

“Hot Topics” in Intellectual Property

Presented by The Michelson 20MM Foundation & Intellectual Property Owners Education Foundation



Do Patents Really Promote Innovation

David Kline

Do patents really promote innovation? This is a matter of no small disagreement. So to answer it, let's start with the basics:

What causes innovation in the first place?

Economists have repeatedly demonstrated that inventors are driven primarily by the expectation of profiting from owning the rights to their inventions. Zorina Khan of Bowdoin College, whose 2005 classic *The Democratization of Invention: Patents and Copyrights in American Economic Development* was awarded the prestigious Alice Hanson Jones Prize for outstanding work in economic history, observed that “Ordinary people [are] stimulated by higher perceived returns or demand-side incentives to make long-term commitments to inventive activity.” She also found that “their patterns of patenting were procyclical [and] responded to expected profit opportunities.”

Along with her colleague the late Kenneth Sokoloff of UCLA, Professor Khan then summarized the role of patents in helping U.S. startup businesses grow the economy from an agrarian backwater into the most powerful industrial economy on the face of the earth:

“The U.S. patent system had a powerful impact on the patterns of inventive activity. Its provision of broad access to property rights on new inventions, coupled with the requirement of public disclosure, **was extremely effective at stimulating the growth of a market for technology and promoting technological change** [emphasis added].”

That was then. What about now?

Over the last 50 years, economists have found that patents continue to foster ex ante innovation — meaning, they induce people to invent because of the prospect of profiting from those inventions. The work of economists such as Arrow (1962), Griliches (1963), Schmookler (1966), Kitch (1977), Reinganum (1981), Klemperer (1990), Romer (1990), Gilbert and Shapiro (1990), Grossman and Helpman (1991), Scotchmer (1999), and Gallini (2002) on this issue are available for free online at the Social Science Research Network.

One especially interesting 2007 study by Arora, Ceccagnoli, and Cowen entitled “R&D and the Patent Premium” found that “the patent premium for innovations that were patented is substantial. Firms earn on average a 50% premium over the no patenting case, ranging from 60% in the health related industries to about 40% in electronics.”

Of course, given the old joke about how an economist opens a can of soup — answer: assume a can opener — we should be cautious about academic research. But real-world economics confirms the research findings.

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Consider, for example, that the biggest job-creating new industries of the last 60 years — semiconductors (consumer electronics), PCs, software, biotech, mobile telephony, and Internet e-commerce — were all launched on the basis of patented inventions created by startup businesses.

The formula for American economic success is simple:

Startups + patents = jobs and economic growth!

Patents not only promote innovation and economic growth, they are also one of the most effective tools for knowledge-sharing and technology transfer ever devised. A 2006 study by French economists Francois Leveque and Yann Meniere found that 88 percent of U.S., European, and Japanese businesses rely upon the information disclosed in patents to keep up with technology advances and direct their own R&D efforts.

A simple thought experiment suggests why this is so. As UCLA’s Sokoloff and Yale’s Naomi Lamoreaux observed in a 1997 paper, “Imagine a world in which there was no patent system to guarantee inventors property rights to their discoveries. In such a world, inventors would have every incentive to be secretive and guard jealously their discoveries from competitors [because those discoveries] could, of course, be copied with impunity.

This is the world of trade secrets.

“By contrast,” the authors noted, “in a world where property rights in invention were protected, the situation would be very different. Inventors would now feel free to promote their discoveries as widely as possible so as to maximize returns either from commercializing their ideas themselves or from [licensing] rights to the idea to others. The protections offered by the patent system would thus be an important stimulus to the exchange of technological information in and of themselves. Moreover, it is likely that the cross-fertilization that resulted from these information flows would be a potent stimulus to technological change.”

In the real world, one need only look at the smartphone industry to see the truth of that thought experiment. Only a strong patent system enabling the licensing and cross-licensing of proprietary technology across four very disparate industries —telephony, electronics, computing and software — could have produced the successful smartphone industry that we enjoy today.

The response of some critics to all this evidence is, “Yes, but you can’t prove causation.”

And it’s true, one cannot prove theoretically that the patent system *by itself* causes higher rates of innovation and economic growth. That’s because the exogenous factors — the dynamism of markets, the efficacy of legal and governmental institutions, the availability of capital, and the role of countless other factors — are far too complex and interdependent to isolate causation to patents alone.

It’s like trying to pinpoint ultimate causation in the weather. It can’t be done.

But by the same token, one also cannot prove that free market capitalism — isolated from all the legal, educational, economic, governmental and cultural institutions that surround it in any country —

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causes more economic growth than a government-planned socialist economy. Yet we all know without a doubt from real-world experience — including the fact that 74 years of socialism in the Soviet Union failed to produce even a decent refrigerator — that free markets are strongly correlated with greater economic prosperity.

The same is true of the patent system: on balance and over the long term, patents are strongly correlated with increased innovation, knowledge sharing, and economic growth.