Pre-Analysis Plan: 1st Meta Paper: Many Analyses*

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November 10th, 2023

Abstract

In this study, we reproduce and replicate the main claims from over 100 empirical papers published in leading economic and political science outlets in 2022 and 2023. For each study, we worked in small teams and either conducted a robustness reproduction – which is the ability to duplicate the results of a prior study using the same data but different procedures as were used by the original investigator – or recoded the study using the raw or intermediate data. Some teams also did a combination of robustness/recoding. In this pre-analysis plan, we detail our many analyses of the data and eight research questions.

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1 Introduction

In this paper, we reproduce and replicate the main claims from over 100 empirical papers published in several leading economic and political science outlets in 2022 and 2023. For each study, we worked in small teams and either conducted a robustness reproduction – which is the ability to duplicate the results of a prior study using the same data but different procedures as were used by the original investigator – or recoded the study using the raw or intermediate data. Some teams also did a combination of robustness/recoding or used new data.

In this pre-analysis plan, we describe eight research questions and our methodology. We take a "many-analysts" approach where multiple research teams use our meta database to answer the same research questions. More specifically, we tackle the following eight questions:

1. "Does reproducibility/replicability rate depend on replicators' experience coding?"

2. "Does reproducibility/replicability rate depend on replicators' academic experience?"

3. "Does reproducibility/replicability rate depend on the authors' experience?"

4. "Does reproducibility/replicability rate depend on the interaction of the authors' experience and replicators' experience?" In particular:

    (a) "Are reproducibility/replicability rate higher when authors' experience is high, and replicators' experience is low (in comparison to similar levels)?
    (b) Are reproducibility/replicability rate higher when authors' experience and replicators' experience is similar (in comparison to dissimilar levels)?
    (c) (iii) Are reproducibility/replicability rate higher when authors' experience is low, and replicators' experience is high (in comparison to similar levels)?

5. "Does reproducibility/replicability rate depend on the interaction of the authors' prestige and replicators' prestige?" In particular:

    (a) Are reproducibility/replicability rate higher when authors' have high prestige, and replicators' experience have low prestige (in comparison to similar levels)?
    (b) Are reproducibility/replicability rate higher when authors' and replicators' prestige is similar (in comparison to dissimilar levels)?

(c) Are reproducibility/replicability rate higher when authors' have low prestige, and replicators' experience have high prestige (in comparison to similar levels)?

6. "Does reproducibility/replicability rate depend on the original authors providing raw data?"'

7. "Does reproducibility/replicability rate depend on the original authors providing raw or intermediate data?"

8. "Does reproducibility/replicability rate depend on the original authors providing cleaning code?"

Each team receives the same instructions and data. Teams are allowed to use any statistics package, add new data and use assistants. The analyses conducted by each team is independent and team members can only communicate with their teammates. As in Huntington-Klein et al. (2021), the goal is to have each team answering each research question independently, including the statistical model, inference, choice of control variables, etc.

This pre-analysis plan was written and pre-registered on November 10th, 2023. The meta database was shared with each team on November 10th, 2023.

2 Hypotheses

Based on our research questions, each team will test the following hypotheses:

1. Reproducibility/replicability rate depends on replicators' experience coding.

2. Reproducibility/replicability rate depends on replicators' academic experience.

3. Reproducibility/replicability rate depends on the authors' experience.

4. Reproducibility/replicability rate depends on the interaction of the authors' experience and replicators' experience.

5. Reproducibility/replicability rate depends on the interaction of the authors' prestige and replicators' prestige.

6. Reproducibility/replicability rate depends on the original authors providing raw data.

7. Reproducibility/replicability rate depend on the original authors providing raw or intermediate data.

8. Reproducibility/replicability rate depend on the original authors providing cleaning code.

3 Definitions

There are key definitions which we will use throughout the report which better explains the different roles of people in relationship to the Institute for Replication and this paper.

Original Authors are the individual(s) who have published a paper in one of the following journals since 2022: American Economic Journal: Applied Economics, American Economic Journal: Economic Policy, American Economic Journal: Macroeconomics, American Economic Review, American Journal of Political Science, American Political Science Review, Journal of Political Economy, Quarterly Journal of Economics, The Economic Journal, The Journal of Politics and The Review of Economic Studies.

Original Paper refers to the paper published in one of the above journals by the original authors.

Replicators are the individual(s) who have conducted a reproduction or replication of a paper written by an original author.

Replication Report is the written report by the replicators documenting their findings while conducting the reproduction/replication of the original paper by the original authors.

Institute for Replication or **The Institute** assigns different original papers by original author to replicators. The Institute provides the template to replicators for their replication report. The Institute also connects original authors with replicators to share the findings of the replicators. After receiving final versions of replication reports, The Institute then codes statistics from the replication reports and the original papers into an excel spreadsheet.

Meta Database (for the public) is the collection of data which come from publicly available sources on original authors and their original paper, as well as the comparison of statistics (coefficients, standard erors, p-values, *etc.*) and figures between original authors and replicators from replication reports.

Meta Database (Institute for Replication) is Meta Database (for the public) with additional information about replicators' experience with the original paper, original authors, and creating their replication report. This information is gathered by surveying the replicators.

Analysts are the individual(s) which are analyzing the Meta Database (Institute for Replication).

First Meta Paper the product of The Institute and analysts analysis of the Meta Database (Institute for Replication).

We provide the dependent variables and the Meta Database (Institute for Replication) to all teams. Teams are not allowed to change the dependent variables.

First Dependent Variable: dummy variable indicating whether the re-analysis is significant at 5% level and same sign. For this dependent variable, we only keep original estimates statistically significant at 5% level.

Second Dependent Variable: dummy variable indicating whether the re-analysis is significant at 10% level and same sign. For this dependent variable, we only keep original estimates statistically significant at 10

Third Dependent Variable: dummy variable indicating whether the re-analysis remains not significant at 5% level. For this dependent variable, we only keep original estimates statistically insignificant at the 5% level.

Fourth Dependent Variable: dummy variable indicating whether the re-analysis remains not significant at 10% level. For this dependent variable, we only keep original estimates statistically insignificant at the 10% level.

4 Meta Database

In what follows, we describe the Meta Database and additional documents provided to each team of analysts to answer the above research questions.

The database has been built from three sources of raw data: (1) replication reports; (2) surveys for individual replicators; and (3) surveys for teams of replicators.

The main dependent variables are built from statistics (and figures) coming from replication reports and original papers. The Institute for Replication extracted information on these statistics manually. That is, Abel Brodeur, Derek Mikola and research assistants (RAs) at the University of Ottawa read replication reports, compared the values with published papers, copied them into an excel file, coded what the robustness check and/or replication exercise, and whether the original authors' replication package was computationally reproducible. Abel, Derek and RAs also manually added publicly available information on original authors and replicators. Work being entered by RAs were checked by Abel Brodeur or Derek Mikola for completeness and accuracy. If any part of any entry was unclear, they were checked again. After being checked, replicators would be contacted with their

subset of the Meta Database and asked to confirm our transcribing of their reports into the Meta Database. In instances where replicators disagreed with our coding, we would exchange emails or contact over Zoom, to clarify the differences. Any issues with transcribing would be changed.

Replication reports and publicly available information did not completely give us the information to answer all of our research questions and hypotheses. We conducted two surveys: the individual survey and a team survey of our replicators. Both surveys gave additional information on the work experience of replicators, how long their report took to create, additional quesitons about the original authors replication package, and so on. Teams were invited to answer the surveys following the completion of the Institute for Replication transcribing their report.[1]

We provide all of our analysts with the link to a folder which contains four documents: (1) Meta Database (Institute for Replication) as a *.dta document; and (2) Clarifying Questions and Comments document with a *.txt extension; (3) Reporting Guidelines excel file showing how we'd like them to provide their analysis for us; and (4) an Analysts Document for Variables and Variable Labels as a *.docx . The Meta Database is the dataset which they can conduct their analysis on. The *.txt file is a running set of questions/comments the analysts can provide to The Institute to improve the database. The Clarifying Questions and Comments will allow us to track any changes made to the Meta Database by the request of the analysts. That Analysts Document for Variables and Variable Labels is a minimum document before we produce a fuller data dictionary.

While we have constructed the majority of the dataset, we still have replication reports and surveys being entered. That is, the dataset is not yet completely built. As such, analysts will get an updated and final version of the dataset later on. Moreover, analysts will let The Institute know if they find any peculiarities with the Meta Database or if they would like additional documentation. Their feedback will allow us to have a more water-tight database.

We provide a link to the variable names and their labels associated with the Meta Database Here.

We provide a link to the Publicly Available Meta Database Here. This dataset omits all information which could be used to identify the replicators.

[1]This was also typically delayed if original authors and replicators were still having a back-and-forth about a replication report. For earlier papers, replicators were only contacted after their report was made available to the public.

References

Huntington-Klein, N., Arenas, A., Beam, E., Bertoni, M., Bloem, J. R., Burli, P., Chen, N., Grieco, P., Ekpe, G., Pugatch, T. et al.: 2021, The Influence of Hidden Researcher Decisions in Applied Microeconomics, *Economic Inquiry* **59**(3), 944–960.