INPUT ADDITIONALITY OF PUBLIC R&D GRANTS: PANEL ANALYSIS OF GERMAN BIOTECHNOLOGY COMPANIES, 1998-2010 (SUMMARY)

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Introduction

It remains an open empirical question whether public R&D grants complement private companies’ R&D investments. They would do so, if they encouraged firms to undertake projects that would otherwise be unrealized or those which would be realized on a significantly smaller scale. Otherwise, subsidized firms would end up substituting public R&D grants with their own funding. Results of most prior evaluation studies on this topic have been misleading due to various reasons, however. Often, such studies were based on the assumption that government R&D grants are allocated randomly to firms. Increasing evidence suggests, however, that public policy-makers tend to cherry-pick the participants in such programs (Heckman, 2011; Hussinger, 2003). Moreover, government awardees also happen to be companies with the best ideas and stronger incentives for spending their own resources prior to applying for such support programs.

We seek to assess the extent to which firms receiving public R&D grants would have invested, had they not benefited from such government funding, by employing a so-called ‘counterfactual approach’ (Rosenbaum and Rubin, 1983).

Data and Methods

We study a total of 958 dedicated German biotechnology companies which is the complete population of German biotechnology companies that were founded between 1998 and 2010. Our data includes information on companies’ annual sales, age, size, the R&D percentage, business model, and their areas of application. We compiled our data from different sources such as the Biocom, Creditreform and the European patent data.

We use the propensity score matching for testing our hypotheses.

Results

Our analysis supports the existence of input additionality. However, it seems that the degree of the input additionality of government awardees -i.e. the amount of money they have invested in their R&D activities, after having received the government funding- varies. Specifically, the input additionality seems to depend on a biotech company’s size, their business model (i.e. their primary focus on production, service, or both), and also the degree of their internationalization. Furthermore, it seems to be moderated by the characteristics of life-science clusters (such as a cluster’s size, age, and the share of VC funding) in which biotech companies are embedded.

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