

Foreign Patenting Behavior of Small and Large Firms: An Update

By Mary Ellen Moguee, Ph.D.
2002. [28] pages Reston, Virginia 20190
under contract no. SBAHQ-01-M-0357

Purpose

Previous studies of U.S. firms' patenting behavior have shown that small firms are less likely than large firms to seek patent protection in other countries. This report updates a 1995 study that compares the foreign patenting practices of small and large firms.

Overall Findings

Both large and small firms are seeking foreign patent protection more often than they have in the past, and small firms are increasing their foreign patenting more rapidly, but large businesses still patent abroad more often than small firms. To understand the underlying reasons for the differences, the study looks at the value of patents as measured by the number of times patents are cited by other companies in their patent applications (the public value) and by whether patent holders are renewing patents at the required intervals or allowing patents to lapse (the private value).

By these measures, small business patents were found to have more public value but less private value than large business patents. Differences in the value of patents were found to have a significant effect on differences in foreign patenting, but less effect than company size.

The study narrows the range of possible explanations for the difference in small and large business foreign patenting, and finds that small business

resource limitations are a more likely factor in this difference. The researchers conclude that if small businesses are not patenting in foreign countries to the extent that they could, they may be missing commercial opportunities and possible sources of revenue that would contribute to growth in the U.S. economy.

Highlights

- Over the period 1988 through 1998, the number of small business patents increased by more than a factor of three.
- Large businesses seek foreign protection for more of their patents, and they seek patent protection in more foreign countries than do small businesses. This pattern has remained unchanged since the previous study.
- The percentage of international patents grew faster for small businesses than for large businesses over the period 1988–1998. Nonetheless, small businesses still patent abroad significantly less (37.7 percent) than do large businesses (52.6 percent).
- Small business patents are more likely to be among the rare patents that “hit the jackpot” in value: they represent a higher percentage of both the top one percent and the top 10 percent of patents most often cited in other patent applications. This has been particularly notable in the fields of communications, computers, and miscellaneous electrical technologies.

- Technologies most likely to be patented internationally by both small and large firms are bioengineering, medical, and miscellaneous chemical.

- Of the top one percent of often-cited patents, 59 percent belonged to small businesses and 41 percent to large firms.

- The measure of private value—patent renewals—showed large business patents to be more valuable than small business patents.

- The fact that large business patents have higher private value than small business patents shows that the limited resources of small businesses not only inhibit them from filing for foreign patents, but also hamper their ability to commercialize their patented inventions.

Conclusion

Small U.S. businesses are making more use of the U.S. patent system than before and have more valuable patents when measured by number of citations. The number of U.S. patents for both large and small businesses that were filed abroad has increased yearly, although large businesses file significantly more patents abroad than small businesses. A possible reason is the high cost of filing for foreign patents, which may be limiting small firms' ability to commercialize their products overseas.

Scope and Methodology

Data on domestic patents issued to U.S. small businesses were examined for 1988, 1992, 1996, and 1998. U.S. patent data were obtained from MicroPatent's U.S. Patent Search Plus database. International patent family data were collected from the Derwent World Patents Index (DWPI), an online international database that permits the examination of U.S. firms' patent records in foreign countries. U.S. patent citation data were collected from the Patent Citation Analysis Database (PCAD).

The final sample size consisted of 23,624 matching pairs of small and large business patents for the four data years. Patents in this study were aggregated into 13 technology fields.

The study uses statistical analysis to measure the importance of and differences in foreign patents of small and large firms. Differences in the value of patents, whether measured as number of other citations, self-citations, or lapsed status, have a significant effect on differences in the breadth of foreign patenting, but this effect is much smaller than that of company size.

Ordering Information

The full text of this report and summaries of other studies performed under contract with the U.S. Small Business Administration's Office of Advocacy are available on the Internet at: www.sba.gov/advo/research. Printed copies are available for purchase from:

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Tel. (800) 553-6847
TDD: (703) 487-4639
www.ntis.gov
Order number: PB2003-101302

To receive email notices of new Advocacy research, press releases, regulatory communications, and publications, including the latest issue of *The Small Business Advocate* newsletter, visit <http://web.sba.gov/list> and subscribe to the appropriate Listserv.