

# Do intellectual property rights on existing technologies hinder subsequent innovation?

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A recent study published in the *Journal of Political Economy* suggests that some types of intellectual property rights discourage subsequent scientific research.

"The goal of [intellectual property rights](#) – such as the [patent system](#) – is to provide incentives for the development of new technologies. However, in recent years many have expressed concerns that patents may be impeding innovation if patents on existing technologies hinder subsequent innovation," said Heidi Williams, author of the study. "We currently have very little [empirical evidence](#) on whether this is a problem in practice."

Williams investigated the sequencing of the human genome by the public [Human Genome Project](#) and the private firm Celera. Genes sequenced first by Celera were covered by a contract law-based form of intellectual property, whereas genes sequenced first by the Human Genome Project were placed in the public domain. Although Celera's intellectual property lasted a maximum of two years, it enabled Celera to sell its data for substantial fees and required firms to negotiate [licensing agreements](#) with Celera for any resulting commercial discoveries.

By linking a number of different datasets that had not previously been used by researchers, Williams was able to measure when genes were sequenced, which genes were held by Celera's intellectual property, and what subsequent investments were made in scientific research and product development on each gene. Williams' conclusion points to a persistent 20-30 percent reduction in subsequent scientific research and product development for those genes held by Celera's intellectual property.

"My take-away from this evidence is that – at least

in some contexts – intellectual property can have substantial costs in terms of hindering subsequent innovation," said Williams. "The fact that these costs were – in this context – 'large enough to care about' motivates wanting to better understand whether alternative policy tools could be used to achieve a better outcome. It isn't clear that they can, although economists such as Michael Kremer have proposed some ideas on how they might. I think this is an exciting area for future work."

**More information:** Heidi L. Williams, "Intellectual Property Rights and Innovation: Evidence from the Human Genome." *Journal of Political Economy* 121:1 (publishing in February 2013 issue—due to release in April).

Provided by University of Chicago

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