

University Science Faculty Ventures into Entrepreneurship

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Purpose

How is university research effectively transformed into technological innovations, businesses, employment, and economic growth? One approach to this public policy question is to examine the entrepreneurial activities of university science faculty who have benefited from federally funded research. This study surveys university scientists about their entrepreneurial activities, employing a database of scientists funded by grants from the National Science Foundation (NSF).

Background/History

The Bayh-Dole Act of 1980 was instrumental in making federally funded research at universities a center of the innovation process. Simply put, the Bayh-Dole Act allowed universities or inventors to take ownership of inventions developed with federal funding. Most of the previous research measuring technology transfer from universities has been based on databases from the universities' offices of technology transfer. One limitation of this research is its inability to measure business startup activity by university scientists.

In this study, data from the National Science Foundation are used as the source for identifying technology start-ups by university scientists. Rather than relying on information from university offices of technology transfer, this research uses the NSF database to conduct a direct survey of university scientists on their entrepreneurial activities.

Overall Findings

Entrepreneurship by university scientists is much more prevalent than information from university

technology transfer offices tends to indicate. About 13 percent of scientists receiving NSF grants started a new firm.

Not all academic scientists create start-ups, but of those that do, 30 percent start with a patent. Factors that are even more important in the propensity of a scientist with an NSF grant to start a business are the size of the grant, whether the scientist is tied into the business community, and whether the scientist had other outside funding. Compared with scientists who do not start a business, twice as many of the scientists who do start businesses have served on the boards of directors of other businesses. The research also finds that scientists are more likely to start a business if the head of their academic department has an entrepreneurial orientation.

Outside funding and years as a tenured professor are major factors correlated with the survival of businesses started by scientists who have received NSF grants.

Policy Recommendations

Policymakers seeking to support innovation through startups by university scientists should consider encouraging activity that is more likely to lead to scientific start-ups, such as scientists serving on boards of other firms and having matching funds from other sources.

Encouraging university department heads to be more entrepreneurial may also pay dividends.

Scope and Methodology

The report surveys scientists that received NSF funding from 2005 to mid-2012 in the fields of civil, mechanical, and manufacturing innovation; environmental biology; computer and network systems;

physical oceanography; particle and nuclear astrophysics; and biological infrastructure. The researchers used email addresses from NSF's database, and received survey responses from 1,899 scientists (a 20.75 percent response rate). The average age of the scientists sampled was 50.3 years old. The online adaptive survey collected information about the scientist and the business venture.

Econometric models using the survey results were used to find the determinants for scientists starting businesses and leading to surviving businesses.

This report was peer-reviewed consistent with Advocacy's data quality guidelines. More information on this process can be obtained by contacting the director of economic research by email at advocacy@sba.gov or by phone at (202) 205-6533.

Additional Information

The full text of this report and summaries of other studies of the U.S. Small Business Administration's Office of Advocacy are available at www.sba.gov/advocacy/7540.

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