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ANALYSIS OF INTELLECTUAL PROPERTY ISSUES

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On Patenting Costs

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Introduction

Previous research has focused on the importance of patent rights to innovative activity, but little attention has been given to whether patent protection is *affordable*. Several unanswered questions exist: How costly is it to acquire and enforce patent rights? Is it necessary to contain the costs of patenting? Do they disadvantage small firms or inventors from developing economies? Or are the costs of patenting too low from society's perspective? How should policymakers structure fees or influence patenting costs? What impacts do the costs of acquiring and enforcing patent rights have on innovative activity?

This article provides a short introduction to some of the issues pertaining to patenting costs. The next section discusses some trends in the costs of patenting and litigation. The third section reviews some economics research on patenting costs. The fourth section discusses policy options for influencing patenting and litigation costs. The final section suggests some areas where further research is desired.

Trend in patenting costs

The costs of patenting vary with the way in which a patent is sought. An inventor can apply for a patent at a national patent office and/or a regional patent office, like the European Patent Office (EPO) or World Intellectual Property Organization (WIPO). If the inventor files an application with the EPO or WIPO, the filing would designate the countries or contracting states of the EPO or WIPO in which the inventor seeks a patent right.

WIPO itself does not grant patents, but rather provides a procedure for an international patent application—namely a Patent Cooperation Treaty (PCT) patent. A PCT application process includes an optional preliminary patent examination (to check whether the invention meets patentability criteria). After a PCT patent is issued, the applicant can then proceed to the *national phase* in which the national patent offices of the various countries designated in the PCT application review the application and determine whether to grant a patent. The national offices will build upon the preliminary examination and search reports of the PCT. The applicant pays the necessary fees associated with each country.¹

Similarly, a patent application at the EPO also involves a two-step process—an entry phase and a national phase—except that the EPO does grant a patent. The EPO conducts a search and substantive examination of the patent, and if granted, the application moves on to the national phase, where the patent must be *validated* in each of the contracting states designated in the patent application within a specified timeframe. Validation takes place through the payment of national fees and the translation of the patent into an official language of the state, where required. Note that the EPO can itself be one of the designations in a PCT patent application.

¹ While there are added fees associated with a PCT patent—that is, the national phase fees in addition to the international (entry) phase fees—the PCT offers a number of advantages. For example, the international phase can last up to 18 months, providing applicants more time to assess the patentability of their invention or the desirability of a patent. The preliminary search and examination reports of the PCT also provide quality opinions on patentability and can therefore help reduce the work of the national patent offices.

Thus an inventor who seeks patent protection has various options. Suppose the inventor wishes to obtain patent protection in 10 countries, all of which are contracting states of the PCT and half of which are contracting states of the EPO. The inventor can file: (1) a separate application in each of the 10 countries; (2) one PCT application, which designates six states: the EPO (as a unit) and the five non-EPO countries; (3) an EPO application that designates five contracting states and a PCT application that designates five non-EPO states; or (4) an EPO application that designates some of the five EPO contracting states, a PCT application that designates some of the five non-EPO states, and the rest as separate national patent applications. Hence there are several possible permutations, each of which yields a different stream of patenting costs, depending on the mixture of national and regional fees.²

Table 1, below, provides a sample of the patent procurement and maintenance fees for a selection of countries, some developed and some developing, and for the EPO and WIPO. The unit of analysis here is a patent, 25 pages in length, including five pages of drawings and containing 15 claims.³ The table shows the fees for the year 2010 and the growth rate of fees since 2000 in parentheses.⁴ The fees are in real 2005 US dollars. The translation costs are from the perspective of English-speaking applicants or applicants whose country of residence has English as an official language. The maintenance fees (based on renewal fees) are for 20 years of protection, except in the case of the EPO and WIPO (to be explained below), and are not in present discounted value terms. Of course, many patent holders do not renew their patents for the full term of 20 years, but for purposes of comparison across countries, the full term is used. Agent fees refer to attorney fees and the like, and official fees incorporate application and examination fees (but not search fees).

Among patent procurement costs, the cost of agent representation is relatively the highest. Translation costs are next, except if the destination country shares an official language with the applicant country. Across countries, it is generally the case that larger economies (or offices that receive relatively the most patent applications) tend to have the higher official fees, such as the United States, Japan, EPO, and WIPO. Patent offices in developing economies, like Brazil, China, India and Russia, charge fairly low official fees. However, the variation in attorney fees across countries (or between developed and developing countries) is not as large as that in official fees. The cost of hiring a patent agent is quite high in developing countries as well; for example, it is more expensive to hire an agent in India than in Canada. As for translation costs, these costs correlate well with an index of linguistic similarity⁵—that is, translating an English document into another Indo-European language is cheaper than translating it into an Asian language—but of course translation costs also depend on the market for translation services.

Maintenance fees over the full term of a patent do not seem to vary by level of economic development. Maintenance fees are just as high in Brazil as they are in the Netherlands. Furthermore, the United States has the lowest maintenance fees among the countries listed in Table 1. Note the absence of maintenance fees with a PCT patent since WIPO does not grant patents. The EPO collects maintenance fees up to three years, after which an EPO patent holder pays renewal fees to the national offices designated in the EPO patent.⁶ Berger surveys 254 companies that file EPO patents and estimates that 32 per cent of the cost of an EPO patent is due to national renewal fees.⁷ Furthermore, validation costs account for about 23 to 27

² A survey by Roland Berger, “A Study on the Cost of Patenting”, prepared on behalf of the European Patent Office, (Munich: Roland Berger Market Research 2005) finds that most companies (74%) file first at their respective national patent offices, 18% file first at the EPO, and 8% first file a PCT patent. Also, most companies use the PCT-EPO route—that is, they designate the EPO as one of the states in their PCT application. Only 39% of their EPO applications were *directly* filed with the European Patent Office.

³ Different assumptions can be made about the number of claims, but the ranking of costs across countries will not be affected too greatly. The source of the fee data is *Global IP Estimator*, at <http://www.globalipe estimator.com> [Accessed October 11, 2010].

⁴ For estimates of patenting costs in the early 1990s, see Samson Helfgott, “Patent Filing Costs around the World” (1993) 75 *Journal of the Patent and Trademark Office Society* 567; and Edwin F. Berrier Jr, “Global Patent Costs Must Be Reduced” (1996) 36(4) *IDEA: The Journal of Law and Technology* 473.

⁵ See Walter G. Park, “Impact of the International Patent System on Productivity and Technology Diffusion” in Owen Lippert (ed.), *Competitive Strategies for the Protection of Intellectual Property* (Vancouver, B.C.: Fraser Institute, 1999), pp.47–72.

⁶ The income from these national renewal fees are shared between the EPO and the national patent offices.

⁷ Berger, “A Study on the Cost of Patenting”, 2005.

per cent of the cost of patenting in the EPO, and perhaps owing to these costs, the study finds that the average EPO patent is validated in seven contracting states, even if many more were actually designated in the patent.⁸

Table 1: Sample patenting costs by destination, year 2010⁹

Destination	Official fees	Agent fees	Translation fees*	Maintenance fees
Australia	\$707 (88.7%)	\$7,267 (209.0%)	\$0 (0.0%)	\$13,109 (68.7%)
Brazil	\$666 (85.7%)	\$6,576 (124.7%)	\$1,742 (134.0%)	\$19,366 (12.7%)
Canada	\$1,285 (69.0%)	\$5,281 (177.8%)	\$0 (0.0%)	\$11,113 (48.8%)
China	\$591 (112.1%)	\$5,059 (143.2%)	\$2,232 (83.2%)	\$10,957 -(21.2%)
France	\$945 (70.3%)	\$4,750 (102.0%)	\$2,623 (98.4%)	\$12,490 (24.8%)
Germany	\$644 (60.0%)	\$5,486 (151.6%)	\$3,623 (182.5%)	\$22,288 (22.8%)
India	\$463 (85.0%)	\$6,108 (191.3%)	\$0 (0.0%)	\$8,783 (74.8%)
Italy	\$715 (106.5%)	\$5,961 (169.7%)	\$3,220 (90.3%)	\$14,690 (5.9%)
Japan	\$2,776 (20.3%)	\$6,626 (73.9%)	\$5,487 (68.4%)	\$15,745 -(49.4%)
Mexico	\$1,003 (43.8%)	\$5,898 (168.6%)	\$2,040 (105.5%)	\$7,440 -(6.2%)
Netherlands	\$529 (17.4%)	\$2,984 (96.7%)	\$2,444 (61.1%)	\$19,206 (40.6%)
Republic of Korea	\$1,033 -(37.0%)	\$4,945 (77.3%)	\$2,389 (20.4%)	\$13,804 -(56.1%)
Russia	\$476 -(29.7%)	\$5,483 (153.9%)	\$2,617 (78.4%)	\$12,585 -(13.6%)
Spain	\$1,397 (42.7%)	\$7,848 (172.9%)	\$2,617 (72.8%)	\$11,825 -(15.0%)

⁸ In the EPO, from 1999 to 2009, there had been designation fees up to seven countries and none beyond that. After April 2009, a new flat designation fee system at the EPO went into effect.

⁹ All fees are in real 2005 US dollars and are for August 2010. Figures in parentheses are the percentage change in fees since August 2000. Official fees include filing, examination, granting, and prosecution fees. Agent fees include attorney fees and in-house and miscellaneous charges (e.g. for fax, courier services, drawings and certification).

Maintenance fees refer to patent renewal fees or annuities and are the non-discounted sum across 20 years of protection.

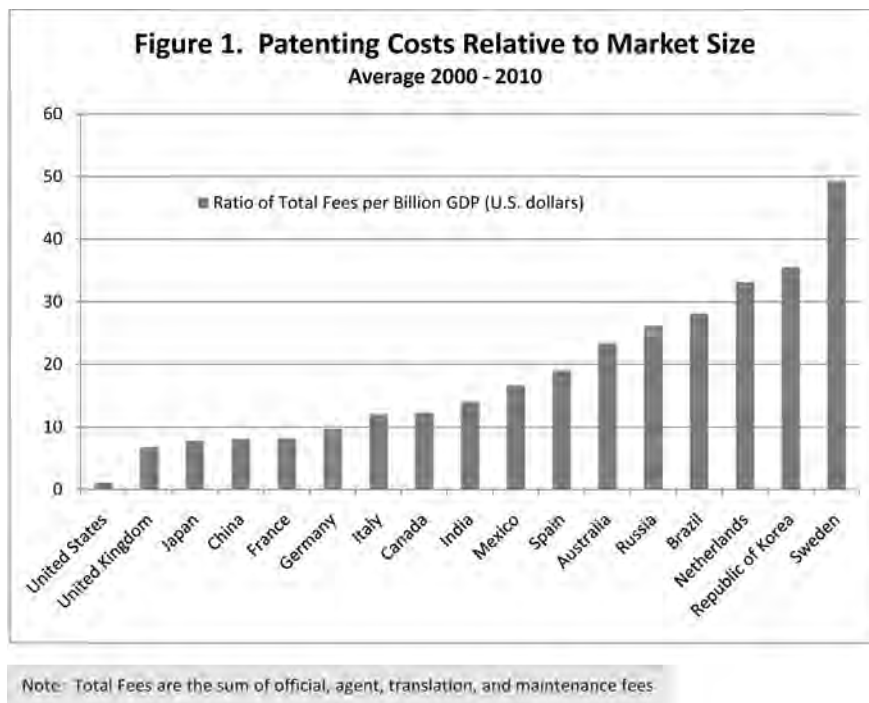
PCT Patent refers to the Patent Cooperation Treaty Patent administered by the World Intellectual Property Organization.

* Translation costs are from the perspective of English-speaking applicants.

Source: <http://www.globalpestimator.com> [Accessed October 12, 2010]

Destination	Official fees	Agent fees	Translation fees*	Maintenance fees
Sweden	\$992 (2.7%)	\$4,954 (118.4%)	\$3,296 (88.3%)	\$12,269 (27.9%)
United Kingdom	\$394 (16.3%)	\$5,302 (124.2%)	\$0 (0.0%)	\$12,771 (30.7%)
United States	\$2,625 (22.5%)	\$7,059 (576.6%)	\$0 (0.0%)	\$7,394 (7.4%)
European Patent Office	\$4,750 (43.8%)	\$10,812 (153.8%)	\$1,368 (50.3%)	\$1,874 (39.2%)
WIPO PCT Patent	\$3,996 (101.3%)	\$2,806 (131.4%)	\$0 (0.0%)	\$0 (0.0%)

As Table 1 indicates, most of these fees have increased in real terms since 2000. Official fees fell only in Korea and Russia. Maintenance fees are lower in China, Korea, Japan, Russia and Spain. Agent and translation fees, where applicable, have all increased, especially attorney costs in the United States. Of course, it is important to gain some perspective over these fees, which have thus far been presented in absolute terms. Figure 1 shows patenting costs relative to gross domestic product (GDP) by country. GDP is used here as a proxy for market size and patenting costs are the sum of all the fees discussed so far. Seen from this perspective, patenting in the United States is relatively the cheapest; that is, the costs of patenting in the United States seem to be a bargain considering the market that a patent in the United States covers. Among the countries shown, patenting is relatively most expensive in Sweden and Korea. A better perspective of whether patenting is expensive or inexpensive could be provided if the cost of patenting were compared to the *value* of a patent. However, aside from the issues associated with obtaining measures of patent value, it is important to note that an inventor or patent applicant incurs the costs of patenting (other than renewal fees) up front *before* marketing the invention, commercialising it and earning sales or licensing income. At the time of application, inventors may largely have uncertain expectations of the value of the invention or the value of obtaining a patent right (as opposed to relying on trade secrecy). Furthermore, some inventors may be liquidity constrained and unable to borrow against future income from patents to pay for the upfront costs.



Yet another perspective on costs is that an inventor may file a patent application in not just one country but many, given that patent rights are territorial and must be registered in the countries in which protection and enforcement are sought. For example, if the same invention were patented in all of the countries and regions indicated in Table 1, the various fees would have to be aggregated, so that the cradle to grave costs of a patent could easily exceed \$400,000 (not in present discounted terms).¹⁰

The above discussion has focused on the acquisition and maintenance of patent rights. Patent holders also face the costs of enforcing, defending or challenging patent rights. These types of costs could easily dominate the costs of acquiring and renewing patent rights if litigation activity does arise. However, data on litigation and other enforcement activities are not widely available. Moreover, firms face uncertainty about the costs of litigation. In the Berger survey, 70 per cent of respondents could not provide estimates of the funds budgeted for handling litigation; 16 per cent of them allocated no funds for handling litigation; 9 per cent under €25,000; 4 per cent between €25,000 and 200,000; and 1 per cent allocated more than €200,000 for handling litigation in a given year.

Table 2, below, presents some statistics on litigation costs that are available.¹¹ These costs include attorney fees, technical investigations, expert witness fees and court costs, and vary by the complexity of the case and by the type of proceeding (jury trial or bench trial). Part A of the table shows the median cost of litigation for nine countries in 2006. Part B of the table provides somewhat more detail for the United States, in particular by the damages involved. For example, in 2009, the litigation costs of a case involving

¹⁰ Berrier also calculated the lifetime costs of a patented invention in 52 countries and estimated this to be almost \$500,000 (in nominal, non-present discounted value terms): Berrier, "Global Patent Costs must be Reduced" (1996) 36(4) *IDEA: The Journal of Law and Technology* 473.

¹¹ The sources of data are American Intellectual Property Law Association, *Report of the Economic Survey* (Washington, D.C.: AIPLA, 2009); European Patent Office, *Assessment of the Impact of the European Patent Litigation Agreement (EPLA) on Litigation of European Patents* (Munich: EPO, 2006); and World Intellectual Property Organization Arbitration and Mediation Center, "A Cost Effective Alternative" [2010] *WIPO Magazine*, IP Litigation Costs, Special Edition, pp.19–22.

\$25 million or more in damages were almost \$6 million (in real 2005 dollars). For cases under \$1 million, it is not inconceivable that the costs of litigation could exceed the amount at stake in some situations. Thus patent procurement and maintenance costs are relatively small compared to the costs of enforcement.

Table 2: Cost of patent litigation¹²

	First instance	Appeal
<i>A. Median cost of patent litigation</i>		
China	\$0.15M	\$0.048M
France	\$0.10M – \$0.19M	
Germany	\$0.064M	\$0.09M
Italy	\$0.064M – \$0.19M	\$0.039M – \$0.09M
Japan	\$0.29M	\$0.097M
Netherlands	\$0.077M – \$0.26M	\$0.064M
Spain	\$0.13M	
United Kingdom	\$0.97M – \$1.93M	\$0.19M – \$1.93M
United States	\$3.9M	\$0.15M – \$0.24M
<i>B. Median cost of patent litigation by case</i>		
United States		
<i>By total damages involved</i>	<i>2001</i>	<i>2009</i>
Under \$1 million	\$0.55M	\$0.72M
Between \$1 million and \$25 million	\$1.65M	\$2.73M
Over \$25 million	\$3.31M	\$5.47M

Economics of patenting costs

Thus far, the economic literature on patenting costs is very small. More research is needed on the determinants of fees and the impacts of fees on innovation, technology diffusion, and social welfare. This section provides a brief survey of work to date.¹³

One of the key issues is how patenting costs affect the demand for patents. Is, for example, the demand for patents price-elastic; that is, are patent filings sensitive to fees? On the one hand, patent demand could be price-inelastic if inventors regard patent protection as a necessity (for example, when marketing the invention or engaging in cross-licensing negotiations) and if few alternative mechanisms for protecting their inventions exist (e.g. inventor certificates or utility models). On the other hand, patent demand could be price sensitive if the costs of patenting are a large share of an inventor's budget (which may especially be a factor for small inventors or inventors that seek broad international coverage) and if inventors do have other options, such as keeping their inventions a trade secret or relying on first-mover advantages, reputation, and brand name recognition.

¹² The figures are in *millions* of real 2005 US dollars. Part A is for data in 2006 and Part B for data as shown.

Source: *WIPO Arbitration and Mediation Center* (2010), *AIPLA* (2009) and *EPO* (2006).

¹³ For a more in-depth survey of the economics literature on patenting costs, see Gaetan de Rassenfosse and Bruno van Pottelsberghe de la Potterie, "The Role of Fees in Patent Systems: Theory and Evidence", Center for Economic Policy Research (CEPR) Discussion Paper No.7879 (2010); and Bruno van Pottelsberghe de la Potterie and François Didier, "The Cost Factor in Patent Systems" (2009) 9(4) *Journal of Industry, Competition, and Trade* 329.

Note that the issue of the price elasticity of demand for patents is also of interest to patent offices that depend on patent filings or renewals as a source of income. For example, if patent demand is not fee sensitive, increases in fees could help raise revenues; otherwise, a significant drop in patenting activity could lead to less revenue being generated.

The empirical studies to date vary by type of dataset and measure of patenting costs, among other things. Most of them find that the demand for patents is *price-inelastic*; for example, Adams et al.,¹⁴ Landes and Posner¹⁵ and Wilson¹⁶ using US data and filing fees as their measure of patenting costs, Gallini et al.¹⁷ and Park¹⁸ using multi-country data and a measure of costs that includes filing, translation, and agent costs, and de Rassenfosse and van Pottelsberghe de la Potterie¹⁹ using data on EPO contracting states and trilateral filings (i.e. at the EPO, US and Japanese patent offices) and a measure of patenting costs that include costs up to the grant (such as search and examination fees) but not agent and translation fees.

Park,²⁰ using a multi-country data set and a measure of costs that includes filing, translation, and agent fees, finds the demand for patents to be price-inelastic for the pooled sample, but when individual countries are examined, there are cases where the demand for patents is *price-elastic*; for example, in the United States, Denmark, and the Netherlands. Thus there is room for more investigation. The empirical studies thus far have not incorporated longer-term costs, such as renewal fees.²¹ Patent filings may be more sensitive to a broader measure of patenting costs—one that incorporates expected maintenance costs, enforcement costs and the costs of broad international coverage (e.g. the costs of protecting a patent family). Furthermore, if patent demand were price-inelastic, the costs of patenting would not significantly account for trends in patenting, since a given percentage change in costs would be associated with a smaller percentage change in the volume of filings. However, Eaton et al.²² have studied patenting at the EPO and estimate that more than 60 per cent of the growth in EPO filings during the 1990s can be attributed to the decline in EPO fees over this period.

Another key debate is a normative one: how should fees be set? Are relatively lower or higher fees better for innovation and welfare? Recall that patent applicants incur fees before realising the commercial value of their invention. Cornelli and Schankerman²³ provide an analysis of optimal renewal fees. Variations in renewal fees can be used to change the effective life of a patent. Uniform patent terms (i.e., say, terms that do not depend on patent value) are inefficient since they give too much incentive to patent inventions of low value and too little to those of high value. Cornelli and Schankerman show that renewal fees that increase with the life of the patent are optimal, as they help weed out the less valuable patents. The patent owners of less valuable innovations will self-select by not renewing. At the same time, this rising fee schedule does not dissuade inventors who are uncertain about the value of their innovations from applying

¹⁴ Kay Adams, Douglas Kim, Frederick Joutz and Gus Mastrogiannis, “Modeling and Forecasting U.S. Patent Application Filings” (1997) 19(5) *Journal of Policy Modeling* 491.

¹⁵ William Landes and Richard Posner, “An Empirical Analysis of the Patent Court” (2004) 71(1) *University of Chicago Law Review* 111.

¹⁶ Timothy K. Wilson, “Patent Demand—A Simple Path to Patent Reform” (2008) 2(5) *International In-House Counsel Journal* 806.

¹⁷ Nancy Gallini, Jonathan Putnam and Andrew Tepperman, “Intellectual Property Rights and the Propensity to Patent” in Jon Putnam (ed.), *Intellectual Property Rights and Innovation in the Knowledge-Based Economy* (Ottawa: Industry Canada, 2005).

¹⁸ Walter G. Park, “Technology Trade and NAFTA”, American University, Department of Economics, Working Paper (2007).

¹⁹ Gaetan de Rassenfosse and Bruno van Pottelsberghe de la Potterie, “Per un Pugno di Dollari: A First Look at the Price Elasticity of Patents” (2007) 23(4) *Oxford Review of Economic Policy* 558; Gaetan de Rassenfosse and Bruno van Pottelsberghe de la Potterie, “On the Price Elasticity of Demand for Patents”, Center for Economic Policy Research (CEPR) Discussion Paper No. 7029 (2008).

²⁰ Park, “Impact of the International Patent System on Productivity and Technology Diffusion” in Lippert (ed.), *Competitive Strategies for the Protection of Intellectual Property*, 1999, pp.47–72.

²¹ Dietmar Harhoff, Karin Hoisl, Bettina Reichl and Bruno van Pottelsberghe de la Potterie, “Patent Validation at the Country Level—The Role of Fees and Translation Costs” (2009) 38(9) *Research Policy* 1423 does examine how the costs of validation, translation, and renewal fees affect the propensity of EPO patent applicants to validate their EPO granted patents in the designated contracting states. The study finds that higher validation costs are associated with a decline in validation, controlling for other factors.

²² Jonathan Eaton, Samuel Kortum and Joshua Lerner, “International Patenting and the European Patent Office: A Quantitative Assessment” in Organization for Economic Cooperation and Development, *Patent, Innovation, and Economic Performance* (Paris, France: 2004), pp.27–52.

²³ Francesca Cornelli and Mark Schankerman, “Patent Renewals and R&D Incentives” (1999) 30(2) *Rand Journal of Economics* 197.

for a patent. However, Marco and Prieger²⁴ and Wilson²⁵ discuss the disadvantages of low entry fees, namely that they create congestion. Too many patent applications increase patent pendency (i.e. the time to prosecute applications) and can reduce the quality of patent examination and increase the odds of invalid patents being issued. Delays could also reduce the returns to patent protection. Moreover, Gans et al.²⁶ argue that when patent offices must be self-financing, the structure of fees is biased towards raising front-end fees (such as application fees) and lowering back-end fees (such as renewal fees). Patent offices are more apt to raise revenues this way because lower renewal fees raise the expected profits to the patent holder and increase the attractiveness of seeking patents. Patent offices can then extract some of the increased expected profits by raising entry fees. But the inefficiency of this fee structure is it discourages the entry of good patents while prolonging the life of bad patents.

A third issue of interest is the determinants of patenting costs. As indicated in the previous section, enforcement costs are especially significant, but very little work on the drivers of litigation costs has been conducted. Towns²⁷ focuses on the increased use of contingency fees in patent litigation; that is, where lawyer fees are contingent upon the success of a court case and where the fees are a percentage of the award. Attorneys working on such a basis may have perverse incentives to increase the returns on their cases. Another culprit behind increased litigation costs is the role of jury trials in patent litigation. PricewaterhouseCoopers²⁸ found that in the 1980s, about 85 per cent of patent court cases were bench trials and 15 per cent jury trials; by the late 2000s, about half were bench trials and the other half jury trials.²⁹ The increased use of jury trials may be a contributing factor to the rise in patent litigation costs. The median award from a jury trial is over US\$10 million compared with less than US\$1 million for a bench trial. This gives parties greater incentives to spend more in jury trials. Patent holders, as plaintiffs, may have a preference for jury trials since their success rate in a jury trial (80 per cent) is higher than that in a bench trial (55 per cent). Furthermore, the decision of a jury trial is more likely to be appealed, which further raises court costs.

Policy instruments

This section discusses some policy proposals for altering patenting costs, abstracting from the normative issue of whether costs should be lowered or raised. Each of the main categories of costs will be dealt with.

Official and maintenance fees

Official fees depend on the operation of patent offices and on regulations, among other factors. Currently, in a number of patent offices, the revenues generated from fees exceed the costs of operation, yielding these offices surpluses. In many jurisdictions, these surpluses are diverted to the treasuries of national governments. Patentees end up subsidising the activities of other branches of government. Ending surplus diversion could either allow patent offices to reduce the fees for their services or use the surpluses to fund activities that directly benefit patentees, such as training and hiring examiners and investing in new technology. Likewise, the EPO and the national patent offices of the contracting states share the revenues

²⁴ Alan Marco and James Prieger, "Congestion Pricing for Patent Applications" (2009), at <http://ssrn.com/abstract=1443470> [Accessed October 12, 2010].

²⁵ Wilson, "Patent Demand—A Simple Path to Patent Reform" (2008) 2(5) *International In-House Counsel Journal* 806.

²⁶ Joshua Gans, Stephen King and Ryan Lampe, "Patent Renewal Fees and Self-Funding Patent Offices" (2004) 4(1) *Topics in Theoretical Economics* Article 6.

²⁷ William Towns, "U.S. Contingency Fees: A Level Playing Field?" [2010] *WIPO Magazine*, IP Litigation Costs, Special Edition, No.1, pp.3–5.

²⁸ PricewaterhouseCoopers, *Patent Litigation Study* (2009), at <http://www.pwc.com/us/en/forensic-services/publications/2009-patent-litigation-study.jhtml> [Accessed October 12, 2010].

²⁹ Russell L. Parr, *Intellectual Property Infringement Damages: A Litigation Support Handbook, 1998 Cumulative Supplement* (New York: Wiley & Sons, 1998) also finds that the share of jury trials increased since the 1980s.

from renewal fees (earned from EPO patents), and some of national patent offices' share could be diverted to national governments. Thus, increasing the EPO's share of the renewal fee revenues could be used to help reduce EPO procedural and renewal fees.

There are also formalities and regulations associated with patent applications that increase the costs of applications. The Patent Law Treaty of 2000 is designed to streamline those formality requirements, such as the certification and notarisation of signatures and documents like power of attorney, assignments and change of name and address. Regulations that restrict patent agents from representing their clients in different jurisdictions or having an address for service in different countries, or that mandate the use of representatives for filing translations and paying renewal fees also add to the cost of patent procurement. Rules that require patent search and examination to be repeated in different patent offices also add to the expense. Currently, mutual recognition of search and examination results meets with obstacles owing to differences in laws across countries. A compromise could be for patent offices to share a common search database or conduct concurrent search and examination, where examiners from different offices confer with one another or divide the workload. Neither step requires mutual recognition of search and examination results.

Patent agent fees

Patent representation fees depend on the market for agents. There are occupational licensure rules that affect the supply of eligible agents. Other regulations make this market less competitive; for example, rules which restrict representation in different patent jurisdictions. Mutual recognition of the qualifications of legal representation is a larger international trade-in-services issue. One small step would be to permit extensive legal representation for routine procedures; for example, filing patent applications and translations, validating patents and paying renewal fees. Another measure to reduce agent fees is to minimise the need to revise patent applications. Clients are charged for the rewriting of applications. This requires that applications be better prepared; for example, to eliminate vague claims or claims that are too broad. To assist applicants, the patent offices could provide guidelines and materials to help inventors assemble their own patent applications. Applicants would then require less attorney time to fine tune their applications.

Translation costs

Translation costs are a large share of the cost of patent procurement. However, patent translations are seldom considered, and even when they are, they are usually consulted many years after filing. According to AIPLA/CIPA,³⁰ the consultation rate of translations is less than 2 per cent in many regions (that is, the number of requests for inspection of translations as a percentage of the stock of translations that were filed). This suggests that it is effectively the language of the examination that is more important to the interpretation of patent rights than the language into which the patent is finally translated. Moreover, in the EPO, deliberation before it has to be in one of the three official languages (English, French and German). Hence translations into non-official EPO languages are not utilised as far as examination goes.

One proposal to reduce translation costs would be to allow abbreviated translations; for example, the translation of an enhanced abstract of the patent and its claims, and then a translation of the patent specifications prior to enforcement—or a translation on demand by a third party.³¹

For EPO patents, where the translation costs are quite burdensome, it would be helpful to require translation only if the application is not in one of the three official EPO languages. Indeed, the recent London Agreement of 2000 allows EPC contracting states to the agreement to waive the requirement for

³⁰ American Intellectual Property Law Association and Chartered Institute of Patent Agents, *International Symposium on Reducing Patent Costs, Proceedings Vol. 1* (London: CIPA, 1997).

³¹ This was one of the original Community Patent Convention proposals.

translations of European patents if (1) a state has an official language in common with one of the official languages of the EPO, or (2) a state does not have an official language in common with one of the official languages of the EPO but:

“the European patent has been granted in the official language of the EPO prescribed by that State, or translated into that language ... These states may however require that a translation of the claims into one of their official languages be supplied.”

Litigation costs

The following proposals pertain to containing the costs of litigation by limiting jury trials, introducing specialised patent courts, resorting to alternative dispute resolution mechanisms and reforming procedures governing the determination of damages.

In the United States, the case of *Markman v Westview Instruments* (1996) set a precedent which limits the role of juries. Thus, patent litigators have the option to request a *Markman* claim construction hearing.³² The idea behind this is that a patent infringement case involves two steps: first, the construction of a claim; and secondly, the determination of whether some product or process infringes that claim. The significance of the *Markman* case is that this first step—claim construction—is a matter of law (for a judge to decide) and not a matter of fact (for a jury to decide), and determining what the claims mean can virtually decide a case. Hence patent cases may be increasingly resolved through pre-trial motions by judges so as to obviate the need for juries.

A *Markman* hearing may also mean less need for discovery. Claim construction is based on intrinsic evidence (i.e. the claims themselves, patent specification, prior art, and prosecution history), rather than extrinsic evidence (expert testimony, testimony of patentees, third parties, and secondary documents). Extrinsic evidence (and discovery to obtain them) is needed when the meaning of claims cannot be construed by intrinsic evidence alone. Thus the adoption of *Markman* type hearings in other countries may be a useful means for reducing patent litigation costs.

The establishment of specialised patent courts might also help reduce court costs on the grounds that patent trials are complex. For example, in a *Markman* hearing, a judge must rule on the claim construction of a technical document. But instead of a trial, parties to a case could seek alternative dispute resolution (ADR). In the United States, non-profit organisations and court-sponsored programmes exist to mediate or arbitrate patent disputes. The International Chamber of Commerce (ICC) and WIPO provide ADR forums. Litigation costs can also be contained with a practice known as case management. The idea is to expedite adjudication with predetermined timetables. Canada introduced case management procedures in 1998 (through new Federal Court of Canada rules) which set strict time-limits, compulsory pre-trial conferences and compulsory settlement discussions.

Finally, in some court systems, liability and damages are determined in the same trial. This can be costly because the party that brings suit undertakes heavy expense to prepare an analysis of damages even before infringement, if any, is found. Thus, a cost saving procedural reform would be to separate the determination of infringement and the awarding of damages.

Concluding remarks

Further research is needed in order to better understand the determinants of patenting costs, the effects that costs have on innovation and technology transfer, the optimal policy towards patenting costs, and the measures that reduce enforcement costs. To better understand the burden of patenting costs, it would be

³² For details see Chris R. Ottenweller, “A Quick Strike at Litigation Costs”, *IP Magazine*, July 1997.

useful to relate them to the value of patent rights and the size of the relevant market. It would be useful to see how this burden affects the entry of small inventors into an industry or how it affects the ability of firms in developing countries to access markets in developed countries.

Further analysis could also be done on the effects of litigation costs on the efficacy of patent protection. High litigation costs may result in greater patent infringement if infringers (or imitators) do not find the patent owner's threat of going to court credible when enforcement costs are high and the probability that the patent owner will prevail is not certain. Or high litigation costs may discourage challenges of patent validity and allow patent owners to exercise greater market power.

More information is also needed on the operation of patent offices, their objective functions, and how they administratively set fees. As pointed out earlier, patent applicants have various ways in which to apply for global patent protection—some more costly than others. What is not well understood is how applicants choose their routes for global patent protection. Total cost is a factor, but not the only one, that determines their decisions.

Lastly, much more progress can be made in patenting cost research if more comprehensive data were available, especially longer time series or historical data across industries and countries.