The Puzzling Politics of Patents and Innovation Policy in Mexico

Kenneth C. Shadlen

Follow this and additional works at: https://scholar.smu.edu/lbra

Recommended Citation

This Article is brought to you for free and open access by the Law Journals at SMU Scholar. It has been accepted for inclusion in Law and Business Review of the Americas by an authorized administrator of SMU Scholar. For more information, please visit http://digitalrepository.smu.edu.
THE PUZZLING POLITICS OF PATENTS AND INNOVATION POLICY IN MEXICO

Kenneth C. Shadlen*

This is a revised version of the paper presented at the conference “Challenges and Opportunities in Mexico,” Southern Methodist University, March 2010. I am grateful to Shubha Ghosh for his thoughtful comments as discussant.

This article focuses on one aspect of Mexico’s intellectual property (IP) system, patents: state-granted rights of exclusion over inventions. Mexico’s patent regime has undergone three sets of changes in the last twenty years, each offering stronger rights of exclusion over more types of knowledge and information. The first and most critical change was the introduction of a new patent law in 1991.1 A second change, specifically regarding pharmaceutical patents, was introduced following legislative debate in the early 2000s. The third set of changes, which includes a set of measures to integrate patent policy with national innovation policy and encourages closer ties between public science and private industry, was also introduced in the early 2000s.

Variation in patent regimes can be considered along three dimensions: what knowledge can be owned as property, the rights of owners vs. users of property, and the effective duration of property owners’ rights.2 In each instance of change in Mexico, policy has consisted of a movement toward “strengthening” the level of intellectual property rights (IPRs): offering private rights of exclusion on more types of knowledge, granting the owners of the private rights more ability to control the use of their privately owned knowledge, and extending the amount of time that the private rights endure. The objective of this article is to present and explain this trajectory of persistent strengthening of IPRs. It is a puzzling outcome simply because the policy orientation has not been successful by most measures, i.e. the new patent policy has increased the cost of accessing knowledge without sparking increases in innovative activities or outputs.3

* Kenneth C. Shadlen; Reader, Department of International Development, London School of Economics and Political Science; k.shadlen@lse.ac.uk.
1. Ley de Fomento y Protección de la Propiedad Industrial [L.F.P.P.I] [Industrial Property Law], as amended, Diario Oficial de Federación [D.O.], 27 de Junio de 1991 (Mex.).
3. Indeed, in light of these effects other developing countries that also introduced strong IP systems in the 1990s have revisited—rather than simply reinforced—their
Prior to explaining the policy trajectory experienced by Mexico, it is necessary to understand how policy might vary. In the first section, I present the key dimensions of patent policies that allow us to characterize national patent regimes and thus serve as axes of variation. In the second section, I examine the initial move toward adopting a patent system that offers strong rights of exclusion over a wide range of knowledge, and I offer a brief assessment of the effects of these arrangements. In the third section, I analyze the politics of compulsory licensing in the area of pharmaceutical patents, and in the fourth section, I examine the contemporary political economy of innovation policy.

I. PATENT POLICIES: PHARMACEUTICALS, PIPELINE PATENTS, AND COMPULSORY LICENSES

Patents confer limited rights of exclusion over inventions that are new, non-obvious, and have industrial use. Although the grant of a patent constitutes turning knowledge into private property, the subsequent rights of owners over their property are limited in that they are not automatic, not absolute, and not permanent. Let’s examine each limitation in turn. Patents are granted only where applicants demonstrate that their inventions satisfy the criteria of patentability. With application and examination central—and prior—to the process of establishing ownership, governments can control what knowledge becomes private property within their territory.

Another limitation is that patent rights include various exceptions to patent-holders’ ability to control the use and distribution of their property. Patent regimes include provisions by which third parties can, without requesting permission, use knowledge that is owned by someone else. They also include provisions that allow third parties to receive permission from the state to use other actors’ privately-owned knowledge in ways that would otherwise constitute violations of patent-holders’ rights. Lastly, patents expire: at some point the private property enters the public domain, where access to and use of the knowledge is unrestricted.4

These limitations map onto lines of political conflict over what can be owned privately, between the rights of owners and users of private property, and over the duration of rights. These lines of conflict, in turn, map roughly on to axes of policy variation.5 For the purposes of this paper I will focus on the first two limitations, what sorts of knowledge can be owned privately and the rights of owners vs. users.

With regard to conflicts over what sort of knowledge can be owned privately, an important issue is whether countries grant pharmaceutical patents.6 Many developing countries did not do so prior to the 1990s. A

4. Shadlen, supra note 2, at 44.
5. Id. at 2.
6. Id. at 6.
second policy issue regards how to deal with inventions that are not new but that were not patented when they were new because the previous regime did not allow the sort of knowledge to be patented. If a country began granting pharmaceutical patents in 1995, for example, a drug that was invented in 1990 would not have been eligible for a patent when it was new. The novelty requirement would also make the drug unpatentable in 1995, even with the introduction of pharmaceutical patents, because it was no longer new.\textsuperscript{7} Since drugs are patented before marketing authority is secured, the 1990 drug would most likely be undergoing clinical trials in 1995—it would be in the “pipeline.” How do countries introducing pharmaceutical patents treat drugs in the pipeline?\textsuperscript{8}

Compulsory licenses (CLs) constitute a key policy area corresponding to conflicts over the rights of owners vs. users. Patent rights include exceptions to patent-holders’ ability to exert control over the use of their property. CLs allow domestic entities (public or private) to import, produce, and distribute patented goods without the patent-holders’ consent.\textsuperscript{9} CLs have historically been part and parcel of national patent regimes, granted by countries in a wide range of situations.

II. TRIPS, NAFTA, AND MEXICAN PATENT POLICY

National IP regimes serve dual purposes, to provide incentives for the generation and commercialization of innovations and to foster dissemination and use of knowledge.\textsuperscript{10} An IP regime alone cannot maximize these two objectives simultaneously. After all, IP rights generate 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. Historically, diversity in national IP regimes—both cross-nationally and longitudinally—has corresponded to basic national characteristics: wealthier countries that have greater higher levels of indigenous innovative capabilities typically offered stronger IPRs than poorer countries. Indeed, the relationship between income level and extent of IP protection tended to reflect a j-curve. As countries became more industrialized and thus local actors came to have more abilities to

\begin{itemize}
\item \textsuperscript{7} Id.
\item \textsuperscript{8} Pipeline patents are problematic on two dimensions. First, they are retroactive and thus contradict the requirement of “novelty,” which is a fundamental pillar of patent law. Second, the applications are not examined but simply revalidated.
\item \textsuperscript{9} Shadlen, supra note 2, at 45.
\item \textsuperscript{10} Kenneth C. Shadlen, Harmonization, Differentiation, and Development: The Case of Intellectual Property in the Global Trading System, in KNOWLEDGE IN THE DEVELOPMENT OF ECONOMIES: INSTITUTIONAL CHOICES UNDER GLOBALISATION (Silvia Sachetti & Roger Sugden eds., 2009); Keith E. Maskus, INTELLECTUAL PROPERTY RIGHTS IN THE GLOBAL ECONOMY (2000).
\end{itemize}
use cutting-edge knowledge, patent regimes tended to facilitate accessing knowledge; and, as countries developed more indigenous innovative capabilities their patent regimes tended to emphasize incentives for knowledge-generation.\textsuperscript{11}

Mexico conforms to the general pattern, observable in most developing countries, of reducing the level of IP in the post-war period as part of the industrialization strategy. In the mid-1970s the Mexican patent regime was adjusted to facilitate local actors' abilities to access and use knowledge. A wide range of types of inventions were declared unpatentable (e.g. pharmaceuticals and chemicals), patents when granted did not endow owners with strong rights of exclusion, and patent terms were short. The key measures here are laws on technology transfer and the 1976 Patent Law.\textsuperscript{12}

During the 1980s, in the wake of the debt crisis and as part of the broader process of economic reform to alter the terms of Mexico's integration into the global economy, Mexico's patent regime underwent changes that reversed the reforms introduced in the 1970s. In 1987, during the administration of President Miguel de la Madrid (1982-88), Mexico introduced reforms to the new patent law that, among other things, promised to introduce pharmaceutical patents in ten years (i.e. from 1997).

A key thing to remember, of course, is that the 1980s was also a time that the United States began using a wide array of instruments to compel countries to offer more and stronger IPRs (e.g. make pharmaceuticals patentable, eliminate or at least restrict compulsory licensing clauses, increase terms of patent protection). The central instrument was conditioning access to the U.S. market on changed IP policies, with the IP-trade linkage built into the Generalized System of Preferences (GSP) and a key part of U.S. negotiating strategy at the Uruguay Round of multilateral trade negotiations. Although the 1987 reformed LIM appeared from Mexican perspective to mark a dramatic shift in policy, the measures nonetheless left Mexico far from the international practices that the United States was pushing for at the time. Mexico thus came under considerable pressure to implement further changes—in fact the external pressures were greater after the 1987 reform than before.

Specifically, the key instrument of leverage that the United States applied on Mexico was the removal of preferential market access delivered through the GSP scheme and the promise to make this market access


\textsuperscript{12} Ley Sobre el Registro de la Transferencia de Tecnología y el Uso y Explotación de Patentes y Marcas, Diario Oficial de Federación [D.O.], 30 de Diciembre de 1972 (Mex.); Ley de Invenciones y Marcas, Diario Oficial de Federación [D.O.], 10 de Febrero de 1976 (Mex.).
more stable by converting GSP into a reciprocal trade agreement. Mexico's GSP privileges were suspended on the grounds that the reformed patent law remained inadequate. The United States was pushing Mexico to implement a new patent regime in line with what was being debated in the Uruguay Round and would eventually become the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), even while the TRIPS negotiations were still far from complete. When President Carlos Salinas de Gortari (1988-94) later approached the United States to negotiate NAFTA, the United States made it clear that negotiations would not begin until Mexico first introduced a TRIPS-like patent system. In 1991, the initiative for a new Law for the Development and Protection of Industrial Property (LFPPI) was submitted to congress and passed—largely unaltered—by both the Mexican Senate and Chamber of Deputies extraordinarily quickly.13

The politics of this first period of policy change are rather straightforward in that increased IP was part of the price that Mexico would pay for the secured market access that the Salinas government sought to procure with NAFTA. With that said, the IP reforms were hardly regarded as a "sacrifice" or "price" by the Salinas government, which was on a crusade to open the Mexican economy, and in that sense the United States was pushing on an open door.14 At the same time, the promise of stable, preferential market access mobilized key actors in the Mexican political economy (e.g. non-traditional exporters and firms linked to the growing export sector) in favour of increased IP. I refer to this process as "activating agnostics" in that we would not expect these actors to have a position one way or the other on patent policy (hence the label "agnostics") but they become activated in favour of increased IP on account of their dependence on—and demand for retaining—preferential access to the U.S. market. Mexico's high level of political trade dependence brought exporters into a coalition of actors pushing for stronger IPRs.15

Did the coalition for expanded IP face opposition? One would expect a great deal of resistance, internally, to such a fundamental shift in policy. Indeed, in other developing countries the domestic opposition to implementing TRIPS-style IP reforms was extensive.16 In Mexico, however, the resistance to the new IP policy was minimal. The principal beneficiaries of the earlier system, and those that we would expect to resist change,

13. As points of comparison, note that in Argentina and Brazil similar initiatives were submitted by the countries' presidents to the legislatures at roughly the same time, but these countries' legislatures took much more active roles and the new IP laws were not passed until 1996 (and the law passed in Argentina was significantly different from what President Menem had submitted and demanded). See Shadlen, supra note 3.
14. Indeed, in the Uruguay Round of multilateral negotiations Mexico did not participate in the coalition of developing countries that opposed TRIPS.
were being wiped out by liberalization. The key factors here include the abrupt liberalization of the pharmo-chemical sector and unilateral retirement of the investment and technology transfer regulations.

According to the LFPPI and NAFTA, Mexico would offer pharmaceutical patents immediately (i.e. no transition period), and Mexico would offer "pipeline patents" (i.e. retroactive validation of patents already granted elsewhere). On these dimensions NAFTA and Mexican policy exceed the country's obligations under TRIPS, which would have allowed Mexico until 2005 before granting pharmaceutical patents and makes no requirement of doing so retroactively via pipeline mechanisms. With regard to compulsory licenses, the provisions in Mexico's 1991 patent law conformed to the standards that would be stipulated in TRIPS, but did not exceed TRIPS.17

The principal problem with Mexico's new patent regime is that it is geared to promote innovation and the commercialization of new knowledge as if the country were much more developed than it is—and therefore more capable of generating and absorbing inventions at a rapid pace. One obvious and direct effect of this is evident in the realm of medicine. Despite significant foreign investment in the sector, the price of medicine in Mexico remains high.18 Most importantly, the government's capacity to use the tools within the patent 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. For 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.19 Indeed, most key anti-retrovirals (ARVs) are under patent in Mexico. Among the medicines recommended by the WHO for first-line treatment, only one (AZT) is off patent in Mexico. Not only does this mean that the other drugs are more expensive, but not even generic fixed-dose combinations including AZT can be imported and distributed in Mexico. The government's own National Center for HIV/AIDS prevention and control reports that a main obstacle to extending treatment is the "cost of acquiring medicines due to the fact that Mexico faces the highest prices in Latin America."20 The report then goes on to note that Mexico "lacks policy instruments to improve the country's position in negotiating with the pharmaceutical industry and thus obtain prices that are appropriate for the level of development of the country."21

19. Shadlen, supra note 2, at 52.
20. CENSIDA supra note 18, at 22.
21. Id.
Not only has the patent system imposed additional costs in the static sense of yielding high prices, but it has done so without evidently generating the dynamic benefits of increasing local innovation. Consider that the absolute number of patent applications made by residents of Mexico increased by only four percent in the period since the new patent 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 4707 in 1991 to 13,852 in 2005. Net licensing and royalty payments (payments minus receipts) increased from U.S. $341M in 1991 to U.S. $713M in 2004, an increase of 109%. These data suggest that the new patent system has set incentives to which Mexican actors have minimal ability to exploit.

The puzzle of patent policy in Mexico is that the response to the mismatches of the previous paragraphs has been to further strengthen IPRs. Whereas one might expect a country like Mexico to implement reforms that would ameliorate the effects of patents on drug prices, and which would facilitate local actors' abilities to participate in the patent system, instead, Mexico introduced measures to reinforce the effects discussed above. In short, Mexico adopted a patent system that is inappropriate for the country's relatively underdeveloped science, technology, and innovation (STI) infrastructure, and it subsequently altered the system in ways that do not correspond to changes in these underlying conditions. The next sections turn to the political economy of two episodes of policy change: a change to the patent law that complicates the process by which compulsory licenses can be issued, and the rather paralyzed process of reforms to strengthen the STI infrastructure.

III. COMPULSORY LICENSES AND PHARMACEUTICAL PATENTS

Although the affordability of medicine became a prominent issue in Mexico in the late 1990s, as prices increased significantly above the rate of inflation in the years following the 1994 devaluation of the peso, the nature of public sector demand for medicine reduced the government's sensitivity to such changes. State provision of discounted and free medicine was far from universal, extending mostly to workers in the for-

22. Indeed, if the patent system places obstacles to accessing cutting-edge knowledge, then the costs may be dynamic as well.
23. The data on patent applications are from Red de Indicadores de Ciencia y Tecnología-Iberoamericana e Interamericana (RICYT), http://www.ricyt.org/interior/interior.asp?Nivel1=2&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 fifty-seven percent in Argentina and thirty-six percent in Brazil, while in the longer period from introduction of the new laws until 2005, residents' patent applications increased by fifty-six percent in Argentina and eighty-eight percent in Brazil.
mal sector and government employees. Nor, importantly, did Mexico’s Secretariat of Health (SSA) face significant obligations with regards to ARVs, as most HIV/AIDS treatment was provided outside of the state system and the uninsured generally lacked access. The result of this structure of healthcare provision was that high prices did not generate alarm within the SSA; the Mexican government subsequently lacked a motive to reform the patent system.

Rather than coming from within government, an initiative to reform patent rules came from a segment of the local pharmaceutical sector that emerged in the 1990s in response to economic crisis and the limited coverage of the state sector. In the late 1990s and early 2000s a chain of pharmacies selling non-bioequivalent generics under the mark Similares (Similars) expanded in low-income areas throughout the country. The emergence of Farmacias Similares gave local firms that had traditionally supplied the state sector opportunities to sell to private pharmacies. The actors in the chain were closely related, in fact, with the leading producer of non-bioequivalent generics (Laboratorios Best) owned by the same person who owned the Farmacias Similares chain, a physician-pharmacist-industrialist-politician named Victor González Torres, aka “Dr. Simi.”

The Similares sector and its allies in Congress spearheaded the initiative to reform the patent system. In December 2002 “Dr. Simi’s” nephew, a Green Party (PVEM) member of the Chamber of Deputies, presented an initiative that would reform the 1991 LFPP by reducing patent terms to ten years in the case of serious health situations. The PVEM proposal would have violated Mexico’s TRIPS and NAFTA requirements for twenty-year patent terms, but instead of rejecting the proposal out of hand, the Science and Technology Commission (CCyT) modified it. For all of the proposal’s faults, its motivations and context were not to be ignored: escalating drug prices were making access to medicines a growing problem, and, as the initiative’s authors emphasized, other developing countries (such as Brazil) were demonstrating the feasibility of health-oriented patent reforms. Thus, the president of the CCyT acknowledged the concerns expressed by the bill’s sponsors and decided


26. In contrast, in Brazil, with a fundamentally different structure of government demand, higher prices did create a motive to reform the patent system. See Shadlen, supra note 2, at 47 (Comparing the Brazilian and Mexican cases).

27. Bioequivalent medicines feature the same active principal ingredients (APIs) as reference drugs, and they perform identically in the human body. “Similars” may not satisfy the second criterion.

to rewrite the proposal with proper legal assistance.\textsuperscript{29} While the original proposal addressed patent terms (Article 23), the revised bill addressed CLs (Article 77), an area where Mexico had more discretion under TRIPS and NAFTA. In March 2003, the CCyT approved a modest reform that would increase the capacity of the SSA to issue CLs in the case of health emergencies. The key elements were to make a state of “serious illness” declared by the SSA a ground for CLs, to simplify the process by which “serious illness” is declared, and to assure rapid issue of CLs at low royalties.

The March 2003 bill drew a sharp reaction from the transnational pharmaceutical industry and its local representatives. Government officials and legislators found themselves besieged by letters, faxes, emails, phone calls and personal visits from the transnational sector’s trade association (AMIIF), Mexico’s leading law firms, the USTR, and foreign embassies of countries where the transnational sector is based (e.g. United States, Switzerland).

In fact, the transnational sector did not just react defensively but rather went on the offensive, converting the threat into an opportunity. AMIIF attempted to terminate the patent-reform project, though once it was kept alive by the CCyT, AMIIF and its allies mobilized to secure a reform that would make the granting of CLs less likely than under the 1991 law.\textsuperscript{30} The campaign was successful, as the transnational sector effectively commandeered the legislative process. The government of Vicente Fox (2000-2006), never compelled by IP reform in the first place, joined the counter-offensive: the Secretary of Government’s legislative liaison insisted that the March 2003 version could not proceed and provided the CCyT with a revised text.\textsuperscript{31} This new version, which was passed by the full Chamber of Deputies and Senate and then signed into law by President Fox in 2004, increases the obstacles to issuing compulsory licenses, making the process by which “serious illness” can be declared more complicated, removing serious illness per se as a ground for a CL, and requiring high minimum royalty rates.\textsuperscript{32}

To make sense of the perverse experience of IP reform in Mexico, where an initiative to enhance the rights of knowledge-users ended up strengthening the rights of knowledge-owners, it helps to consider the changing political economy of the pharmaceutical sector. AMIIF dominates the sector economically and politically. Of course, individual Mexican firms would benefit from reforming the patent system, but outside of

\textsuperscript{29} Interview with the former President of CCyT, in Mexico City, Mex. (Aug. 10, 2007).
\textsuperscript{30} Interview with the Director General of AMIIF, in Mexico City, Mex. (Aug. 14, 2007).
\textsuperscript{31} CCyT archives; interview with a former official in the Secretary of Government, in Mexico City, Mex. (Aug. 14, 2007).
\textsuperscript{32} As an illustration of the perversity of this legislative process, note that the original sponsors of the initiative to reform Mexico’s CL system (PVEM) ended up actively opposing the final bill that was passed in Congress, while the original opponents (AMIIF and the leading IP law firms) applauded it.
Farmacias Similares (and its subsidiary firms and suppliers) not even the local pharmaceutical sector provided support for the favorable version of the CCyT's initiative or opposed the revised and unfavorable version.

The early—and, with the inclusion of pipeline patents, retroactive—introduction of pharmaceutical patents transformed Mexico's pharmaceutical sector. Through the mid-1980s, the national pharmaceutical and pharmo-chemical sectors thrived on reverse-engineering unpatented drugs and molecules; the extent of backward integration to pharmo-chemicals gave Mexico a comparatively high degree of self-sufficiency.\textsuperscript{33} By the late 1990s, however, trade liberalization had undermined the pharmo-chemical sector, and patent protection transformed the industrial structure. The sharp decline of local firms is unmistakable. Mexican firms account for less than fifteen percent of sales. In fact, nearly two-thirds of Mexico's pharmo-chemical firms disappeared from 1987 to 1998 as the sector became subject to import competition and patent protection.\textsuperscript{34}

The transformation in industrial structure is reflected in the realm of politics. Whereas AMIIF and the principal association representing local firms (CANIFARMA) were antagonists in the earlier episodes of policy change, by the early 2000s, they were speaking with one voice. Indeed, the organizations were formally fused, with the president of CANIFARMA an invited member of AMIIF's board and the CANIFARMA's two-year presidency alternating between Mexican and foreign firms. With regard to the pharmo-chemical sector, its representative body consists of a small unit within a broader multi-sectoral industrial chamber of manufacturing industries (CANACINTRA), which itself experienced dramatic decay in this period.\textsuperscript{35} In short, Mexico's pharmaceutical and pharmo-chemical producers could not articulate positions independent from the transnational sector's position because the local sector was neither economically nor politically independent.

A potential source of support for the CCyT's initiative was from the segment of industry that focuses on bioequivalent generics, represented by the National Pharmaceutical Association (ANAFAM). Yet this organization found itself in stark decline in the late 1990s and early 2000s, with a shrinking membership. In fact, ANAFAM did not represent a "national" pharmaceutical sector either, as this segment was undergoing


\textsuperscript{34} U.N. Comisión Económica para América Latina y el Caribe [CEPAL], Las Industrias Farmacéutica y Farmoquímica en México y el Distrito Federal, 49, LCMex/ L-400 (24 de Septiembre de 1999); María Fabiana Jorge, Efectos de la Globalización en la Industria Farmacéutica en México, in LA INDUSTRIAL FARMACÉUTICA MEXICANA (ANAFAM ed., 2006).

\textsuperscript{35} KENNETH C. SHADLEN, DEMOCRATIZATION WITHOUT REPRESENTATION: THE POLITICS OF SMALL INDUSTRY IN MEXICO 116-142 (2004).
transnationalization of its own, with international generic firms purchasing long-established Mexican firms. ANAFAM's strategy in response to the CCyT initiative reflects this politically precarious position: ANAFAM advised CANIFARMA that, despite the likelihood that members of the two organizations would benefit from the proposed reform, they should lay low and refrain from showing support to avoid the appearance of conflicts of interest.\textsuperscript{36} Fighting on two fronts—against AMIIF and Similares—and politically unstable on account of its own transnationalization, the bioequivalent generics sector was neither in position to lend its support to the CL initiative, nor to oppose the revised pro-AMIIF version.

CANIFARMA and ANAFAM's economic and political weakness meant that AMIIF came to dictate the positions of the "pharmaceutical industry" on matters of policy. The lone alternative voice came from the Similares sector—purveyors of non-bioequivalent medicines (which most countries, including Mexico, are eliminating from the market) and closely tied to the fringe PVEM. Thus, AMIIF was able to do better than prevent Mexico's patent law from being reformed to simplify CLs. The transnational sector engineered reforms that strengthen the rights of knowledge-owners.

IV. INTEGRATING PATENT POLICY AND INNOVATION POLICY

In the early 2000s, Mexico, like many other developing countries, began to introduce a set of measures that would broadly modify aspects of the patent system related to science, technology, and innovation.\textsuperscript{37} Whereas it was the high costs of the patent system (drug prices) that was the focus of the debate regarding policy changes in the pharmaceutical area, it was the limited benefits of the patent system (minimal innovative output) that motivated this latter set of measures.

In 2002, Mexico introduced a new Science and Technology Law that restructured the National Science and Technology Council (CONACYT), the government's most important instrument for promoting scientific research, establishing CONACYT as an autonomous body within the Executive branch.\textsuperscript{38} The new law, which was reformed on various occasions in the subsequent years, forms part of a package of measures aimed to strengthen Mexico's National Innovation System. In particular, the goals were to improve linkages between university researchers and private firms, establish incentives for individual researchers in the public sector

\textsuperscript{36} CCyT archives, (letter on file with author); interview with the ex-President of ANAFAM, in Mexico City, Mex. (Aug. 21, 2007).


\textsuperscript{38} Previously, CONACYT was part of the Secretary of Education.
to collaborate with private firms, provide tax breaks for firms’ investments in science and technology, and increase national rates of investment in research and development. Thus, the government introduced new funding mechanisms that aimed to increase collaboration between public research institutions and private industry, and the government also introduced measures that more explicitly involve the private sector 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 their successful innovation and IP management.

The overarching framework for the changes implemented during the Fox administration was the Special Program for Science and Technology (PECYT), which explicitly emphasized the indispensable role of IP for developing science and technology. The PECYT was driven by the goal of increasing the patenting-payoff of public and private spending in the area of science and technology. The general thrust of the policy effort was to enhance local actors’ incentives to participate in the patent system as owners and users of knowledge by creating a new regulatory framework to link publicly-funded scientific research with private industry. Thus, Mexico introduced changes to the system that aimed to tighten linkages between public sector research and commercial enterprises, and to encourage licensing of publicly-funded research outputs.

These policy changes are puzzling on a number of dimensions. First, simply consider how little was actually done. To be sure, if a country adopts a patent system that assumes a greater degree of scientific and technological capacity than the country has, a logical response is to try to strengthen the latter and thereby “grow into” the patent system. Yet, all the rhetoric notwithstanding, the efforts to strengthen the scientific and technological base are minimal. For example, Mexico increased expenditures on research and development (R&D) from 0.37% of GDP in 2000 to 0.50% in 2005. Among middle-income countries, the global average in 2005 was 0.94%, while the average of high-income OECD countries was 2.32%. Though the government also made a formal commitment to increase R&D expenditures to 1.0%, this target has never been met. Mexico will not “grow into” the TRIPS-and NAFTA-Plus style patent system without making significant investments in science and technology.

Another way in which this policy trajectory is puzzling is in the sense that the projected changes to Mexico’s NIS amount to effectively reinforcing the regnant patent system by extending more rights of private ownership over more types of knowledge (i.e. publicly-funded research) and amplifying the role of patenting and licensing as mechanisms to en-

40. Id. The latter figure is most relevant because Mexico has introduced a patent system as if the country were a high-income OECD country.
courage innovation and technology transfer.\textsuperscript{41} As indicated above, the response to the 1991 patent law was hardly a burst of innovation and knowledge diffusion. It seems odd then, that the response would be to buttress the reliance of establishing and extending private rights of exclusion as tools for disseminating knowledge. Was the problem that the TRIPS-style regime was not strong enough? What is particularly puzzling about this is that the strengthening of IP as a response to the low levels of local innovation came at a time when a considerable body of scholarship was suggesting that strong IP might be an impediment to innovation in developing countries.\textsuperscript{42}

To understand this puzzling policy trajectory it is crucial to look carefully at the underlying political economy of patent policy, particularly how introduction of the TRIPS-style patent system affected constellations of interests and triggered patterns of mobilization that encouraged further reform along these dimensions. Quite simply, economic policies, once implemented, affect the landscape out of which coalitions are formed for subsequent policies. They do so by weakening the hands of some actors and strengthening the hands of others (i.e. policy creates politics).

Let us begin by considering the actors disadvantaged by policy changes. We can think of two different responses: resist or adjust. Resistance consists of disadvantaged and dissenting actors demanding compensation and attempting to reverse the policy changes. In terms of adjustment, some actors may adapt to the new regulations for using knowledge. For example, some actors begin paying license fees to technology owners, while other actors may disappear (firms that cannot adapt, for example, might simply close). Although in economic terms it matters how firms adjust, if they adapt or disappear, in a political sense the differences are outweighed by similarities: in both scenarios the actors who have (or had) material reasons to oppose policy stop resisting. After all, regardless of their original disposition toward TRIPS, firms that can adapt to the new environment do not have incentives to expend resources trying to modify the new arrangements. Similarly, firms that go out of business do not present significant resistance. Thus, to the extent that we witness adjust-

\textsuperscript{41} In important ways, the model being emulated in Mexico (and throughout the developing world) is the Bayh-Dole Act of the USA (see Graff, supra note 37; Anthony D. So et al., \textit{Is Bayh-Dole Good for Developing Countries? Lessons from the U.S. Experience}, 6 \textit{PUB. LIBRARY OF SCI. BIOLOGY} 2078, 2082 (2008), available at http://www.plosbiology.org/article/info%3Adoi%2F10.1371%2Fjournal.pbio.0060262.

ment, the effect of the new patent rules is to weaken (if not eliminate) social forces that we might expect to present opposition.

In Mexico, disaffected actors have tended to either adapt or disappear (i.e. adjust) more than resist: firms and sectors that in the past relied on easy use of knowledge either devised new business strategies to survive in the context of the higher cost of knowledge, or they avoided patented knowledge. The increases in Mexico’s outward licensing payments, referred to above, indicate that local actors have internalized the increased costs of accessing knowledge. A significant decrease in the level of patent litigation in a context of increased private ownership of knowledge suggests a tendency among local actors to avoid the use of patented knowledge. These two indicators are telling stories that are economically contradictory but politically consistent. Increases in licensing payments suggest that actors are using knowledge, but are paying for it, while decreases in relative rates of litigation suggest that actors are not using knowledge. Politically, the results are the same: actors using knowledge do not press for change to patent policies because they have integrated the costs of strengthened IPRs into business strategies. Additionally, actors do not avoid knowledge because IP is no longer a concern. Thus, within industry and science, we witness little evidence of actors demanding compensation and seeking policy change. Indeed, it is not just a matter of campaigning to modify TRIPS-style IP regimes. Outside of the shrinking national pharmaceutical and pharmo-chemical sectors, it is rare to find individuals and representatives in science or industry who even articulate an argument that reforming the new IP system and reducing the amount and strength of patent protection may be beneficial.

What about the beneficiaries of the new policy regime? Of course, economic actors who gain an advantage from the policies can accumulate resources that allow them to push for continuity. This is a process of increasing returns, whereby certain actors benefit from new policy arrangements, which in turn bestow these actors with resources that allow them to mobilize in support of policy continuity.

In Mexico, however, the signs of this effect are rather faint. Although the 1991 LFPPI created a “coalition for continuity” that included not just actual beneficiaries but also potential beneficiaries (e.g. scientists and innovators that envision their futures as patenting individuals or enterprises), it is a rather small coalition. As the figures presented above...
showed, the absolute number of residents’ patent applications has hardly changed since the TRIPS-style patent system was introduced in 1991. Similarly, data on Mexico’s scientific publications does not suggest the emergence of burgeoning patent-producing scientific community.

What these social changes (or lack thereof) translate to is that the push for strengthening Mexico’s STI infrastructure comes almost entirely from the state, and within the state bureaucracy those pushing for such changes find themselves isolated in contestation over scarce public resources. In contrast to other technologically-proficient developing countries such as Brazil and India, where local industrial actors were intensely involved in pushing for a revamping of the STI framework, Mexican industry was relatively less active.\textsuperscript{45} Mexico’s key industrial-sector associations (e.g. CCE, CONCAMIN) dedicate minimal attention to IP policy. Even the Association of Directors for Applied Research and Technological Development (ADIAT), a private-sector association that represents innovative (or potentially innovative) research-and-development based firms (transnational and national), is exceptionally small and a marginal actor in the Mexican political economy. The relative thinness of coalitions pushing for strengthening Mexico’s STI infrastructure means that everything comes from above, and that those state actors that make this a high priority regularly come up against other state actors that have stronger and more coherent societal allies. In sum, the coalition for investing actively and aggressively in strengthening Mexico’s STI infrastructure is weak.

Indeed, to the extent that industrial actors in Mexico care and mobilize about STI policy, it tends to be the small group of actors that want to keep strengthening the amounts and levels of patent protection available. Few local industrial actors express preferences regarding patents, IP, and STI policy. What the local firms and associations that do participate in political debates want now is not weaker IP that might deliver more access to knowledge but more efficient IP systems to support their own aspirations, plans, and strategies to innovate, patent, and license.\textsuperscript{46}

V. CONCLUSION

The article has set out to do three things: (1) present, abstractly, a framework for comparing national patent regimes; (2) show three episodes of change in Mexico’s patent system; and (3) explain these changes by examining the international and national political dynamics of patent policy. The outcome is that over the course of twenty-five years, Mexico has adopted a patent regime of questionable appropriateness for its level of development.


\textsuperscript{46} To put it differently, the actors at the forefront of political campaigns in the issue-area (e.g. ADIAT) are those that have their own IP, or at least regard themselves as potential creators and owners of patentable and excludable knowledge.
The mismatches I have identified between Mexico's new IP system and the country's STI infrastructure are not secret. One can think of a wide range of alternative responses but there are few actors who have both the interest and capacity to push for alternative responses than what we currently witness. The real problem in Mexico is not the constraints imposed by any external agreements (e.g. NAFTA, TRIPS), but Mexico’s NAFTA-plus and TRIPS-plus provisions. These have their own political and economical roots. NAFTA—and the broader processes of economic integration that NAFTA encapsulates—transformed Mexico by eviscerating the coalitions that might push for IP reforms that facilitate the use of knowledge. But constituencies pushing for more robust STI policies have not emerged either.

With the political coalitions that would push for alternative IP and STI policies absent, IP policy and STI policy become dominated by the tiny group of actors that benefit from the current regime. In a sense, the only actors left standing after two decades of liberalization and structural transformation—the only actors that seem to care at all about IP in government and industry—regard more IP and stronger IP as the correct path and place their energies in pursuing that goal. Rather than either adjusting the patent system to match the country's level of scientific and technological capabilities or doing much to increase the countries level of scientific and technological capabilities to grow into the new patent regime, Mexico just keeps strengthening the patent system.