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Reproduction and replication at scale

 Check for updates

In 2022, one of us (A.B.) founded the Institute for Replication (I4R) with the primary objective of making reproduction and replication commonplace in the social sciences. Our initial focus was on prominent economics and political science journals. As of December 2023, we have reproduced and replicated over 250 studies published in several leading outlets. Our approach to reproduction and replication is collaborative and fosters an enjoyable experience for replicators.

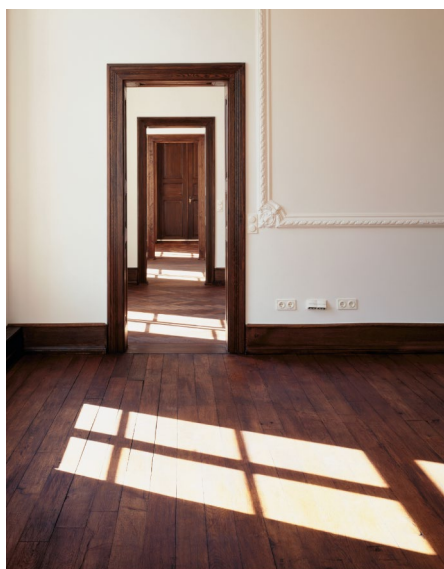
The I4R approach to reproduction and replication is twofold. First, we introduced a research event called the ‘Replication Games’ as part of our strategy¹. These one-day events, which typically take place at universities or conferences, each bring together a total of 30 to 100 researchers who collaborate to carry out replications. Participants are organized into small teams that comprise 3 to 5 members with similar research interests. Each team focuses on a single paper.

During the Replication Games, teams have the option to conduct either a robustness reproduction or something even more elaborate. A robustness reproduction entails duplicating the results of a previous study using different procedures than those employed by the original investigator. In addition, replicators may extend the original analysis with new data or recode the study from the ground up using raw or intermediate data. This typically entails some more work after the Replication Games, but not so much that the task becomes insurmountable.

Researchers have eagerly participated in the 15 Replication Games that we have hosted in the past year, and we have currently 24 more planned for the upcoming year. We had over 700 participants from 25 countries in 2023 and are expecting to have over 1,000 participants in 2024.

Second, we have a board of leading scholars in behavioural science, economics, finance and political science who are actively recruiting and selecting replicators. They promote open science values, include replication exercises in their classrooms and organize Replication Games at their home institutions. We plan to extend to other fields in the near future.

I4R also facilitates communication between the original study authors and the replicators, and fosters an open, professional and



respectful dialogue. Some of the replications that we have sponsored thus far have shed light on limitations or coding errors present in recently published studies (for example, ref. 2), which we believe not only serves the scientific community but also demonstrates the value of our approach. Similarly, it is important for science that studies that do not have coding errors enter the scientific record.



We are interested in all types of reproduction and replication, using original data and/or new data. Although all studies are computationally reproduced (meaning that the code applied to the data delivers the same results as in the paper), we offer full flexibility to replicators for the type of reproduction and replication that they conduct. This flexibility is key given that scientific articles in the social sciences use different methods and types of data (for example, observational or experimental). Furthermore, replication packages differ from one another. For instance, all data may be publicly available for a specific article, whereas only the code may be provided for a study that uses administrative data or confidential proprietary data. Possible types of reproduction and replication may include adding and justifying additional robustness tests and sensitivity analyses, or repeating the same analysis using new or updated data.

We have created tools to assist replicators, such as a [template](#) that is designed for

composing reproducibility reports. Additionally, our methodology promotes collaboration and facilitates an open exchange between replicators and the original authors. We consistently reach out to the original authors, and provide them with the opportunity to craft a response. Subsequently, both replication reports and responses are publicly shared simultaneously¹.

We are thrilled to announce that we are broadening our focus to new disciplines through a collaboration with *Nature Human Behaviour*. As part of this collaboration, we will be reproducing and replicating as many studies as possible of those that are published in *Nature Human Behaviour* (from 2023 and going forward), including in the fields of anthropology, epidemiology, economics, management, politics and psychology. Furthermore, we will organize multiple replication games dedicated to reproducing and replicating articles in *Nature Human Behaviour*. All replication enthusiasts are invited to participate and will be granted co-authorship to a meta-paper that combines all reproductions and replications. The plan is for this meta-paper to then be considered for publication as a research article in *Nature Human Behaviour* (subject to peer review).

We are enthusiastic about this collaboration with *Nature Human Behaviour* and are actively looking for replicators. Please contact us by email at instituteofreplication@gmail.com if you would like to join our initiative!

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Competing interests

The authors declare no competing interests.