

# Do Direct Subsidies Promote Private R&D Expenditure? Evidence from Regression Discontinuity Design<sup>1</sup>

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## Summary

- Direct government subsidies for research and development (R&D) are a primary innovation policy tool in the Czech Republic. Although there are strong theoretical arguments in favour of R&D subsidies for business enterprises, it is also important to carry out credible evaluations of their real impact. Subsidy programmes can be considered successful if they stimulate additional R&D expenditure in the private sector.
- The aim of this study is to illustrate the evaluation of direct subsidies for business R&D expenditures using a regression discontinuity approach. We use data from the 3<sup>rd</sup> call for proposals in the ALFA programme of the Technology Agency of the Czech Republic. Our analysis compares the growth rates of private R&D expenditures of subsidized and unsubsidized firms that ranked close to the threshold above subsidies were awarded.
- The results indicate that government subsidies have a positive impact on private R&D expenditure. Private R&D spending grew faster in subsidized firms just above the ranking threshold compared to unsubsidized firms just below the threshold, even though there was no difference in their spending growth before the subsidies were received.

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- We cannot, however, infer a causal relationship from these results, as there are significant differences in the characteristics of the firms close to the ranking threshold for public R&D subsidies. In particular, firms that scored just above the threshold turned out to be younger, with lower productivity and with less access to external capital than their unsubsidized counterparts. The subsidized firms had also received public support for R&D activities less frequently in the past.
- The most significant difference in the growth rate of R&D expenditures across subsidized and unsubsidized firms was recorded for small enterprises. The difference in the growth rates is lower for medium-sized firms, although the estimates are statistically significant. However, the results are not significant for large companies. The estimates further suggest that the greatest difference in growth rates occurred for firms supported in the 1<sup>st</sup> sub-programme of ALFA, on advanced technologies, materials and systems.
- If relevant data on the projects evaluated in the remaining three calls for proposals in the ALFA programme become available for analysis, our approach has the potential to provide the methodologically most reliable evaluation of the impact of direct government subsidies on private R&D expenditures in the Czech Republic so far. Analyses of this kind should be considered when decisions are made about the use of policy instruments, including subsidies to stimulate private R&D activity.