

Public Abstract

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Title:THE IMPACT OF EXTERNAL KNOWLEDGE ON PATENT PRODUCTION AMONG SBIR WINNERS

The Small Business Innovation Research (SBIR) program is the largest innovation program in the United States, providing funds to early-stage research projects with innovative and commercial potential pursued by private firms that typically operate in high-technology industries such as the life sciences. Two major goals of the program are to increase the innovative pace of funded firms and to boost the commercialization of research projects initially funded by the program. Regarding commercialization, the contribution of the SBIR program is well documented in the academic literature and exemplified by firms such as Apple Computer, Chiron, Compaq, and Intel—all of which received early-stage SBIR funds. On the other hand, whether the SBIR program promotes innovation is viewed with skepticism from some scientists. In an effort to inform policymakers and increase the innovation of the program, this study focused on selected factors that have helped SBIR winners produce more patents. To complement the standard determinants of patent production for a given firm, we are among the first studies to incorporate in the analysis the effects of the scope of scientific knowledge sources a firm is using. Based on a dataset of SBIR winners that operate in the life science field, the analysis is carried out by investigating the influence of firm-specific characteristics—such as size, age, R&D intensity (venture capital funds and SBIR grants), as well as the scope of external knowledge sources—together with regional-specific characteristics—such as the spatial proximity to successful firms, the amount of research dollars awarded to universities, and the intensity of life science activity in the region where the firm resides—on the cumulative number of patents awarded by SBIR life science firms. The empirical estimates suggest that the breadth of external knowledge employed by a particular firm is an important factor that needs to be accounted for as we find that firms that use external knowledge sources that are close to the core of the firms'™ knowledge produce significantly more patents than the rest of the firms. Further, we conclude that larger and venture capital-backed firms exhibit above average performance in producing patents. Finally, our empirical analysis suggests that firms located in close proximity to other innovative SBIR winners are also more prolific in producing patents. We believe our results can initiate further research on issues related to the SBIR program and more generally to the relationship between private and federal funds, as well as on issues that pertain to spatial effects among firms.