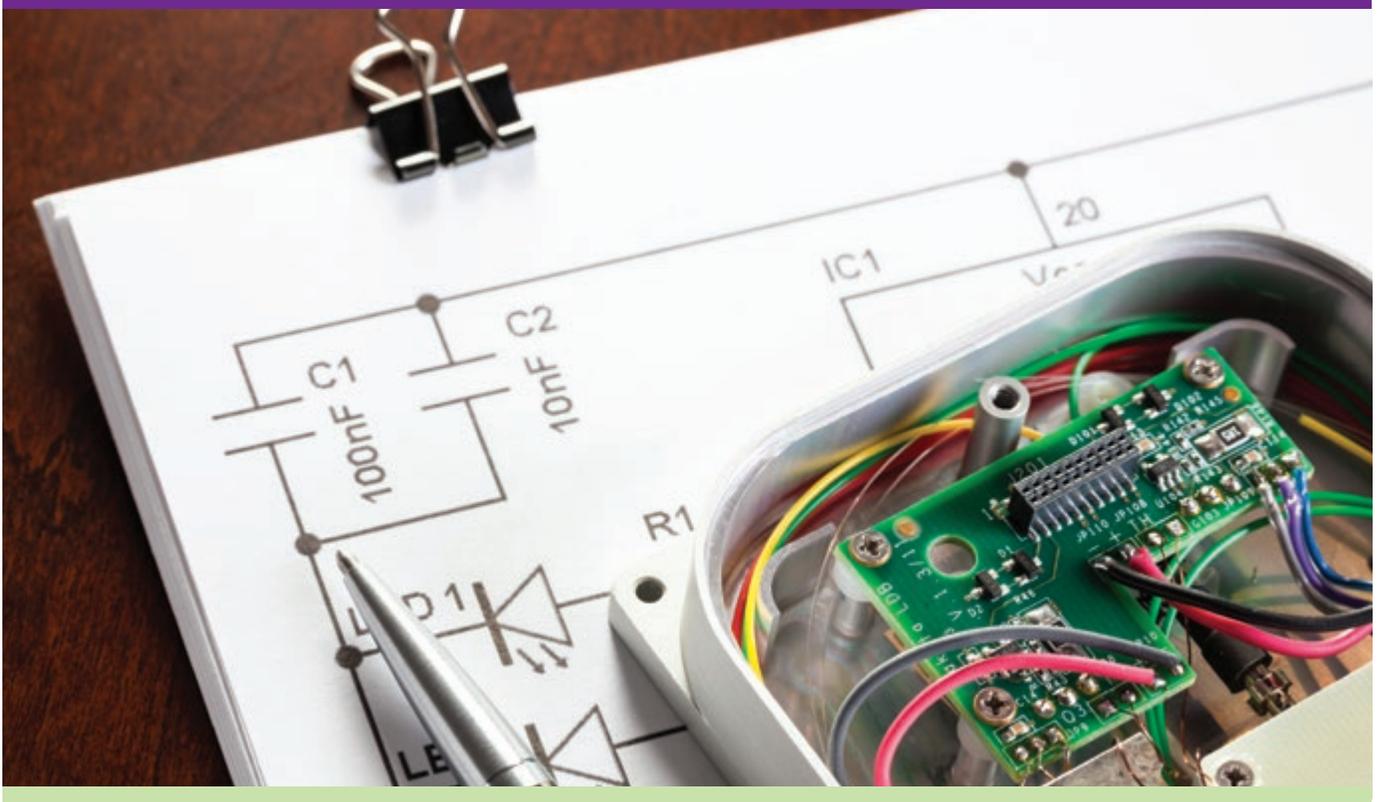


POLICY BRIEF 2017-17

Decreasing the Patent Office's Incentives to Grant Invalid Patents

DECEMBER 2017



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Decreasing the Patent Office's Incentives to Grant Invalid Patents

The U.S. Patent and Trademark Office (Patent Office or Agency) is tasked with making more than half a million patentability decisions every year, separating applications that merit a patent grant from those that do not. Given that patents help promote (or, in some cases, can also limit) innovative activity and can help shape the direction of technological growth, the Patent Office plays a vital role in our economy. However, there is general agreement that too many invalid patents are being granted (i.e., those that are issued for an existing technology or an obvious technological advancement), unnecessarily reducing consumer welfare, stunting productive research, and unreasonably burdening innovators.

These concerns have spurred the Supreme Court to take a renewed interest in patent law, and have driven Congress to enact the first major patent reform act in more than 60 years. Until recently, however, there was little to no compelling empirical evidence that any particular feature of the patent system leads to the issuance of invalid patents.

In a new Hamilton Project policy proposal, Michael D. Frakes of Duke University and Melissa F. Wasserman of the University of Texas discuss empirical evidence that demonstrates how certain features of the structure of the Patent Office lead to grants of invalid patents. Building on this analysis, they propose three reforms. First, the Patent Office would restructure its

fee schedule by increasing examination fees and abolishing issuance fees. Second, repeat applications would be limited, thus reducing the backlog from multiple filings. Third, the Patent Office would increase the time allocated to patent examiners, particularly for those at higher pay grades, thereby allowing sufficient time for examiners to conduct high-quality reviews.

The Challenge

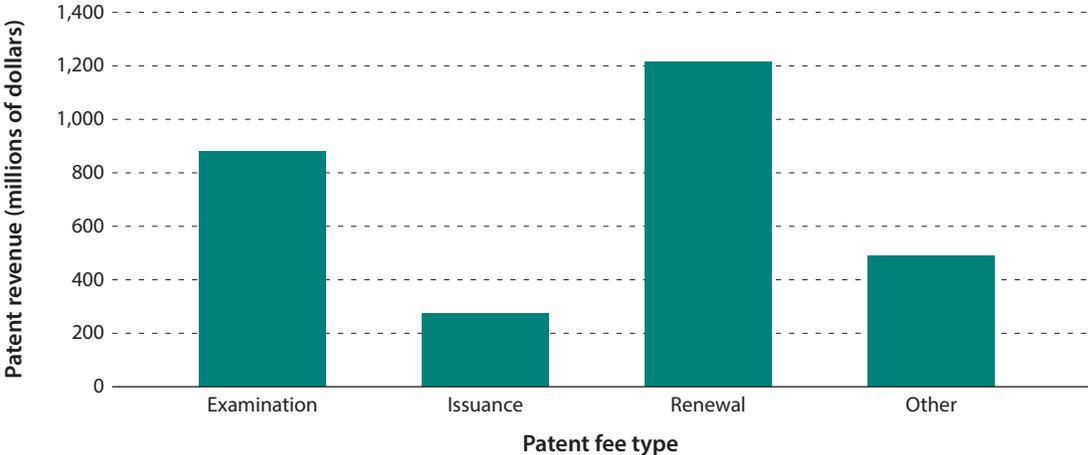
Although patents encourage innovation by helping inventors recoup their research and development expenses, this comes at a cost: consumers pay higher prices and have less access to the patented invention. Frakes and Wasserman note that invalid patents impose an even higher net cost on society, given that the inventions they cover were already known.

According to the authors, invalid patents can also stunt innovation and competition by complicating business planning, generating unnecessary litigation by nonpracticing entities (including patent trolls), and deterring investment in companies at risk of infringement.

The Patent Office's Fee Schedule

The Patent Office is funded through user fees, which Congress appropriates on an annual basis. Roughly 85 percent of the Agency's patent operating budget is generated through three types of fees: (1) filing, search, and examination fees (collectively referred to as examination fees); (2) issuance fees; and (3) renewal fees (see figure 1). Examination fees are paid at the time the application is filed and are not refunded if an application is denied, issuance fees are paid at the time a patent application is

FIGURE 1. Patent Revenues in Fiscal Year 2016, by Fee Type



Source: U.S. Patent and Trademark Office, "Performance and Accountability Report: Fiscal Year 2016," U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC.

granted, and renewal fees are paid periodically over the lifetime of an issued patent.

While examination fees account for nearly one-third of the Patent Office’s budget, these fees fail to cover the actual costs of examining applications. In fiscal year 2016 the Patent Office estimated that the average cost of examining a patent application was approximately \$4,200. By contrast, the examination fee was set at only \$1,600 for large for-profit corporations and at even lower levels for small or micro-entities—individuals, small firms, nonprofit corporations, and other enterprises.

As a result of its current fee structure, the Patent Office is heavily dependent on issuance and renewal fees to fund its operations. This reliance creates a clear incentive for the Agency to grant patents. When the Patent Office experiences a budgetary shortfall it has an incentive to grant more patents in an effort to raise its revenue through additional issuance fees and future renewal fees.

Moreover, not every patent grant will generate the same revenue. The authors observe that a financially strained Patent Office has an incentive to increase fee revenue by granting patents in certain technologies; these patents are likely to be renewed at higher rates than are patents in other technologies. In addition, small or micro-entities receive a discount, increasing the Patent Office’s incentive to grant patents to large entities that pay the highest fees. The authors’ prior research indicates that these

incentives have had the expected effects, changing the Agency’s patent-granting behavior when it faces budgetary shortfalls.

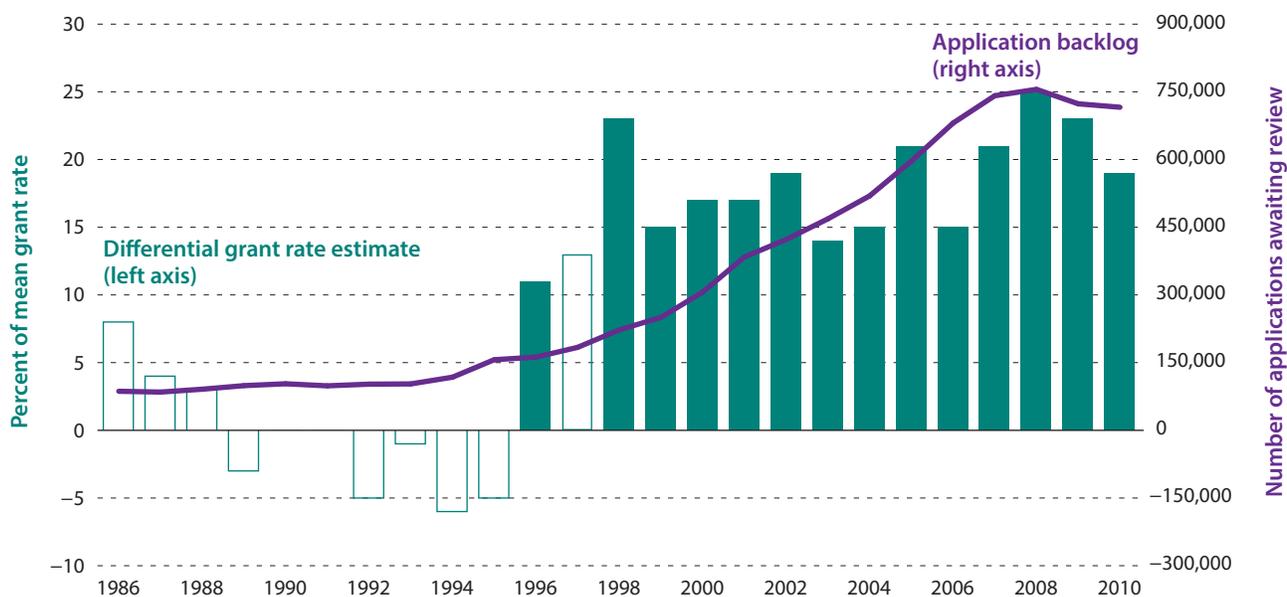
Repeat Applications

Because there is no limit on reapplications, the Patent Office can never definitively reject an application, which contributes to the backlog of about 550,000 applications that are currently awaiting substantive review. Frakes and Wasserman find that this backlog provides another incentive to grant patents, because issuing more patents can diminish the stream of repeat filings and associated examination costs. When the Patent Office begins to face mounting backlogs, it appears to grant patents at higher rates for certain technologies—such as information and communication—that are associated with higher rates of repeat application. Figure 2 shows the growing difference between high- and low-repeat technology grant rates as the patent application backlog increases.

Patent Examiner Time Allocations

On average, a patent examiner in the United States spends only 19 hours reviewing an application, including reading the application, searching for evidence that the invention is already known (so-called prior art), comparing the prior art with the application, and (in the case of a rejection) writing a rejection, responding to the patent applicant’s arguments, and often conducting an interview with the applicant’s attorney.

FIGURE 2.
Differential Grant Rate Between High- and Low-Repeat Filing Technologies and Application Backlog, 1986–2010



Source: Michael Frakes and Melissa Wasserman (2015), “Does the U.S. Patent & Trademark Office Grant Too Many Bad Patents?: Evidence from a Quasi-Experiment,” *Stanford Law Review* 67 (3): 613–76.
Note: Hollow bars are not statistically significant at the 5 percent level.

Patent examiners in more-complex fields and those with less experience are allocated more time to conduct an examination, whereas those in less-complex fields and those with more experience are given less time.

In a recent study the authors found that as examiners are promoted and given less time to review applications they become less active in searching for prior art, less likely to make time-intensive rejections, and more likely to grant the patent. Their analysis implies that if all examiners were allocated as many hours as are extended to those with the least experience, the Patent Office's overall grant rate would fall by roughly 20 percent, amounting to about 40,000 fewer patents issued every year. The authors also found evidence that patents granted by more experienced U.S. examiners were less likely to secure patent protection at the European Patent Office and Japan Patent Office, two offices that invest substantially more examination resources per application than the U.S. Patent Office, suggesting that reduced time allocations could be contributing to the issuance of invalid patents.

A New Approach

Make the Agency Less Reliant on Post-Grant Fees

Frakes and Wasserman propose restructuring the Patent Office's fee schedule to minimize the risk that fee collections will be insufficient to cover its operational costs in the first place. They suggest two mechanisms to accomplish this: first, increasing examination fees to cover examination costs, and second, eliminating issuance fees.

Increasing examination fees to cover examination costs is an important part of addressing the problem of invalid patents. If the examination fees are sufficient to meet the costs of reviewing applications, then the Patent Office's financial incentive to grant patents in anticipation of issuance and renewal fees would be much reduced. Not only would the Agency be able to address any unexpected uptick in application filings by using the associated examination fees to expand its examination capacity, but it would also be able to accommodate unexpected dips in its grant rate or in its renewal fee income.

The authors also propose to abolish issuance fees paid when a patent is granted, which have been used to subsidize the examination costs of unsuccessful patent applicants. This subsidy will not be necessary, however, if examination fees are raised to cover operational costs. Moreover, because the Patent Office's aggregate fee income cannot exceed its operational costs, an increase in the level of examination fees would necessitate a decrease in the level of post-issuance fees. This requirement would be partially satisfied by eliminating issuance fees.

Finally, the authors propose to reconfigure renewal fees. Unlike issuance fees, renewal fees benefit consumers by effectively shortening the lifetime of a patent: if a patent holder opts not

Roadmap

- The Patent Office, which was granted fee-setting authority under the 2013 America Invents Act (AIA), will
 - Increase examination fees to equal operational costs in order to rebalance the current back-ended fee structure and reduce the incentive to grant invalid patents;
 - Abolish issuance fees, which are received after a patent is granted;
 - Implement regulations limiting repeat application filings, which make up a significant portion of the Patent Office's backlog; and
 - Increase time allocations to all patent examiners, with especially large increases for those examiners who currently have the most restrictive time allocations.
- For proposals outside of the Patent Office's authority, Congress will
 - Replace discounted fees for small and micro-entities with a subsidy that is funded by renewal fees;
 - Allocate renewal fees to a separate fund earmarked for Patent Office use, which would then be used to provide rebates to small and micro-entities; and,
 - If necessary, explicitly delegate the authority to limit repeat filings to the Patent Office.

to pay a renewal fee, the invention becomes part of the public domain. Frakes and Wasserman therefore propose to retain renewal fees, but with renewal fee income separated from the Patent Office's revenue stream. Renewal fee revenue would then be used to provide rebates to small and micro-entities as a replacement for the guaranteed examination fee discount currently given to their applications.

Limit Repeat Applications

To reduce the Patent Office's incentive to grant patents as a means of clearing large backlogs, the authors propose a limit on repeat filings. If patent applicants were prohibited from continuously refile applications, the burden placed on the existing examination infrastructure would be substantially reduced.

Learn More about This Proposal

This policy brief is based on the Hamilton Project policy paper, “Decreasing the Patent Office’s Incentives to Grant Invalid Patents,” which was authored by

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Repeat filings can be useful in industries like biotechnology, however, where progressive refinement of the scope of a patent application can be desirable. Therefore, the authors propose that repeat applications be limited to one per applicant. Implementing this proposal might require legislative action: when the Patent Office attempted to limit repeat filings in 2007, its authority to promulgate such regulations was questioned.

Increase Patent Examiner Time Allocations

The authors propose that the Patent Office reduce the rate at which it decreases time allocations with examiner promotion. Their research suggests that the current reduction of the time allotments with examiner promotion is too aggressive, providing insufficient time to senior examiners and leading to invalid patents being granted. The authors propose that the Patent Office adjust time allocations so that an examiner’s grant rate does not increase as dramatically with each promotion. To the extent that these adjustments create more-similar patterns of grant rates across examiners, they will also increase the equity of the patent examination system.

Benefits and Costs

Restructuring the Patent Office’s fee schedule, limiting repeat applications, and increasing patent examiner time allocations will decrease the issuance of invalid patents. These reforms would have substantial but difficult-to-quantify benefits for innovation and economic growth.

Because the authors’ proposals are centered on a restructuring of existing fees and a redistribution of current personnel resources, they do not increase aggregate costs. The proposed reforms do involve trade-offs for considerations beyond those of patent-granting incentives, however.

For example, increasing application fees might deter some high-quality patent applications. The Patent Office has the lowest examination fees of any of the three major international patent offices, however, and there is evidence that even a two-fold or three-fold increase in examination fees would not substantially impede access to the U.S. patent system. In addition, although the proposal ends the fee discount for small and micro-entities, the authors propose replacing the current discounts with an alternative subsidy, to be funded by renewal fees.

Likewise, the time allocations provided to patent examiners involve a trade-off between the Patent Office’s examination capacity and patent quality, holding constant the size of its budget. That is, due to its limited budget, the longer the Agency allows examiners to spend on an application, the fewer patent applications it will be able to process. The authors propose an increase in time allotments to allow for more-thorough examination without unduly burdening overall Patent Office resources.

Conclusion

Evaluating patent applications is difficult. The Patent Office is asked to make more than half a million patentability decisions each year on a budget that is often insufficient to cover its operational expenses. Thus, it might not be surprising that too many invalid patents are issued, unnecessarily reducing consumer welfare and stunting innovation. Nonetheless, there are steps that the Patent Office and Congress can take to improve the patent process.

Drawing on empirical analysis of the U.S. patent system, Frakes and Wasserman propose modifying the Agency’s fee structure to increase its financial health and eliminate the budgetary incentive to grant patents. These changes would significantly reduce the Patent Office’s burden and minimize the number of invalid patents, contributing to American innovation and economic growth.

Questions and Concerns

1. Given that only a small fraction of patents are litigated, would it be preferable to rely on those rare instances of litigation to make detailed validity determinations, rather than increase the resources of the Patent Office to provide more-thorough review of every patent application?

Both the Patent Office and the courts are tasked with the job of applying the patentability standards and assessing the validity of potential or actual patents. Arguments against more-rigorous up-front screening of patent applications, such as those made by Stanford Law professor Mark Lemley, depend on a number of assumptions, including that a doubling of Agency time allocations would reduce patent litigation by only 10 percent. In a 2017 study, Frakes and Wasserman demonstrated that the savings in future litigation costs associated with giving examiners additional time for each application more than outweighs the added payroll expenses. Moreover, because they ignore many of the social benefits associated with preventing the issuance of invalid patents—for instance, preventing patent trolls from opportunistically extracting licensing fees from innovators—their analysis likely underestimates the savings associated with the Patent Office issuing fewer invalid patents.

2. Why replace the guaranteed small- and micro-entity discounts with a subsidy paid from renewal fee revenue?

Shifting from a guaranteed fee discount to small and micro-entities to a subsidy paid to those groups out of the proposed renewal fee funds would allow the Patent Office to manage its overall financial burden—by slightly reducing the discount extended per application—in the event that small- and micro-entity applicant pools grow disproportionately quickly. The authors' proposal arguably creates a disadvantage in placing greater fee-level risks on the small- and micro-entity applicant pool, however. If this disadvantage proves too significant, Congress could consider alternative means—unrelated to the Patent Office's user fees—to subsidize access to the patent system by small and micro-entities (e.g., subsidies paid out of general revenues). Finally, if Congress prefers to maintain the current examination fee schedule for small and micro-entities, the authors encourage aligning examination fees with costs for large entities, at a minimum.

Highlights

In this paper Michael D. Frakes of the Duke University School of Law and Melissa F. Wasserman of the University of Texas School of Law argue that the U.S. Patent and Trademark Office (Patent Office) issues too many invalid patents. They draw on empirical evidence showing that certain features of the Patent Office cause it to grant invalid patents, and propose three changes designed to eliminate structural features of the patent system that bias the Patent Office toward granting patents of questionable validity.

The Proposals

Restructure the Patent Office's fee schedule by increasing examination fees and abolishing issuance fees. These steps would remove the Patent Office's incentive to grant invalid patents.

Limit repeat applications, which make up around 40 percent of the Patent Office's backlog. Repeat applications would be maintained, but in a reduced capacity to accommodate patent applications that benefit from some degree of iterative refinement.

Increase patent examiner time allocations. Reduce the rate at which time allocations are decreased with patent examiner promotion, thereby allowing sufficient time to conduct thorough searches of prior art and overall review of the application.

Benefits

Invalid patents unnecessarily reduce consumer welfare, limit productive research, and burden innovators. By modifying the incentives faced by the Patent Office during periods of financial strain, these proposals will reduce the number of invalid patents granted and contribute to a more effective U.S. innovation pipeline.



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