

5. Intellectual Property for Development in Mexico

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Intellectual property (IP) regimes serve dual purposes: to provide incentives for the generation and commercialization of innovations and to foster dissemination and use of knowledge. An IP regime alone cannot maximize these two objectives simultaneously. After all, IP establishes incentives to innovate precisely by restricting use, so absent other regulations (competition policy, price controls) a country that establishes IP regulations that are most geared toward encouraging innovation potentially does so at the expense of dissemination and use of knowledge. Countries have typically sought to tailor their IP regimes, setting incentives to achieve different objectives, in line with local capacities and to satisfy local needs.¹

While NAFTA's IP provisions have introduced some restrictions that go beyond the World Trade Organization's TRIPs agreement, the main problem for Mexico is not NAFTA but the Mexican government's adoption of IP rules that go beyond the agreement. These have the effect of making it more difficult for innovation to be disseminated and widely used within the country.

I. NEED FOR REFORM

The principal problem with Mexico's IP regime is that it is geared to promote innovation and the commercialization of new knowledge as if the country were much more developed and therefore capable of generating and absorbing inventions at a rapid pace. That is, in 1991, prior to NAFTA (in fact as a precondition for beginning negotiations), Mexico adopted a patent system that is appropriate for a country with significantly more advanced scientific, technological, and industrial infrastructures. We can assess patent systems along three dimensions: 1) what sorts

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of knowledge can be owned as private property; 2) the rights of owners vs. users of property; and 3) the effective duration of property owners' rights. In Mexico, the scope of patentable knowledge is broad, and patent-holders have both strong and long rights of exclusion. In fact, Mexico subsequently reformed the patent system in 2003–04 to make issuing compulsory licenses (CLs) of patented drugs exceedingly difficult and effectively to extend patent-holders' periods of market exclusivity.²

As simple illustrations of the mismatch between Mexico's patent system and the country's scientific and technological capacities, consider that the absolute number of patent applications made by residents of Mexico increased by only 4 percent in the period since the new IP law was introduced, from 564 patents in 1991 to 584 in 2005. In contrast, the number of non-residents' applications tripled over the same time period, from 4,707 in 1991 to 13,852 in 2005³. Net licensing and royalty payments to foreigners (payments minus receipts) increased from US\$341 million in 1991 to US\$713 million in 2004, an increase of 109 percent.

These data suggest that the new IP system set incentives to which Mexican actors have minimal ability to exploit, while raising the cost of accessing and using cutting-edge knowledge. Nor does Mexico's IP system appear to meet health needs. Despite significant investment in the pharmaceutical industry, the price of medicines in Mexico remains high, and—most importantly—the government's capacity to use the IP system to leverage price reductions from patent-holding firms is extremely low. Patent-holding pharmaceutical firms do not fear CLs, and thus feel little compulsion to reduce prices. To provide one example, Abbott prices its patented version of lopinavir/ritonavir, a key second-line treatment for HIV/AIDS, more than five times higher in Mexico than in Brazil.⁴

On most dimensions Mexico's IP regime is inappropriate. The question, then, is how the situation could be improved. In line with the other contributors, we can think of responses along three lines: reforms to Mexican policy, reforms to NAFTA itself, and regional efforts.

II. REFORMS TO MEXICAN POLICY

One can think of two responses to the mismatch between the IP system and the country's scientific, industrial, and technological capacities:

- increase Mexico's level of scientific, industrial, and technological development to make it more appropriate for the new IP system;

- alter the IP system to make it more appropriate for Mexico's level of scientific, industrial, and technological development.

Mexico could do both, though in practice the focus (since early 2000s) has been almost exclusively on the former. Here I refer to the restructuring of science policy under the Fox government, the centerpiece of which were reforms to the operations of the National Science and Technology Counsel (CONACYT), the government's most important instrument for promoting scientific research. These reforms included the creation of new funding mechanisms that aimed to increase collaboration between public research institutions and private industry. The government also introduced measures that involve the private sector more explicitly in innovation policy. For example, the Fox government created a new consultative forum on science and innovation to link government, academia, and industry; in fact, key individuals from Mexico's most innovative firms were essentially "poached" by CONACYT with an eye on imparting the lessons from these successful innovation and IP management efforts.

Reforms to address the innovation challenge would also take into account the increasing evidence that innovation can be spurred through collaboration.⁵ To the extent that openness and sharing (rather than privatization and exclusion) are mechanisms for spurring innovation, policies could be introduced to encourage these conditions. Tax incentives can be used to reward collaborative research programs and "open innovation," for example, and a greater share of CONACYT resources can be dedicated to promoting innovation via prizes.⁶ The reordering of CONACYT's structure and operations creates a basis for moving forward in some of these directions, particularly to the extent that the mechanisms for supporting R&D in public and private enterprises can be informed by recent scholarship regarding collaborative innovation and the importance of extending the scientific commons.⁷ Such reforms are, in effect, more changes in effort and emphasis than changes in policy per se. NAFTA's extremely broad restrictions on the use of performance requirements and other regulations on inward foreign investment eliminated a key policy tool that the Mexican government could use to encourage such collaboration.

These efforts also will require significantly more funding. An important implication, then, is that recognition of the importance of science and technology policy must become more than just rhetorical and be reflected in the Treasury's allocation of resources. Although total (public and private) expenditure on research and development increased from 0.37 percent of GDP in 2000 to 0.50 percent in 2005,

this level is extraordinarily low. Among middle-income countries the global average for R&D expenditure in 2005 was 0.94 percent, while the average of high-income OECD countries was 2.32 percent.⁸ It is reasonable to expect that a revitalized and expanded NADBANK could contribute to such collaborative R&D spending if its mandate were broadened, as others have called for in this publication.

It is also important for Mexico to introduce reforms that make the IP system more appropriate for the country's current level of development, because efforts to promote more innovation will take time to bear fruit. Until that happens, Mexico should:

- regulate licensing agreements to cap royalties, and that could also include a firm requirement that research funded by the public sector be licensed on a non-exclusive basis and at low fees.
- limit the breadth of patents and introduce a higher threshold of novelty and inventiveness as criteria for granting pharmaceutical patents.
- reverse the reforms introduced in 2003–04 on compulsory licensing of drugs, and revisit the system of linkage that was established between the patent office and Health Secretariat.
- introduce a more flexible and useful CL system (as Brazil did).

The idea behind these reforms is to keep more knowledge in the public domain and to facilitate public and private actors' abilities to access and use knowledge. These policies would be complemented by reforms to Mexico's competition laws, to prevent the abuse of monopoly rights. All of the above reforms could be adopted without changing NAFTA's IP chapter, though the first would require changes in the investment chapter.

III. REFORMS TO NAFTA

The most egregious aspects of Mexico's IP system come from how Mexico exceeded its NAFTA obligations. For example, the reforms to the compulsory licensing and drug registration arrangements were introduced a decade after NAFTA went into effect and were not required by NAFTA.⁹

Still, in two important pharmaceutical-related areas NAFTA's patent provisions do exceed those in the WTO/TRIPS, and these should be addressed. The first, and most simple, regards parallel importing. Parallel importation consists of allowing patented goods to enter the market once patent-holders have placed

the goods on the market elsewhere. So, for example, if the patent-holder prices a drug at \$15/pill in Mexico and \$5/pill in Bolivia, parallel importation would make it legal to bring them from Bolivia to Mexico.¹⁰ TRIPS allows parallel importing, but NAFTA does not.

A second area of reform regards NAFTA's requirement that Mexico grant "pipeline patents." Prior to the passage of a new patent law in 1991, Mexico did not grant patents on pharmaceutical products. This meant that a drug that was invented in 1988, for example, was not eligible for a patent at the time it was new. The drug would also be ineligible for patenting in 1991, even with the introduction of pharmaceutical patents, because it was no longer new. Since drugs are patented before marketing authority is secured, the 1988 drug in this example would most likely be undergoing clinical trials in 1991—it would be in the "pipeline." Not only does NAFTA obligate countries to offer "pipeline patents," it also requires Mexico to adjust the terms of patents when their expiry date is adjusted in the original application country. Reforming the pipeline system would release many drugs into the public domain.¹¹

As noted elsewhere in this report, NAFTA's IP provisions should also allow parties greater flexibility to exclude from patenting living organisms and permit greater protections and benefit-sharing for native plant varieties. (See Agriculture and Environment chapters.)

IV. REGIONAL RESPONSES

Policymakers in the three NAFTA countries should consider the creation of a genuine regional science and technology area—something along the lines of a regional R&D treaty. Elements of this could include provisions that allow Mexican scientists to tap into U.S. funding (e.g., NIH) and Mexican students to have access to U.S. (and Canadian) doctoral fellowships. Indeed, recent research suggests that international academic exchanges and linkages of this sort provide key boosts to innovation in developing and developed countries,¹² so this could be a benefit to Canada as well.¹³ Such an agreement might also direct some share of the royalties and licensing fees that Mexico currently pays into a fund that is applied to Mexican science. A strengthened NADBANK could also help fund such endeavours.

Taken together, these suggestions range from reforms the Mexican government could undertake unilaterally to some that involve changes to NAFTA itself. They illustrate what needs to be done to make IP a tool for development in contempo-

rary Mexico. If we want Mexico to become more innovative and to participate in and benefit from the “knowledge economy,” then it is not enough to create an IP system appropriate for a more developed country and wait for Mexico to grow into it. More pro-active steps—including at the regional level—will be essential to create an IP environment that is more favorable for development.

1 See Coalition for Intellectual Property Rights (CIPR) (2002). *Integrating Intellectual Property Rights and Development Policy*. London: Commission on Intellectual Property Rights; Reichman, Jerome H. (1997). From Free Riders to Fair Followers: Global Competition under the TRIPs Agreement. *New York University Journal of International Law and Politics* 29: 11–93; Shadlen, Kenneth C. (2009a, forthcoming). The Politics of Patents and Drugs in Brazil and Mexico: The Industrial Bases of Health Policies, *Comparative Politics*.

2 I contrast Mexico’s IP reforms on these dimensions with Brazil’s in Shadlen (2009a, forthcoming). Few countries issue compulsory licenses, since the threat to do so ordinarily is enough to obtain price reductions. In Mexico, however, a reform that makes the process of CLs exceedingly difficult reduces the availability of this negotiating tool.

3 Data are from the Network on Science and Technology Indicators (RICYT). *Indicators by country*. Retrieved August 6, 2009 from RICYT website: www.ricyt.org/interior/interior.asp?Nivel1=1&Nivel2=1&Idioma=ENG. In making comparisons the key is to examine growth in patents after new IP laws were introduced. In the six years after Argentina and Brazil introduced new IP regimes in 1995 and 1996, respectively, residents’ patent applications increased by 57 percent in Argentina and 36 percent in Brazil, while in the longer period from introduction of the new laws until 2005, residents’ patent applications increased by 56 percent in Argentina and 88 percent in Brazil (RICYT).

4 Shadlen, Kenneth C. (2009b, forthcoming). Harmonization, Differentiation, and Development: The Case of Intellectual Property in the Global Trading Regime. In Silvia Sacchetti and Roger Sugden (eds.), *Knowledge in the Development of Economies: Institutional Choices under Globalisation*. Northampton: Edward Elgar. As for the environment, the significance of Mexico’s IP system remains unclear. To the extent that patented environmental technologies are based on older—no longer patented—technologies, we would expect to see multiple (and often functionally equivalent) products competing with each other. Research on the introduction of renewable energy technologies in Mexico City, for example, reveals that competition among providers of similar products for converting biogas meant that local actors could access the technologies at reasonable prices, and in the case of solar water heaters the most significant costs that impede use were not due to IP but rather the rising price of raw materials. See Mallett, Alexandra (2009 forthcoming). *Trade and competitiveness policies and urban technology cooperation: re-examining Renewable Energy Technology (RET) adoption in Latin American cities*. PhD thesis, Development Studies Institute (DESTIN), London School of Economics. One useful area of future research is to get a clearer sense of what green technologies are patented and, where patents exist, the extent to which functional substitutes exist.

5 Lester, Richard K. and Michael J. Piore (2004). *Innovation: The Missing Dimension*. Cambridge: Harvard University Press; Von Hippel, Eric (2005). *Democratizing Innovation*. Cambridge: MIT Press.

6 Think about Paul David’s “Three Ps”—the idea here is to put more resources into procurement (prizes) and patronage rather than property, with a goal toward inspiring innovation in areas that meet the specific needs of the country (David, Paul A. (1993). Intellectual Property Institutions and the Panda’s Thumb: Patents, Copyrights, and Trade Secrets in Economic Theory and History. In Mitchel B. Wallerstein, Mary Ellen Moge, and Roberta Schoen (eds.), *Global Dimensions of Intellectual Property Rights in Science and Technology*. Washington, D.C.: National Academy Press, 19–61).

- 7 Nelson, Richard R. (2004). The Market Economy, and the Scientific Commons. *Research Policy*. 33(April), 455-471; Mazzoleni, Roberto, and Richard R. Nelson (2007). Public research institutions and economic catch-up. *Research Policy*, 36 (December), 1512-1528.
- 8 This latter figure is most relevant, because Mexico has introduced a patent system as if the country were a high-income OECD country.
- 9 Many of the sorts of reforms Mexico introduced are in subsequent RBTAs, but NAFTA is not "TRIPS Plus" in this way. See Shadlen, Kenneth C. (2005). Policy Space for Development in the WTO and Beyond: The Case of Intellectual Property Rights. *Global Development and Environment Institute*. Working Paper No. 05-06 (November); Shadlen 2009a, forthcoming.
- 10 Note that parallel importation does not involve generics, as the drugs that would be imported in this way are the ones placed on the market by the patent-holder.
- 11 Although both of these reforms to NAFTA would be helpful, neither are contemplated in the May 2007 agreement between Congress and the USTR. It's also worth pointing out that the reforms to the pipeline system would need to happen immediately to have any effect.
- 12 Taylor, Mark Zachary (2009). International Linkages and National Innovation Rates: An Exploratory Probe. *Review of Research Policy*. 26(1-2), 127-149.
- 13 This would be similar to schemes that operate in the European Union.

This chapter is part of a Boston University Pardee Center Task Force report on reforming NAFTA and U.S. trade agreements. For more information on the project, and to find links to the full report and to Spanish language content, visit:

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