

Curbing the Patent Application Overflow in the US - A Basic Policy Proposal

Felix Mao

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Patents are widely considered essential for economic growth. Neoclassical theory holds that clearly defined property rights are paramount to perfect competition—especially in the case of non-rivalrous or non-excludable goods, where non-rivalrous essentially means that consumption of the good by one person does not reduce the good’s availability to other people and non-excludable implies that people cannot be denied access to the good. Because innovation creates knowledge, which is by its nature non-rivalrous, there is always the potential for free riding. If, in addition, access to knowledge is public, it will be non-excludable, and third parties will have an incentive to take advantage of other people’s work without compensating them. This, in turn, reduces the incentive to innovate in the first place. Patents are a means of protecting innovation by granting 20 years of exclusive usage before the innovation becomes free to use. This system has contributed to the United States’ leading role in technology.

However, a large and growing body of literature has pointed to the various flaws in the US patent

system. In 2019, \$3.3 billion were spent on patent litigation as compared to \$1.7 billion in 2005 (Foster, 2020). Major patent cases take on average five years to be resolved, which costs around \$1.5 million (Plager, 2001, p. 75). Since patent litigation is so risky and expensive, the mere threat of an infringement lawsuit makes businesses pay royalties or causes them to outright abandon potentially infringing processes or products (Jaffe & Lerner, 2004, p. 76). The patent system is criticized as being indeterminate in practice and procedure (e.g., Plager, 2001), and some have gone as far as recommending the patent system be abolished (Boldrin & Levine, 2013).

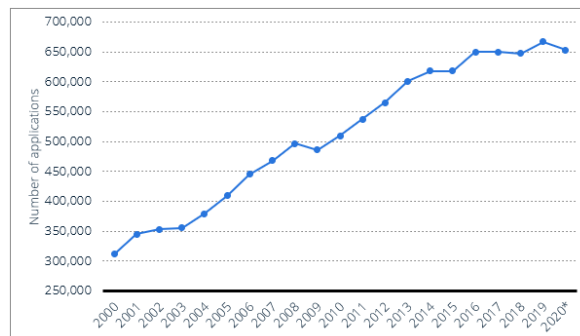


Figure 1: Number of patent application filings in the U.S. FY 1999-FY 2019, USPTO (2019)

The USPTO employs around 13,000 people, over 9000 of which are patent examiners. On average, patent examiners devote 19 hours of study to each application, which is just not enough time to become familiar with the technology, find any potential prior art and relate it to the patent claim(s), and determine whether the technology is too obvious to be patented. The general acceptance rate for patents is around 52% (Adam, 2019) indicating that far too many applications are submitted.

Proposals for reducing the number of applica-

tions often address revision of the criteria for novelty and non-obviousness (Jaffe & Lerner, 2004). Notwithstanding the dominance of these two criteria, Risch (2010) developed the idea of adding a commercial utility constraint to the usefulness requirement. Risch (2010) argues that the usefulness requirement, reduced to operable and practical usefulness, adds no benefit to the commercialization of the innovation, which he sees as a major goal of this requirement. He suggests having the patent filing party provide “sufficient evidence to convince a person with skill in the art that a) there is a market for the invention, and that b) the invention can be manufactured at a cost sufficient to fulfill market demand” (pp. 1194-1195). However, he does not further elaborate on this idea.

By bringing together different strands of the literature from behavioral economics and business administration, this proposal attempts to tentatively bridge this gap. First, cognitive biases play an underestimated role in the patent application process. It is exactly because people are biased that the patent filing party should be obliged to take a moment to—at least rudimentarily—reflect on the viability of their project. A viable option for this purpose is to require the patent filing party to provide a business plan capable of convincing a skeptical investor skilled in business operations and management. After introducing this suggestion, some objections will be considered before showing the limitations of this proposal and attempting a conclusion. The aim is not to develop an elaborate proposal to eliminate the patent application overflow since that would be beyond the scope of this proposal, but rather to ease the problem of the patent application overflow.

Why Have Patent Filing Parties Go Over the Books?

It is commonly believed that the market is solely responsible for defining commercial utility. Moreover, innovators are regulated by market demand due to the high fixed costs patent filing and financing entails. The numbers, however, tell a different story. Approximately half of all patents are never commercialized (Sichelman, 2009, p. 341). A meagre two to ten percent of all patents ever generate sufficient income to maintain their protection, and of the two and a half million active patents, only five percent made any money (Haber Kern, n.d.). Clearly, there exists a discrepancy between the number of patents filed and granted, as well as a staggering failure at commercialization, which is unlikely to be satisfactorily explained by rational choice alone. By assuming bounded rationality, both a behavioral economics perspective and a cognitive bias literature review may be able to shed new light on the application overflow.

In the context of patent application, many biases may play a role. This section will focus on overconfidence, the optimism bias, and the survivorship bias. Overconfidence refers to a gap between the subjective confidence in one's judgement and the objective accuracy of one's judgment (Pallier et al., 2002). A famous manifestation of overconfidence is that 93% of drivers claim to be above average drivers (Svenson, 1981). By analogy, do 93% of entrepreneurs see themselves as better than average? Indeed, many entrepreneurs enter markets in spite of negligible chances at success (Moore Healy, 2008). This would suggest that patent filing parties generally overestimate their chances at a) obtaining the patent and b) commercializing the innovation. The USPTO rejects around 52% of applications, to

say nothing of the 2-10% of innovations that actually become commercialized. A related bias is the optimism bias, which denotes the tendency to underestimate the chance of negative events happening to oneself (Sharot, 2011). For example, smokers state that they are unlikely to get lung cancer and novice bungee jumpers believe they are less likely to be injured than other jumpers. Daniel Kahneman has called this bias "the most significant of the cognitive biases" in terms of impact on decision-making (Kahneman, 2011, p. 255). Patent filing parties may not only be overconfident in their assessment of patents' intellectual and commercial value but may also believe that the various misfortunes an innovator can incur are unlikely to happen to them. The combination of overconfidence and optimism may lead to a huge number of patent applications. In addition, the survivorship bias could bring about considerable distortion in judgment. Persons prone to the survivorship bias overly concentrate on successful people (Wirtz, 2019). Failures vanish from the public eye while the "lucky few" dominate the media. Because successful innovators are much more visible than unsuccessful ones, innovators will judge their prospects by how successful some innovators were and neglect the many innovators who failed.

A Nudge in the Right Direction

Business plans are considered by some scholars to be the most important step in launching a business (Barrow, Barrow, & Brown, 2001). The plan defines the product or process and explains its operation in the market (Hormozi, Sutton, McMinn, & Lucio, 2002). Lack of a business plan increases the likelihood of failure (Perry, 2001). According to one study, 20% of start-ups without business plans crashed within three years, while only 8% of

start-ups with business plans failed (Sexton & Van Auken, 1985). Similarly, Shane and Delmar (2004) found that during their first 30 months of existence businesses with business plans had lower rates of failure.

By obliging patent filing parties to write proper business plan, the patent agency will have to assess market potential, which also entails studying similar innovations—neglect of which constitutes the number one reason for patent application rejection (Bright, 2017).

In addition, venture capitalists and business angels ask for business plans; it essentially constitutes the entry ticket to the investor's lobby (Cook, Bellevue, & Sandberg, 2004). Therefore, asking a patent filing party to do market research may facilitate fundraising. The business plan will also weed out ridiculous patents such as the animal toy, a method for swinging on a swing, the forehead rest for urinals, etc. By sending a clear message that commercially useless patents will not be granted, the proposal will most likely mitigate the application overflow. If the examiner finds flaws in the business plan, he will inform the patent filling party of the problems and give them a chance to make modifications to the plan.

Addressing Common Objections

The "Let the Market Decide" Objection

Economists and non-economists alike generally hold that the market should ultimately decide which innovations succeed and which fail. Jaffe and Lerner (2004) make the point that for most patents, it will not matter a bit if they are granted or not as they are destined for failure either way (p. 174). The cost of application is, however, real. It takes the USPTO

22 months on average to approve a patent (“How Long Does it Take to Get a Patent: Everything You Need to Know,” n.a.). The USPTO faces a trade-off between quality and quantity of examination and the overload of applications is detrimental to the examination quality. The USPTO has become progressively more generous, and examiners nowadays see themselves as facilitators. This creates a vicious cycle in which the number of applications increases due to the generosity of the USPTO, which, in turn, makes the USPTO even more generous and so on.

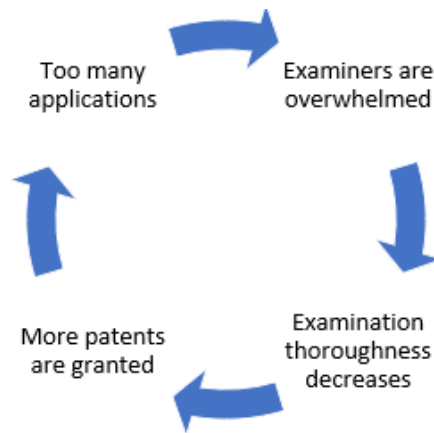


Figure 2: The vicious cycle of application overflow

Requiring filing parties to hand in a thought-through business plan will still let the market decide. The examiner does not replace the market, he merely nudges innovators towards thinking ahead.

The “This is How Innovation Works” Objection

It is a natural part of the innovative process for there to be much more chaff than wheat. Most ideas that seem worthwhile in the beginning end up in the dustbin. Common sense tells that for every successful innovation there are hundreds if not thou-

sands of unsuccessful ones that initially appeared promising. While this objection makes intuitive sense, it does not mean that the innovative process cannot be improved. While failure is a necessary ingredient of innovation, not all failures are born equal. As chances of success become slimmer and slimmer, there comes a point where the costs outweigh the benefits and that person’s energy could be employed more productively elsewhere. My suggestion aims not at eliminating auspicious innovations but at nudging innovators to think deeper, beyond their brilliant idea.

The “I Don’t Trust the Government” Objection

Another worry might be the additional power yielded to the examiner. To mitigate this concern, well-defined and transparent criteria must be established that help the examiner determine the viability of a business plan. Regardless, the additional authority given to the examiner would not be nearly as comprehensive as with regards to the requirements of novelty and non-obviousness. As the proposal is not intended for curtailing innovators but for encouraging them to think beyond patenting, the examiner will not have sweeping authority but will have to respect the guidelines. As outlined above, the requirement of a business plan should merely reduce the number of patent applications and weed out the commercially useless ones. In the overwhelming majority of cases, rejections would still be made on the grounds of non-obviousness and novelty. If the patent filing party is unable or unwilling to hand in a solid business plan, this probably indicates that the innovation is indeed—at least for the time being—unworthy of a patent.

The “Inventors Are Not Entrepreneurs” Objection

A final concern may pertain to the character of the patent filing party. Classic inventors may not be entrepreneurially minded. Asking them to do something they are uncomfortable with will dampen their impetus to innovate in the first place. However, this idea rests on the untenable concept of a lonely wild inventor who just wants to make the world a better place. In a world of ever-increasing specialization and because the low-hanging fruits have already been picked, innovation requires concerted effort, capital, and financial resources. Since innovation is a costly undertaking, inventors or whoever is behind the innovation will probably expect some return. From the patent filing party’s perspective, patents are there for recouping the fixed costs incurred during research and development, and if it goes well for making profit be it through direct sales, licensing, or royalties. Thus, demanding a business plan describing how the patent filing party plans to achieve what it likely wants anyway is not too much of an ask. If the patent filing party is not in it for the money, it may want to consider making its innovation publicly available and free of charge. Alternatively, a sub-patent system based on recognition designated for honorary patents may be created.

Limitations

This report has focused narrowly on the mental disposition of inventors applying for a patent, specifically their overconfidence, their excessive optimism, and their distorted perception of the success-failure ratio, largely neglecting other flaws in the US patent system the resolution of which might alleviate the application overflow and eliminate useless patents.

How much exactly innovators are prone to the above-mentioned biases is also subject to debate and further research is needed in that direction.

Another limitation is that the proposal only looks at the aggregate amount of patent applications and does not consider sector heterogeneity. It may be that the quantity and/or the quality of applications vary across sectors, which may call for a more nuanced approach to curbing the application overflow and eliminating useless patents.

Conclusion

The USPTO should not be the “it doesn’t hurt to apply” step in the innovative process. This attitude is what brought about the current situation at the USPTO. Although, my proposal does not eliminate overconfidence, excessive optimism, or the survivorship bias, it ought to mitigate them by nudging the patent filing party to do something they will have to do either way if they are to receive external funding. These biases will not miraculously disappear when patent filing parties have to hand in a business plan; however, a diligent draft requires a reality check and deters commercially chanceless innovators from burdening the USPTO. Whether the proposal actually works is an empirical not a conceptual issue. By strengthening the usefulness requirement as suggested by Risch (2010) in asking patent filing parties to attach a business plan outlining the commercial value and implementation of their innovation, the proposal contributes to truly promoting “new and useful inventions” as envisaged by the U.S. Constitution.

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