

Are Incentives for R&D Effective? Evidence from a Regression Discontinuity Approach

Jose Hernandez-Balsamo
Texas A&M University
February 28, 2024

Abstract

This paper evaluates an R&D subsidy program in northern Italy using a regression discontinuity design. It found no significant increase in investment for the sample as a whole, indicating that firms might substitute public for privately financed R&D.

Introduction

The purpose of this paper was to assess the effectiveness of R&D subsidies in Northern Italy, distinguishing impact by firm size using a regression discontinuity design. Given the economic rationale that knowledge, generates positive externalities, the equilibrium private investment in R&D is theorized to be lower than the optimal social level.

Literature Review

The literature review discusses the economic rationale behind R&D subsidies, highlighting the public good nature of knowledge and the resulting market failure that leads to underinvestment in R&D. It addresses the theoretical expectation that subsidies can increase private R&D investment by compensating for the positive externalities and the equilibrium gap between private and optimal social levels of investment.

Methodology

They applied a sharp regression discontinuity (RD) design, comparing the performance of firms just above and below the score threshold used to award the grants. The analysis was based on balance-sheet data, encompassing various outcome variables associated with expenditures reimbursable by the subsidy program, including tangible and intangible subsidies.

Findings

The research found no positive effect on the overall R&D outlays of firms from the subsidy program. This suggests that grants did not significantly increase R&D investments across all firms. A key finding was the substantial heterogeneity in the impact of the grants based on firm size. For small firms, the subsidies led to investments matching the amount of the subsidy received on average.

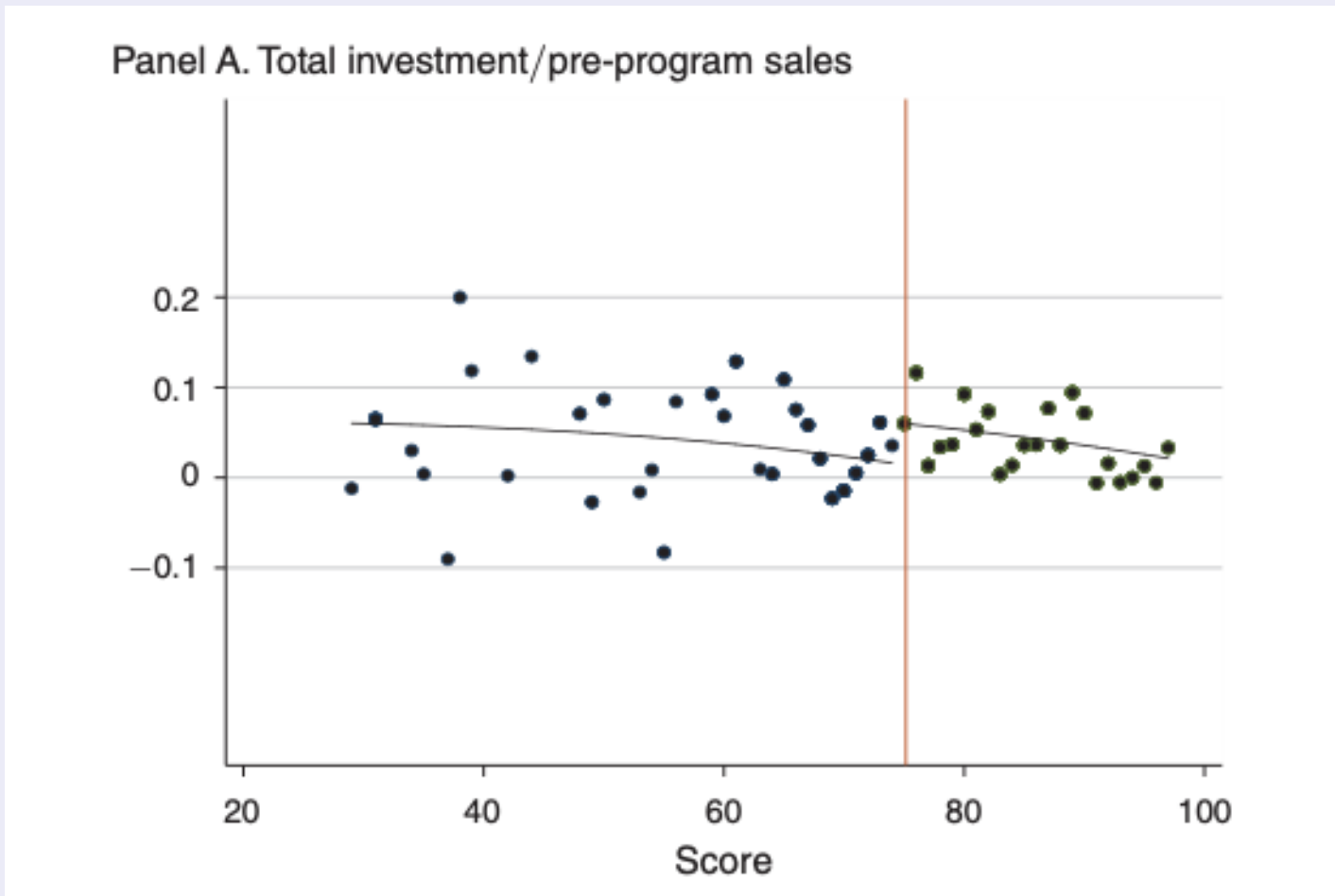


Figure: Full Sample Regression Discontinuity Design

Discussion

The study revealed a nuanced impact of R&D subsidies, primarily benefiting small firms by directly matching their additional investment to the subsidy amount.

Conclusions

These results suggest that targeted subsidy programs could be more effective in stimulating R&D activities, particularly for small and financially constrained firms, potentially enhancing innovation and economic growth. Future research should explore the long-term impact of R&D subsidies on economic performance and the potential for spillover effects within and across industries.

References

Bronzini, Raffaello, and Eleonora Iachini. 2014. "Are Incentives for R&D Effective? Evidence from a Regression Discontinuity Approach." *American Economic Journal: Economic Policy*, 6 (4): 100-134.