

The Czech Science Foundation (GAČR) Standard Grants and the Publication Performance of Scientists: A Counterfactual Analysis of Projects Awarded in Years 2005-2014²

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Summary

- The Czech Science Foundation (GAČR) is the largest source of project financing for scientists based in the Czech Republic. In recent years, GAČR has distributed grants worth over 4 billion CZK a year. About three quarters of the total funds are allocated to *Standard grants*.
- This study is the first to **econometrically estimate the impact of GAČR Standard Grants on the publication performance of the researchers the grant supports**. We compare the members of Standard Grant research teams (the treatment group) to a control group of researchers who did not participate in a Standard Grant in a given period, but who otherwise resemble the supported researchers. We match the groups based on their primary fields, past publications and grants, academic titles, gender, the type of research institution they are affiliated with, and many other characteristics. Most data comes from the Information System for Research, Development, and Innovation.

² This study represents the author's own views and not the official position of the Czech Academy of Sciences' Economics Institute nor the Charles University Centre for Economic Research and Graduate Education (CERGE). An earlier draft of this study was presented to the GAČR Presidium on 30th August 2021 and to the GAČR Scientific Council on 21st September 2021. I would like to thank Martin Srholec for invaluable advice and comments throughout the process of preparing the study. I would also like to thank Taras Hrendash, Štěpán Jurajda, Martin Macháček, Dan Műnich, Petr Ráb, the staff of GAČR, and members of the GAČR Scientific Council for their help and helpful suggestions. I would like to thank the Czech Science Foundation for providing additional data for this project. The study was produced with support from the Czech Academy of Sciences as part of its Center for Research, Development and Innovation Analysis programme (RaDIAC). All remaining omissions and errors are my own.

- We estimate the **impact of GAČR Standard Grants awarded annually from 2005 to 2014 on the numbers of articles that the supported researchers published in influential scientific journals within 5 years of the award of a grant.** The influence of journals indexed in the Web of Science database is measured by their Article Influence Score (AIS) compared to other journals in the same field.
- The results indicate that **GAČR Standard Grants have a positive impact on the publication performance of researchers who receive the grants.** According to the estimates, a member of a research team supported by a Standard Grant publishes **about 1 more article in an influential scientific journal (1st quartile in terms of AIS)** than they would publish in the absence of the grant.
- The results further show that about **70% of additional scientific articles** created thanks to GAČR Standard Grants and published in journals that have an AIS **are published in the 1st or 2nd quartile** of these journals.
- The impact of the Standard Grants has **substantially increased over time**, comparing grants awarded in 2005–2009 to grants awarded in 2010–2014. The increase has been particularly pronounced in the technical and physical sciences.
- The publication performance of the supported researchers **does not significantly differ from that of researchers who obtained other project funding for basic research.** One exception is the agricultural and biological-environmental sciences, where we see a stronger impact of GAČR Standard Grants than that of other types of project funding for basic research.
- The impact of the grants is **greater for more established researchers**, who have previously published more articles in influential scientific journals. The differences in impact are more pronounced in the technical, physical and social sciences.
- In most broad fields, the impact is also **greater for researchers based at the Academy of Sciences.**
- The titles of „professor“ or „associate professor“, the gender, and the interdisciplinarity of a researcher are not systematically related to the impact of the grant.
- In **social sciences, the impact of the grants is substantially smaller** than in other broad fields. The vast majority of additional articles created thanks to the grants in the social sciences are published in low-influence journals. The impact on researchers who have previously published in high-influence journals is, however, similar in social sciences to the impact in other broad fields.
- The impact of the grants on publications in a select group of the **most prestigious journals (Nature, Science...) globally is positive but small.**
- The **accuracy and reliability** of the estimates presented in this study could be further increased by including **data on unsuccessful grant applications** and the **rankings of successful and unsuccessful grant applications** within individual grant panels, if such data were made available for research purposes.