

How the Second Amendment to China's Patent Law Affects Firms' Patenting Behavior

Abstract

In this study, we examine how the second amendment to China's patent law affects the patenting behavior of Chinese listed companies. In preparation to become a member of the World Trade Organization (WTO), China passed a second amendment to its patent system in 2000 in accordance with the Trade-Related Aspects of Intellectual Property Rights (TRIPS), which is necessary to bring China's patent law in line with the WTO agreement. Among other things, this amendment affirmed equal treatment of state- and privately-owned organizations in obtaining and enforcing patent rights.¹ This is a Bayh-Dole type of change, which should incentivize state-owned enterprises (SOEs) and other state-funded organizations such as universities and research institutes to patent aggressively, because they could now unequivocally claim ownership of patent rights.

Analyzing a matched patent dataset of Chinese listed companies from 1996 to 2005, we report a set of stylized facts associated with the passage of the second amendment. We do find evidence that following the law change in 2000, state-owned listed companies increase their patent applications significantly, compared to the control group (listed companies that are not state-owned). However, when we separately analyze the three types of patents (invention, utility model, and design), we find that the observed increase in patent applications by SOEs is driven by their applications for utility model and design patents that represent minor innovation; by contrast, there is no significant change in SOEs' applications for invention patents that represent major innovation.

We then analyze how the law change affects the quality of patents filed by SOEs using several proxies. First, we find that SOEs see a significant drop in the grant ratio of their invention patent applications after the law change. Second, although the total number of patent classifications for SOEs increases after the law change, the average number of classifications per patent does not see a significant change. Third, granted patents of SOEs filed after the law change are less likely to be renewed and have a shorter survival time. The findings indicate that the second amendment to the patent law caused a reduction in the quality of patents filed by SOEs.

We further examine potential explanations for the set of findings. We find that SOEs in industries monopolized by the state file fewer patent applications (of all three types) compared to other firms after the law change; in addition, both the total number of patent classifications and the average number of classifications per patent decrease significantly. In another analysis, we find that SOEs in high-tech industries (presumably under greater pressure to innovate) file more patent applications (of all three types) after the law change. SOEs in high-tech industries also have a higher grant ratio for their invention patent applications. In addition, both the total number of patent classifications and the average number of classifications per patent increase significantly for these firms. Overall, our study uncovers some unintended negative consequences of a patent law reform for firm patenting, and demonstrates that competitive and innovative pressures can help to mitigate some of these consequences.

¹ The amendment also provided patent holders with the right to obtain preliminary injunctions against infringing parties during infringement suits (before a court decision is made), deleted the requirement to obtain government permission before a Chinese resident is allowed to file for patent protection abroad, and stipulated standards to compute statutory damages. The amended law also removed the Patent Reexamination Board (PRB), an internal department of the SIPO, of its final adjudication authority regarding utility model and design patents.