FEDERAL FUNDING OF PUBLIC R&D INSTITUTIONS AND THE CREATION OF NEW FIRMS (INTERACTIVE PAPER)

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Principal Topic

Regions home to universities, federal laboratories, and nonprofits feature higher rates of new firm formation in high-technology sectors. This raises several questions: first, is it the presence of an institution or the amount of funding that determines local entrepreneurial activity? Second, does it matter if the R&D activities are funded by defense-related sources? This paper explores these questions using county-level data of new firm formation and the federal funding of R&D at public institutions. Among our results is the finding that R&D funds from non-defense sources – relative to defense sources – are associated with higher rates of new firm formation.

Method

The questions are examined empirically at a county-level of analysis using National Science Foundation data on federal R&D obligations to universities, nonprofits, and FFRDC’s and tabulations on establishment birth rates from the US Census Bureau. The sample includes all the counties comprising California, Nevada, Colorado, Utah, Arizona, and New Mexico. Data sources also include Bureau of Economic Analysis and the US Patent and Trademark Office. NSF’s Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions is the source of the federal R&D expenditure data. We test the hypotheses using a time-space spatial panel econometric technique that accounts for both the spatial and temporal structure of the dependent variable.

Results and Implications

This study set out to address a few research questions regarding the relationship between the funding of public R&D institutions and the rate of new firm formation within geographic regions, i.e., counties. The first of these questions was whether the mere presence of a public R&D institution influenced the rate of new firm formation in the county. The answer, given these results, generally seems to be “yes.” The results show higher high-tech startup rates in counties home an R&D performing university, nonprofit, FFRDC, or any combination of the three. Second, the answer to the question as to whether the local rate of new firm formation is a function of the magnitude of federal funding at the region’s public R&D institutions also seems to be “yes.” In our results, greater federal R&D obligations per labor force are associated with higher levels of high-tech entrepreneurial activity. Finally, it appears that the source of funding is a critical element: defense-related R&D funding appears to be associated with lower rates of new firm formation in high technology sectors relative to non-defense funding.

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