JUSTIFICATION AND CRITIQUE OF THE PATENT SYSTEM

DEAN CHEN
PHIL 170, DUKE UNIVERSITY
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INTRODUCTION

Intellectual property protection is a relatively recent development in human history. Patent law originated in 16th century Britain. In order to stimulate economic progress, the British crown granted monopoly privileges as incentives for foreign industrialists to establish and develop new industries in Britain. The parliament soon realized the significance of this privilege. Over the following two centuries, the British parliament took control of monopoly grants by integrating them into common law. As intellectual property rights were made available to the masses in 18th century Britain, the fundamentals of modern patent law such as novelty and invention documentation were developed through case law.1

The institution surrounding intellectual property has become an edifice in the modern global economy. In 1996, the World Trade Organization’s Agreement on Trade-Related Aspects of Intellectual Property Rights established a minimum required level of intellectual property protection among its 153 member nations.2 In 2008, worldwide patent applications doubled from 1 to 2 million in just a decade. Corporations worldwide invested over $600 billion in to the research and development of valuable intellectual property, with the goal of increasing their competitiveness in the global marketplace for years to come.3

However, the modern patent system is replacing one market failure with another by using monopoly rights to incentivize the provision of public goods. Is the most efficient system for incentivizing innovation? This paper will summarize the justification for and discuss the troublesome inefficiencies of the modern patent system.

INTELLECTUAL PROPERTY

“which one man has invented, all the world can imitate” – Bentham (1839)

Ownership of property is as ancient as human history. However, the notion of treating knowledge as property did not exist until the 19th century.4 Intellectual property is unlike most private physical property, it is a public good, having the

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qualities of non-excludability and non-rivalrous. Knowledge is non-excludable because it is very difficult to prevent others from using or distributing ideas especially given the vast improvements to communication technology over the past century. However, the non-rivalrous nature of ideas means that use by one individual does not preclude use by another; there is no scarcity associated with the use of ideas. For much of human history, there wasn’t incentive to prevent others from enjoying the benefits of one’s own knowledge given that it was at no cost to the inventor in most cases.

Capitalism changed the way mankind perceived knowledge and profit. The establishment of massive competitive markets where the products of knowledge can generate enormous profit added a wrinkle to the non-rivalrous nature of knowledge. Capitalism drastically increased the profitability of knowledge by giving innovative products a significantly larger consumer base. Imitators impose a cost on the inventor by reducing the price and/or quantity sold of the original product.

Since knowledge is non-excludable, imitators will saturate the market with competitive products up to the point where there is no profit to be had. In a perfectly competitive market, economics anticipate that the inventor would be deprived of all economic profit that would have resulted from his invention. Inventions would not be profitable in a competitive market if it was not protected from imitators and inventors will lose some incentive to innovate. A tragedy of the commons occurs and the lack of economic incentive constrains the rate of innovation. Given the profound impact of innovation on economic growth and standard of living, adequately managing the incentives for inventors is of outmost importance.

**INCENTIVE FOR INNOVATION**

“to promote the progress of science and useful arts” – U.S. Constitution

A patent is a type of intellectual property right granted by the U.S. government to “exclude others from making, using, offering for sale, or selling the invention” for a limited time, typically 20 years. A patent on an invention must be examined by the United States Patent and Trademark Office (USPTO) to be “novel”, “non-obvious” and of “utility”. In exchange for the documentation and contribution of the invention to the public domain at the expiration of the patent the inventor is granted a temporary monopoly. Patents solve the tragedy of commons problem by the promise of a lucrative monopoly when the idea be productized.

Economists’ strong aversion to monopolies is motivated by the belief that monopolies are inherently inefficient. A monopoly maximizes profit by artificially reducing supply and charging above-cost prices. This imposes a deadweight loss in

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society from the loss of consumer surplus from individuals who would have otherwise purchased the good at the lower at-cost price. Monopolies also have disastrous consequences for social justice. The excess profit from monopolistic pricing is extracted from lost consumer surplus; the interest of monopolies is enhanced at the expense of consumers (Hettinger, 1989). The United States Department of Justice does not take the abuse of monopolistic power lightly and has extensive anti-trust law to prevent mergers that would result in giving a firm a market dominate position and the exploitation of consumers by market dominate firms artificially limiting their supply.

Patents are justified under the assumption that it is socially efficient for inventors to be rewarded with a limited time monopoly in exchange for the contribution of their invention to society at the end of the 20-year term; the social enhancement from innovative activity should balance out the losses from monopolistic inefficiency. Due to the adverse consequences of monopolies on society, the argument for the necessity of granting monopolies must be bulletproof. If patents are necessary incentives for a certain innovations such that those innovations would not have occurred then patents for those innovations can be justified as pareto-improving; consumers will be better off with the products of those inventions at higher prices and lower quantity than none at all. It is important to note that in the context of the incentive argument above, patent law is a means to an end. The party of interest is the consumer, not the producer; the goal is to maximize consumer surplus. No opinion is given regarding whether inventors are entitled to the monopoly profit generated from their ideas.

**CRITIQUES**

*“patents have not been a positive force” –Worldwide Patent Counsel, Cisco*

Fundamental to the justification of the patent system is that the promise of monopoly profit is necessary to incentivize inventors to invent. However, a wide range of evidence has shown that this foundation is shaky at best.

By surveying hundreds of significant new technologies, Lemley (2011) showed that teams near simultaneously and independently invented almost all of these technologies. This supports the view that most patented inventions are social progressions, driven be market demand or the availability of new materials, not “novel” and “non-obvious”. Further more, many of the truly unique and innovative inventions that did not fall in the above category were shown to be accidental, not the result of a conscious effort to invent.

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The belief that only large sums of money can incentivize innovation is also contradicted by history. For example, truly innovative advancements in technology were made during the Renaissance with little regard for profit including the invention of: clocks, eyeglasses, flush toilet, microscopes, telescopes, printing press, artillery, rockets and submarine. In an empirical investigation of the effects of patent law on innovation in the 19th century, Moser (2003) concluded that there was no significant difference in the level of innovation among countries with and without patent law. There are millions of researchers around the world today motivated not by profit but by the desire to do good, their inherit curiosity and the ambition for prestige.

Even profit-oriented corporations like Cisco may not need the incentive of monopoly profits to innovate. According to Barr (2002), the Worldwide Patent Counsel of Cisco: Everything we have done to create new products would have been done even if we could not obtain patents on the innovations and inventions contained in these products. I know this because no one has ever asked me ‘can we patent this?’ before deciding whether to invest time and resources into product development.

Regardless of whether new products will be protected from imitators, corporations will need to meet customer demands by consistently bringing new and innovative products to market. A successful and profitable product requires much more than a good idea, being the first to launch of an innovative product is a huge. Apple is one example of a successful company with wildly profitable products that always stays one step ahead of its sea of imitators and competitors.

Even if monopoly profit isn’t necessary for incentivizing innovation, it may still do more good than harm by stimulating a faster rate of innovation or stimulating a higher quality/quantity of innovation. Economics has not been able to offer a satisfying answer to this dilemma given the complexity of the issue. There is a delicate balance between increasing competition and derivative innovations through weaker patent protection and incentivizing innovation through stronger patent protection. (Denicolo, 1996)

However, models have shown that overly broad or lengthy patent protection can be detrimental to technical progress given that knowledge is both the input and output of innovation (Hall, 2007). The fast moving field of technology is one victim to the over extension of patent protection. Patent infringement is considered unavoidable by even the most well capitalized and resourceful tech companies.10

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There are as many as 250,000 patent claims involved with the smart phone\textsuperscript{11} and 15,000 patents involved with e-commerce\textsuperscript{12}. Even if one could accomplish the daunting task of identifying every potential infringement, it would be impossible negotiating licenses with all parties involved in a timely manner. To solve this problem technology companies stockpile patents that would not have otherwise been filed for the sole purpose of having ammunition to defend against infringement suits from other large tech companies.\textsuperscript{13}

\textbf{CONCLUSION}

The design of the patent institution has a profound influence on innovation. Determining the efficiency of the patent system is a complex affair that can't be addressed by purely empirical methods. However, it is clear that there are serious problems with the system that needs to be resolved going forward.

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REFERENCES


