

## **An Empirical Assessment of the Effects of Patent Thickets**

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In this paper we assess empirically how a “patent thicket” affects the patenting propensity and the use of the patents as well as whether it negatively affects the appropriability of the R&D and patenting by a firm. In our study, we use the proportion of the patents licensed out for cross-licensing in each industry as a measure of patent thicket. Our major findings are the following four: Firstly, a firm with higher sales per capita tends to have a higher propensity to patent its inventions in an industry in which there is extensive cross-licenses. Secondly, while a firm with extensive cross-licensing has a lower rate of patent utilization, there is no evidence that a firm in an industry with higher patent thicket has a lower rate of internally utilizing the granted patents. Thirdly, a firm in an industry with higher patent thicket has a lower proportion of blocking patents in the total granted patents. Fourthly, there is no strong evidence that R&D spending or patent acquisition has a significantly lower effect on the firm’s profitability for a firm in an industry with higher patent thicket.

Key words: patent thicket; tragedy of anti-commons; patent acquisition and utilization; R&D

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