

Inventors choose to reveal their secret sauce before patent approval

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Common wisdom and prior economic research suggest that an inventor filing a patent would want to keep the technical know-how secret as long as possible. But a new study of nearly 2 million patents in the United States shows that inventors are not as concerned with secrecy as previously thought. Researchers found that since 2000, most inventors when given the choice opted to disclose information about their patents before patent approval - even small inventors - and this disclosure correlates with more valuable patents.

"Do [inventors](#) really value the secrecy that economists assumed they did based on the prior literature? Our findings are that overwhelmingly, and in every category that we can test, inventors don't," said Stuart Graham, study co-author and assistant professor at the Georgia Institute of Technology's Scheller College of Business. Graham was the first-ever chief economist appointed at the U.S. Patent and Trademark Office (USPTO), serving in the U.S. Department of Commerce while on leave from Georgia Tech from 2010 to 2013.

The study, co-authored with Deepak Hegde (New York University), will be published January 16 in the journal *Science*, and was sponsored in part by the Ewing Marion Kauffman Foundation.

In 2000, the length of time that inventors could keep patents secret after filing was cut in half. The American Inventors Protection Act (AIPA) was passed into law that year, requiring publication of [patent applications](#) 18 months after first filing. Prior to 2000, the applications of inventors filed only in the U.S. were kept secret and made public after approval, typically 36 months after filing.

During the congressional debate over the AIPA, prominent inventors raised concerns that reduced secrecy would harm not only small inventors, but undermine the inventive spirit of the United States. So a loophole was included in the AIPA, allowing inventors to maintain secrecy of their patent applications if they were not also filing for parallel foreign patent protection on the same invention. In the U.S., that accounts for about half the granted patents.

The change in the law created an opportunity for Graham and his colleague Deepak Hegde, an assistant professor of management and organizations at NYU's Stern School of Business, to examine which inventors were choosing to opt into the secrecy loophole, and whether their patents differed in important ways. They examined 1.8 million

granted patents filed at the USPTO from 1995 to 2005 and analyzed the disclosure preferences of the inventors. Their analysis found that, among those not seeking foreign protection, about 85 percent of inventors filing a patent since 2000 chose to disclose information about their patents prior to their approval.

"Overwhelmingly, those inventors patenting only in the U.S. are choosing 18 month disclosure," co-author Hegde said.

The patents examined in the study are called utility patents, which are available on new and useful processes, machines, manufactured articles, or compositions, and protect technologies like software, laptops, medical devices, and drugs. These are the commonest type of patent with more than 570,000 filed at the USPTO in 2013, each containing technical information.

When the AIPA was passed, one of the biggest complaints was that the publication requirement would hurt U.S. small inventors, but the researchers found that individuals and small companies still opted for disclosure during the study period.

"Small U.S. inventors are not choosing the secrecy route," Graham said. "When they patent only in the U.S., they are choosing secrecy in only about 15 percent of the cases, not statistically different than the rate among all other types of inventors."

Another major complaint of the AIPA was that disclosing patent secrets would stop the engine of innovation in the United States and that society would get less meaningful inventions. Contrary to these arguments, the researchers found that patents born out of secrecy were overall less valuable than those that opted for disclosure.

"When we examine indicators of patent value, we find consistent

evidence that the least-valuable and least-impactful patents are those that opted for pre-grant secrecy," Hegde said.

The authors point out that more patent information, provided to society earlier, could be socially beneficial. Publishing patent information earlier may provide a head start for other innovators, and may help society avoid unnecessary duplicative research spending, the researchers said.

"We have limited resources in our society that we can invest in innovation and invention," Graham said. "To the extent that we can more efficiently choose projects and avoid wasteful, redundant efforts, then that's good for us as a society."

Future work will involve pinpointing why inventors are choosing not to keep their patent information secret until grant. Some possible answers are that disclosure acts as an early signal to competitors to not innovate in that technology space, or announces to potential licensees that a technology is coming to the marketplace and may be available as an input for someone else's manufacturing or engineering process.

"This study is a first window into what inventors are really doing. The next question is why are they doing it?" Graham said. "It remains for us to figure out why inventors seeking to maximize the value of their inventions are not particularly interested in pre-[patent secrecy](#)."

More information: Stuart Graham and Deepak Hegde. "Disclosing patents' secrets." *Science*, January 2015. [DOI: 10.1126/science.1262080](https://doi.org/10.1126/science.1262080)

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