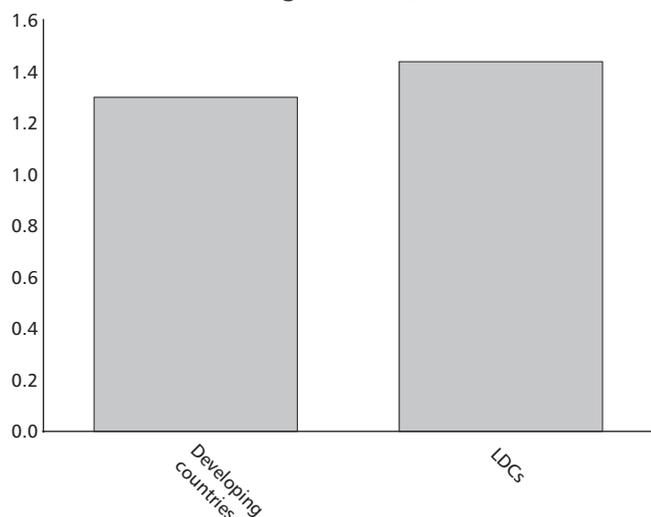


Source: Park and Lippoldt (2008)

OECD countries and non-OECD developing countries have both on average significantly increased the strength of protection for patent rights in recent decades. There was a particular uptick in the index around the time of the entry into force of the WTO TRIPS Agreement, though a portion of the increase was certainly due to unilateral reforms, implementation of IPR provisions in regional trade accords and accession to WIPO-administered IPR agreements.

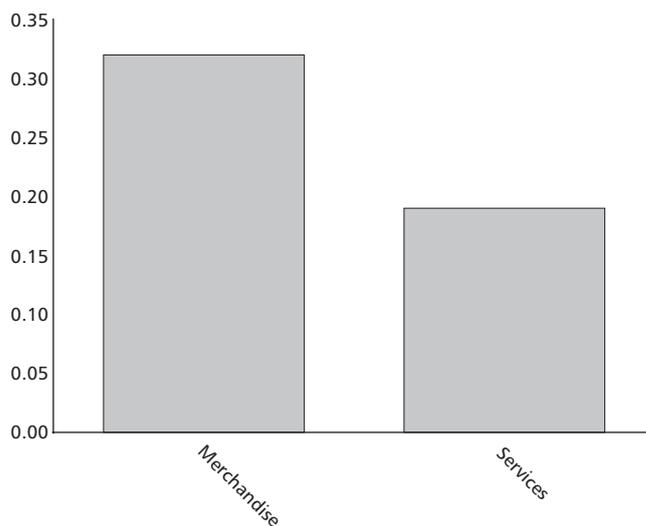
Evidence from a series of OECD working papers highlights a positive association of important economic indicators with the strengthening of IPRs (Park and Lippoldt, 2005 and 2008). This is the case, for example, for inward foreign direct investment (FDI) and imports, activities that embody technology transfer. Across a broad sample of developing countries, a 1 per cent strengthening in the Patent Rights Index was on average associated with about a 1.3 per cent increase in inflows of FDI (Chart 7). A 1 per cent strengthening of patent rights was also on average associated with a 0.3 per cent increase in merchandise imports and a roughly 0.2 per cent increase in services imports (Chart 8). The association was even stronger for imports of many types of products that are intensive in intellectual property

**Figure 7 Stock of inward FDI: per cent change associated with a 1 per cent change in the Patent Rights Index, 1990–2005**



Note: The bars represent coefficients from a regression analysis assessing the relationship of change in the Patent Rights Index to change in the stock of FDI, controlling for other likely influences. The coefficient for developing countries is significant at the 1 per cent level and the one for LDCs is significant at the 5 per cent level.  
Source: Park and Lippoldt (2008); revised modelling approach implemented by Ricardo Cavazos

**Figure 8 Developing country imports: per cent change associated with 1 per cent change in the Patent Rights Index, 1990–2005 (excluding LDCs)**



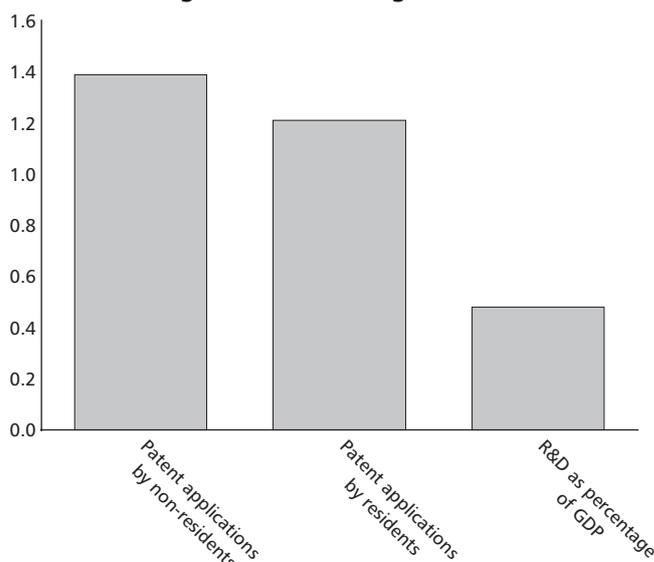
Note: The bars represent coefficients from a regression analysis assessing the relationship of change in the Patent Rights Index to change in imports, controlling for other likely influences. The coefficient for merchandise is significant at the 1 per cent level and the one for services is significant at the 5 per cent level.  
Source data: Park and Lippoldt (2008); revised modelling approach implemented by Ricardo Cavazos

such as office equipment, telecoms, electronics and aerospace. One indication that these flows may embody substantial technological content can be seen in the increase of foreign patent applications in developing countries. As shown in Chart 9, these applications are significantly related to strengthening in patent rights. Similar positive relationships exist for protection of other IPRs such as copyrights and trademarks and economic indicators. While this type of analysis does not demonstrate causality, it does provide an indication of statistically significant relationships.

But, the positive story does not stop here. There is also evidence of a positive relationship between strengthening of patent rights and increased domestic innovation. Chart 9 presents two indications of this for developing countries; domestic patent applications and expenditure on R&D both show positive and statistically significant relationships to the strengthened intellectual property rights since 1990.

The regression models developed for these analyses show that patent and other IPR reforms are not

**Figure 9 Innovation in developing countries: per cent change associated with 1 per cent change in the Patent Rights Index, 1990–2005**



Note: The bars represent coefficients from a regression analysis assessing the relationship of change in the Patent Rights Index to change in patent applications and R&D expenditure, controlling for other likely influences. The coefficients are all significant at the 1 per cent level.  
Source data: Park and Lippoldt (2008); revised modelling approach implemented by Ricardo Cavazos

generally a stand-alone factor for improving these economic indicators. Generally, the coefficients for a number of control variables were significant in each equation, providing an indication of the types of complementary policies that might be important. Those that were significant often reflect policies one might consider as promoting a sound environment for private sector business development, such as those measured in the World Bank's Doing Business Index.<sup>12</sup> For FDI, these include not only patent rights, but also strength of trademark protection, legal effectiveness, extent of regulatory burdens, quality of governance, and freedom to trade. For imports, these include not only patent rights, but also trademark protection, extent of regulatory burdens and quality of governance. With respect to R&D, this includes not only stronger patent rights, but openness to imports and degree of effectiveness of the legal system. With respect to domestic patenting, this includes not only stronger patent rights, but also extent of inward FDI and openness to imports, extent of regulatory burdens, quality of governance, quality of research institutions and degree of effectiveness of the legal system.

## Conclusions

The 1990s witnessed a global wave of intellectual property rights reform. Anchored in a series of international accords, this wave resulted in the strengthening of intellectual property rights in countries around the world. Despite a continuing and emotive debate about amending or relaxing those accords, global minimum standards are taking root and some countries are even going beyond. Based on more than a decade of experience, the empirical evidence indicates that an appropriate degree of IPR protection does help to deliver access in developing countries to goods, services and FDI from abroad, as well as boosting domestic innovation. Market mechanisms are operating to deliver improved technology. But, more can be done to improve upon these results. Abuse of intellectual property continues in some areas. Opportunities are missed to promote innovation and sustainable development.

This is not to say that IPR protection is a silver bullet development solution. Nor does it mean that all countries should apply uniform IPR policies, foregoing

the policy space available under international accords. Rather, it means that IPR protection is one important element in the policy mix needed to incentivise innovation and to expand the stock of available intangible assets including technologies. IPRs are central to the ability of rights holders to capitalise on their innovations and to promote diffusion and access to intellectual assets.

Implementation of an appropriate IPR regime matters because the environment for innovation and business is becoming more dynamic and collaborative, and doubts about property rights can undermine a country's competitive situation. It matters because better technology is needed if living standards in developing countries are to rise, and weak IPRs can impede technology acquisition and development. It matters because building the stock of intangible assets can provide a resource base to leverage in the quest for economic development.

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## Notes

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2. Intangible assets are goods of an immaterial nature that have an economic value (e.g., know how or a brand).
3. Demsetz (1967) presents a concise statement of the importance of property rights in general and intellectual property rights in particular. He states (p. 359), “If a new idea is freely appropriable by all, if there exist communal rights to new ideas, incentives for developing such ideas will be lacking. The benefits derivable from these ideas will not be concentrated on their originators. If we extend some degree of private rights to the originators, these ideas will come forth at a more rapid pace.”
4. Note that the existence of IPRs can benefit rights-holders engaging in many types of transactions including sales, swaps, licensing, and free transfers (among other possibilities). Rewards may not necessarily be monetary, but may include other benefits such as social recognition, altruism or career development.
5. Article 7 of the TRIPS Agreement states, “The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.”
6. The types of intellectual property covered by the TRIPS Agreement include copyright and related rights, trademarks, geographical indications, industrial designs, patents, layout-designs (topographies) of integrated circuits, and protection of undisclosed information (trade secrets).
7. IPR reforms were also reinforced via increased ratification of agreements administered by the World Intellectual Property Organisation (e.g., the Bern Convention on Copyright or the Paris Convention on Patents) and inclusion of IPR provisions in certain regional trade accords (e.g., NAFTA in North America).
8. Other factors may also be contributing to this trend, such as changes in innovators’ propensities to patent or changes in the conditions for awarding patents (e.g., broadening of the scope of patentable subject matter).
9. The year 2000 is the only point in time for which these internationally comparable data are available.
10. E.g., see the World Bank’s World Development Indicators On-Line, here: <http://data.worldbank.org/data-catalog/world-development-indicators>.
11. More information on the nature and extent of counterfeiting and piracy is available on the OECD web site: [www.oecd.org/sti/counterfeiting](http://www.oecd.org/sti/counterfeiting).
12. Doing Business index available at: <http://www.doingbusiness.org/>

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