

A Service of



Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre

Brodeur, Abel et al.

Working Paper

Promoting Reproducibility and Replicability in Political Science

I4R Discussion Paper Series, No. 100

Provided in Cooperation with:

The Institute for Replication (I4R)

Suggested Citation: Brodeur, Abel et al. (2024): Promoting Reproducibility and Replicability in Political Science, I4R Discussion Paper Series, No. 100, Institute for Replication (I4R), s.l.

This Version is available at: https://hdl.handle.net/10419/281135

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.





No. 100 I4R DISCUSSION PAPER SERIES

Promoting Reproducibility and Replicability in Political Science

Abel Brodeur

Kevin Esterling

Jörg Ankel-Peters

Natália S. Bueno

Scott Desposato

Anna Dreber

Federica Genovese

Donald P. Green

Matthew Hepplewhite

Fernando Hoces de la Guardia

Magnus Johannesson

Andreas Kotsadam

Edward Miguel

Yamil R. Velez

Lauren Young

January 2024



14R DISCUSSION PAPER SERIES

I4R DP No. 100

Promoting Reproducibility and Replicability in Political Science

Abel Brodeur¹, Kevin Esterling², Jörg Ankel-Peters³,

Natália S. Bueno⁴, Scott Desposato⁵, Anna Dreber⁶,

Federica Genovese⁷, Donald P. Green⁸, Matthew Hepplewhite⁷,

Fernando Hoces de la Guardia⁹, Magnus Johannesson⁶,

Andreas Kotsadam¹⁰, Edward Miguel¹¹, Yamil R. Velez⁸,

Lauren Young¹²

JANUARY 2024

¹University of Ottawa/Canada, and Institute for Replication

²University of California Riverside/USA

³RWI – Leibniz Institute for Economic Research

⁴Emory University, Atlanta/USA

⁵University of California San Diego/USA

⁶Stockholm School of Economics, Stockholm/Sweden

⁷University of Oxford/Great Britain

⁸Berkeley Initiative for Transparency in the Social Science, Berkeley/USA

⁹Ragnar Frisch Centre for Economic Research, Oslo/Norway

¹⁰University of California Berkeley/USA

¹¹Columbia University, New York/USA

¹²University of California Davis/USA

Any opinions in this paper are those of the author(s) and not those of the Institute for Replication (I4R). Research published in this series may include views on policy, but I4R takes no institutional policy positions.

I4R Discussion Papers are research papers of the Institute for Replication which are widely circulated to promote replications and metascientific work in the social sciences. Provided in cooperation with EconStor, a service of the <u>ZBW – Leibniz Information Centre for Economics</u>, and <u>RWI – Leibniz Institute for Economic Research</u>, I4R Discussion Papers are among others listed in RePEc (see IDEAS, EconPapers). Complete list of all I4R DPs - downloadable for free at the I4R website.

I4R Discussion Papers often represent preliminary work and are circulated to encourage discussion. Citation of such a paper should account for its provisional character. A revised version may be available directly from the author.

Editors

Abel Brodeur Anna Dreber Jörg Ankel-Peters

University of Ottawa Stockholm School of Economics RWI – Leibniz Institute for Economic Research

E-Mail: <u>joerg.peters@rwi-essen.de</u>
RWI – Leibniz Institute for Economic Research
Hohenzollernstraße 1-3
45128 Essen/Germany

www.i4replication.org

ISSN: 2752-1931

Promoting Reproducibility and Replicability in Political Science

Abel Brodeur (University of Ottawa and Institute for Replication), Kevin Esterling (UC Riverside),
Jörg Ankel-Peters (RWI – Leibniz Institute for Economic Research), Natália S. Bueno (Emory University),
Scott Desposato (UC San Diego), Anna Dreber (Stockholm School of Economics),
Federica Genovese (University of Oxford), Donald P. Green (Columbia University),
Matthew Hepplewhite (Oxford University), Fernando Hoces de la Guardia (Berkeley Initiative for Transparency in the Social Sciences), Magnus Johannesson (Stockholm School of Economics),
Andreas Kotsadam (Ragnar Frisch Centre for Economic Research), Edward Miguel (UC Berkeley),
Yamil R Velez (Columbia University), Lauren Young (UC Davis)¹

This version: January 10, 2024

Abstract

This article reviews and summarizes current reproduction and replication practices in political science. We first provide definitions for reproducibility and replicability. We then review data availability policies for 28 leading political science journals and present the results from a survey of editors about their willingness to publish comments and replications. We discuss new initiatives that seek to promote and generate high-quality reproductions and replications. Finally, we make the case for standards and practices that may help increase data availability, reproducibility, and replicability in political science.

Keywords: Reproducibility, replicability, political science

¹ Corresponding author: Brodeur, University of Ottawa and Institute for Replication, <u>abrodeur@uottawa.ca</u>.

Ensuring the credibility of research findings hinges on the crucial role of reproduction and replication. By testing and verifying published research, both reproducibility and replication initiatives play vital roles in shaping scientific knowledge. These efforts enable us to evaluate the robustness of findings, transforming science into a self-correcting system that identifies and rectifies inaccuracies, ultimately influencing policy-making in significant ways. *Reproducibility* here is defined as testing if results and conclusions of original studies can be reproduced using the original studies data, while *replicability* is defined as testing if results and conclusions of original studies can be repeated using new data.

When attempting to reproduce published results, researchers often face roadblocks (Colliard et al., 2021). Published assessment studies generally report reproducibility rates below 50%, and sometimes the success rate is single-digit (Avelino et al., 2021; Gertler et al., 2018; McCullough et al., 2006). This may be due to the data not being publicly available because of their nature: administrative, proprietary and/or copyrighted data (Christensen and Miguel 2018). Furthermore, for many other studies, the required computer code is not available or incomplete (Chang and Li, 2022; Gertler et al., 2018).

A few large-scale replication projects have taken place recently, including one in psychology (Open Science Collaboration, 2015), one in experimental economics (Camerer et al., 2016) and a social science replication project (Camerer et al., 2018). Replication here means that the original study's main significant result was the focus of a new study using similar methods and tests on a fresh sample. Pooling the results of these large replication projects yielded a replication rate of about 50%.

Beyond lab experiments and especially for studies based on observational data, large-scale reproduction and replication projects have not been attempted.² Instead, most reproductions and replications involve reproducing or replicating the claims of one original study, often evoking lengthy debates about the interpretation of results. Yet, some recent reviews point at systematic problems such as p-hacking in studies based on observational data and that these problems are worse than for experimental/RCT data (see e.g., Brodeur et al., 2020; Young, 2019), which, if true, would translate into even lower replicability rates than for experimental studies. Experimental studies, in turn, are often said to be more prone to external and construct validity concerns, with obvious implications for their replicability in new settings (Esterling et al. 2023, Findley et al. 2021, Peters et al. 2018).

Low reproducibility and replicability rates may be due to many factors. First, many previous studies have been performed on small sample sizes or look at small effects, implying low statistical power (Ioannidis et al., 2017). Arel-Bundock et al. (2022) assess statistical power for about 2,000 articles in political science. They report that the median analysis has about 10% power. Second, there are typically many ways of testing a hypothesis, giving researchers many "researcher degrees of freedom" in their analysis (Simmons et al. 2011). Specification searching (or "p-hacking") has been found to be a problem in political science and related disciplines (Brodeur et al, 2016;

_

² Another type of meta-replication recently being conducted involves many research teams using the same data. For instance, in Breznau et al. (2022), seventy-three independent research teams used identical data to test the same hypothesis.

Gerber and Malhotra, 2008). Third, researchers might be tempted to select their hypotheses after the results are known (called "HARKing") on the basis of whether they yield significant results (Kerr, 1998). All these factors make it hard to disentangle true results from false positive and false negative ones.

Reproduction and replication studies are an important part of changing incentives and improving the quality and credibility of original research. They may themselves also generate new knowledge and findings that the original authors did not achieve. Other strategies to enhance transparency and credibility in scientific research include pre-registration of hypotheses and data analysis plans. Reproduction and pre-registration are complements, not substitutes. Pre-analysis plans can address the problem of p-hacking datasets and generating false positive results. Reproduction and replication, the focus of this paper, address the integrity and robustness of data and findings, and may allow for collecting additional data and testing new hypotheses. Recent efforts have sought to combine replication and pre-analysis plans, as exemplified by initiatives like the Metaketa initiative (https://egap.org/our-work/the-metaketa-initiative/), where research teams coordinate their efforts, pre-register their analyses, and often replicate the core treatments and outcomes in different settings.

In addition to the technical and logistical hurdles that prevent researchers from reproducing past evidence, the current publication incentives remain unfavorable to reproductions (Coffman, 2017; Clemens, 2017). Publication outlets may tend to favor novel conceptual insights over new tests of a published idea, regardless of what these tests find. Furthermore, it is possible that researchers aiming to publish reproductions as standalone projects may face incentives to engage in selective reporting, implying that reproduction efforts might also suffer from p-hacking and other questionable research practices (QRPs, see Bryan et al. 2019).

In this article, we first provide definitions for reproducibility and replicability. Next, we review data availability journal policies. We then present the results from a survey of editors of leading political science journals about their willingness to publish comments and replications. We discuss new initiatives that seek to promote and generate high-quality reproductions and replications. Last, we make the case for standards and practices that may help increase data availability, reproducibility, and replicability in political science.³

Definitions of Reproducibility and Replicability in Political Science

Several definitions of reproducibility and replicability have been used and proposed (see, e.g., Clemens 2017, Christensen and Miguel 2018, Ankel-Peters et al. 2023a). Dreber and Johannesson (2023) recently proposed definitions and indicators for economics that we summarize here and believe can be useful also for political science. As mentioned above, *reproducibility* is defined as using the original studies' data, while *replicability* is defined as using data other than what was used in the original studies.

_

³ We focus on reproducibility for quantitative research as the set of considerations for qualitative reproducibility is outside of the scope of this paper. For guidelines and frameworks for qualitative replication studies see Demgenski et al. (2021), Karcher et al. (2021) and O'Brien et al. (2014).

Reproducibility is furthermore divided into three types. Computational reproducibility tests the extent to which results in original studies can be reproduced using the data and code from the original studies. Recreate reproducibility tests to what extent results in original studies can be reproduced using the information in the original studies without access to the processed data set and/or the analysis code, while robustness reproducibility tests to what extent results in original studies are robust to alternative plausible analytical decisions using the same data as in the original studies.

Replicability is divided into two types. *Direct replicability* tests to what extent results in original studies can be repeated on new data using the original studies' research design and analysis (with three further sub-categories depending on if data from the same population, a similar population, or a different population is used). *Conceptual replicability* also uses new data to test to what extent results in original studies can be repeated, but for this type of replication an alternative research design and/or alternative analysis is used to test the same hypothesis as in the original study (and conceptual replicability is also further sub-divided into the same three sub-categories as direct replicability). See Dreber and Johannesson (2023) for further details and proposed indicators of reproducibility and replicability to be reported for each type.

Lack of Reproducibility and Replicability in Political Science

Reproducibility and replication efforts contribute in essential ways to the production of scientific knowledge. Within the social sciences, political scientists have pushed the frontier of research transparency on several dimensions, such as raising the issue (King, 1995), developing guidance to rigorously document research designs (Blair et al., 2019), and being early adopters of data and code availability for replication (see, for instance, Bueno de Mesquita, 2003). Other contributions include developing innovative methodologies to combat p-hacking (Young and Holsteen, 2017, Breznau et. al. 2022), proposing standard operating procedures to document deviations from pre-analysis plans (Lin and Green, 2016) and establishing a trusted repository to archive time-stamped registrations (EGAP).

Despite the importance of reproductions and replications for the production of scientific know-ledge, progress has been slow. Existing reviews of published reproduction activities mostly document small or even miniscule replication rates (Mueller-Langer et al. 2019). The present situation is unsurprising in light of the many barriers that prevent researchers from assessing the reliability of existing research. Indeed, access to data, codes and protocols is to this date not universal in political science (Dafoe, 2014).

We investigate the prevalence of data availability journal policy on a sample of 28 leading political science journals (see Appendix for more details). The analysis was conducted in early June 2023. We see this analysis as an update to the review by Gleditsch and Janz (2016). We also investigated whether the journal has a data editor or reproducibility analyst. While data editors neither check the robustness of numerical results nor their replicability, they ensure that the data and codes necessary for a computational reproducibility are available. For some journals, data editors also conduct computational reproducibility. In the event that the data cannot be shared for confidentiality reasons, the data editors typically require the authors to provide detailed information describing how other researchers may obtain the data.

Table 1: Data Availability Policy and Data Editor

| Journal | Data availability policy? | Data editor? |
|---|---------------------------|--------------|
| American Journal of Political Science | Yes | Independent |
| American Political Science Review | Yes | No |
| American Politics Research | Encourage | No |
| British Journal of Political Science | Yes | No |
| Comparative Political Studies | Yes | No |
| Comparative Politics | No | No |
| European Journal of Political Research | Yes | No |
| International Organization | Yes | No |
| International Studies Quarterly | Yes | No |
| Journal of Conflict Resolution | Yes | No |
| Journal of Experimental Political Science | Yes | No |
| Journal of Law, Economics and Organization | Yes | No |
| Journal of Politics | Yes | Yes |
| J. of Public Administration Research & Theory | Yes | No |
| Journal of Theoretical Politics | Encourage | No |
| Legislative Studies Quarterly | Encourage | No |
| Political Analysis | Yes | Yes |
| Political Behavior | Yes | No |
| Political Communication | Yes | Yes |
| Political Geography | Encourage | No |
| Political Psychology | Encourage | No |
| Political Research Quarterly | Yes | No |
| Political Science Research and Methods | Yes | Yes |
| Public Choice | Encourage | No |
| Public Opinion Quarterly | Yes | No |
| Quarterly Journal of Political Science | Yes | Yes |
| Research & Politics | Yes | No |
| Review of International Organizations | Yes | No |

With regard to the second question, four of the journals have dedicated data/replication editors, namely, Journal of Politics, Political Analysis, Political Communication, Political Science Research and Methods, and Quarterly Journal of Political Science. The American Journal of Political Science also has a verification process carried out by the Odum Institute for Research in Social Science at the University of North Carolina at Chapel Hill. This is an independent verification process that computationally reproduces numerical results for accepted articles. With regard to the first question, just one of the journals has no information on its website with regard to data or codes – Comparative Politics. Of the remaining 27 journals that were sampled, six encourage the sharing of data/codes and 21 mandate it.⁴

It is worth emphasizing that some journals also recommend or mandate reporting standards. For instance, the *Journal of Experimental Political Science* recommends adherence to reporting standards, with a reporting guidelines checklist and guidance on how to not p-hack. *Public Opinion Quarterly* requires authors to comply with disclosure requirements in the AAPOR Code of Professional Ethics -- see section III at https://aapor.org/standards-and-ethics/.

Survey of Editors

To examine the demand for replications among journals, we surveyed editors of leading journals in Political Science about their journals' policies to publish replications and comments (henceforth 'replications,' see Figure 1 for the exact wording used in the survey). The editors were approached by email by late May 2023 and a reminder was sent early June for those who did not initially respond.⁵ The journals were selected through a crowdsourcing procedure -- asking the political science Institute for Replication (I4R) board members to nominate journals and review the list. In total, 19 of 28 contacted editors responded. Figure 1 summarizes the results; the responses disaggregated by journal can be found in Table A1 in the Appendix. Most editors, 63%, stated that their journal would generally publish reproductions/replications of papers originally published in their own journal. Of those, 47% responded that they would also consider replications of papers in other journals (although for both questions, some constrained this by further criteria like the replicated paper being very relevant to the journal's readership; see the detailed responses on I4R's website – https://i4replication.org/publishing.html). In addition, we checked the websites of these 28 journals for whether their Aims & Scope or Guide for Authors state that replications or comments are considered for publication: nine of 28 journals do so. See Table A1 for journal specific details.)⁶

-

⁴ Of note, we did not check whether the 21 journals without a data editor enforce their mandatory data availability policy. Brodeur et al. (2024) provide evidence that data availability remains low for several economic journals with a mandatory data and code availability policy.

⁵ A small number of journals were initially approached by email on December 6-7, 2021. We reached out once more to the journals that did not respond in May 2023 and to those whose editor-in-chief changed.

⁶ We checked the journal websites on June 7, 2023. See as well Ankel-Peters et al. (2023a) for a similar exercise in economics. Here, 79% of editors of Top 50 journals stated that they would publish a replication on a paper published in their own journal; out of these 62% would also publish a replication of a study originally published in another journal.

Does your journal publish comments?

No Yes 63 %

Yes 53 %

Yes 47 %

Figure 1: Survey among editors of leading Political Science journals

Notes: The exact phrasing of the questions were: 1) Do you publish comments in <insert journal name here>? By comment we mean a paper that discusses and potentially challenges the empirical results from another paper, for example based on a reanalysis or additional robustness checks. 2) If yes, do you only publish comments on original papers that have previously been published in <insert journal name here> or do you also publish comments on original papers that have been published elsewhere?

Moreover, it is noteworthy that recently new opportunities to publish replications have emerged. Several journals, some new and some established, now prominently invite submissions of replications in their Aims & Scope (e.g., *Journal of Experimental Political Science* and *Political Science Research and Methods*). Research & Politics has replications as a category for submission:

- Research & Politics invites authors to consider submitting a paper that is along the lines of one or more of the following replication types:
- Theoretical replication: The submitted article argues that the original theoretical model is missing at least one key element. The missing element(s) are addressed and included in the empirical analysis.
- Technical replication: The submitted article identifies faults in the original research design or analysis, thereby arguing that the original results might not hold; and/or
- Concept replication: The submitted article questions the validity of the original study.
 An alternative measurement or operationalisation is proposed which yields different substantive results.

Although taking these steps represents progress, practical challenges hinder the widespread publication of replications. These obstacles include entrenched biases favoring the status quo and difficulties in securing reviewers willing to assess debates laden with intricate technical details, demanding substantial effort. Additionally, previous efforts by journals to signal a need for replications have not invariably translated into an increased supply of replication studies. In economics, the *Journal of Political Economy* and *Labour Economics* discontinued formats dedicated to replication due to a lack of submissions (Hamermesh 2007). Likewise, the *American Economic Review* features an online format for replications with only one published comment, according

to the editors due to a lack of submissions as well (see Ankel-Peters 2023b). Hence, there are reasons to believe that the dearth of replications in journals is also a supply problem, probably because scholars have little incentives, intrinsic or extrinsic, to engage in reproductions and replications.

Generating and Promoting Reproductions and Replications

Several authors of this article founded the Institute for Replication to address the above issues by promoting and generating reproductions and replications on an ongoing basis. I4R's main goals are to assess and improve the computational reproducibility of research and its replicability.

As of 2023, I4R reproduces and replicates studies published in the *American Journal of Political Science*, the *American Political Science Review* and the *Journal of Politics*. I4R recruits replicators for studies published in 2022 onward in those outlets. I4R's team or a data editor computationally reproduces the numerical results, allowing replicators to focus on robustness reproductions and replicability.

To assist with the recruitment of replicators, I4R set up a board of editors from various research fields and with various institutional ties, thus allowing it to cast a very wide net. An editor's task is specifically to identify potential replicators. The institute currently has a board of editors for economics, finance, and political science, which actively recruits and selects replicators for studies recently published in top journals in each field. Of note, replicators may be faculty members or graduate students.

I4R also recently developed replication games to generate reproductions and replications in political science. Replication games are meet-ups ("hackathons") open to faculty, post-docs, graduate students and other researchers. Participants join a small team and are asked to first computationally reproduce, then to carry out additional reproducibility analyses of a published paper or study in their field of interest. In practice, teams work during the event and the following weeks on testing the robustness of the results of a prior study using the same data but different analytical decisions than made by the original investigator. All replication reports are then combined into (mega) meta-papers, and all replicators are offered coauthorship.

Reproducibility and Replicability in Class

We argue that reproduction and replication of research by graduate students plays a pivotal role in upholding the integrity and credibility of scientific inquiry, laying the foundation for the advancement of knowledge. Reproducing and replicating the work of others is a fundamental and essential aspect of graduate education (Janz, 2016). Every year, students, and more generally, researchers around the world, carry out reproduction exercises, generating important pieces of new knowledge. Unfortunately, those reproductions and replications exercises are rarely publicly documented or rewarded. One recent platform developed to deal with this issue is the Social Science Reproduction Platform (SSRP). This resource standardizes and crowdsources exercises of computational reproducibility, and provides extensive guidance on how to carry out a reproduction exercise. First, students and researchers typically verify the existence of reproduction materials for an article. Second, they assess how reproducible these materials are. Third, they might

make some improvements to these materials (from fixing file paths and libraries, to translating code into a different programming language). Finally, they often explore different specifications to see which results may or may not robustly hold.

How to Make Adversarial Exchanges More Collaborative:

Reproductions and replications in academia can sometimes become adversarial. The process can potentially lead to tensions between the replicators and the original authors if the replication study fails to replicate the original findings (Laitin and Reich, 2017). This can occur due to various reasons such as differences in sample characteristics, variations in experimental conditions, or even methodological limitations of the replication study itself. When the replication results contradict the original findings, it may challenge the credibility and impact of the original study, leading to a defensive response from the original authors.

Another factor that can contribute to adversarial relations is that the original authors may perceive the replication as an attempt to undermine their work, and as a result, may respond defensively or dismissively, seeking to protect their intellectual contributions.

To mitigate adversarial dynamics, fostering open communication, transparency, and collaboration between replicators and original authors is crucial. I4R, for instance, deals with communication between original authors and replicators (Brodeur et al., 2023). By acting as an intermediary between authors and replicators, it helps researchers collectively contribute to a more robust and reliable body of knowledge and makes exchanges less adversarial. An additional approach for enhancing the efficiency of conflict resolution might involve embracing the framework of adversarial collaborations as proposed by Kahneman and Klein (2009) which are increasingly being used in different areas of the social sciences (e.g., Clark and Tetlock, 2023).

Incentives for Replicators

Engaging in replication studies can carry potential negative consequences for the career of replicators. These consequences can arise from a variety of factors, including the prevailing limited incentives.

First, replicators may find it challenging to gain recognition and visibility for their work, as replication studies may be difficult to publish and are often less recognized by their peers. Additionally, replication studies can elicit negative reactions from original authors, as discussed earlier. If replicators challenge or refute the original findings, they may face criticism, or even personal attacks from the authors or their supporters. These adversarial interactions can create a hostile environment for replicators and potentially damage their professional relationships within the academic community.

⁷ Schafmeister (2021) provides evidence that failed replications are cited equally to successful replications, while Serra-Garcia and Gneezy (2021) find that they are cited more.

⁸ Nonetheless, there are many instances in which the replicator(s) received acclaim for work that overturned important findings. See, for instance, McCrary (2002). There are also large-scale debates about the suitability of regression discontinuity applications.

Second, dedicating time and resources to replication studies may divert replicators' attention from pursuing their original research agendas. The time spent replicating studies and addressing potential challenges can slow down their career progression and limit their ability to build a unique research portfolio.

To mitigate some of these negative consequences, we make the case for a growing recognition of the importance of replication studies within political science. One solution is to combine replications into large meta-papers. Being granted coauthorship to a meta-paper encourages researchers to replicate studies and changes incentives and the way replication is conducted. This is in part due to the fact that replicators work in teams and are not as pressured to show that the original findings are not replicable or robust. Moreover, meta-papers allow for estimating a replication rate within a discipline or subfield. Inferring the replication rate from published one-on-one reproductions and replications is not possible since problematic reproductions and replications are more inclined to be conducted in the first place and also more likely to be published. Last, one key editorial policy at I4R is that replicators may remain anonymous and still get coauthorship to a meta-paper. However, the identity of the replicator is known to the editorial board that vetted this person and their work.

Conclusion and Recommendations

Leading political science journals have recently adopted innovative open science practices, incorporating policies that emphasize the availability of data and code, along with the inclusion of reproducibility analysts. We believe more journals ought to implement similar policies in a way that does not stifle creativity and that minimizes excess burden for researchers, editors and journal staff.

A key question going forward, which we have not addressed is "Which papers should be replicated?" We believe greater reflection is warranted on this matter. Interesting options include crowd forecasts to determine which papers are likely to run into replication failures. Crowdsourcing may also be helpful in prioritizing the papers that most demand replication (either because the papers are very important or because their findings are especially dubious).

We urge researchers, journal editors, and funders to start holding political science to higher open science standards, and supporting and facilitating the conduct and publication of replication and reproducibility studies. We make three recommendations:

- (1) We call on the *American Political Science Association* sections (or at least the experiments section) for an award for best replication/extension study.
- (2) We urge the creation of an outlet dedicated to replications backed up by one of the large disciplinary professional associations (for which impact factor might not be a primary consideration).
- (3) We also recommend that more political science journals start using data editors to improve computational reproducibility.

References:

Ankel-Peters J, Fiala N and Neubauer F (2023a). Do Economists Replicate? *Journal of Economic Behavior & Organization* 212: 219-232.

Ankel-Peters J, Fiala N and Neubauer F (2023). *Is Economics Self-Correcting? Replications in the American Economic Review*. Ruhr Economic Papers No. 1005.

Arel-Bundock V et al. (2022). *Quantitative political science research is greatly underpowered* I4R Discussion Paper Series No. 6.

Avelino G et al. (2021). Transparency and Replication in Brazilian Political Science: A First Look. *Dados 64*.

Blair G et al. (2019). Declaring and Diagnosing Research Designs. *American Political Science Review* 113(3): 838-859.

Breznau N. et al. (2022). Observing Many Researchers Using the Same Data and Hypothesis Reveals a Hidden Universe of Uncertainty. *Proceedings of the National Academy of Sciences* 119(44): p.e2203150119.

Brodeur A, Cook N and Neisser C (2024). P-Hacking, Data Type and Data-Sharing Policy. *Economic Journal*. Epub ahead of print 5 January 2024. DOI: 10.1093/ej/uead104.

Brodeur A, Cook N and Heyes A (2020). Methods Matter: P-hacking and Publication Bias in Causal Analysis in Economics. *American Economic Review* 110(11): 3634-60.

Brodeur A. et al. (2016). Star Wars: The Empirics Strike Back. *American Economic Journal: Applied Economics* 8(1), 1-32.

Brodeur A. et al. (2023). Replication Games: How to Make Reproducibility Research More Systematic. *Nature 621*(7980), 684-686.

Bryan C J, Yeager D. S. and O'Brien J. M. (2019). Replicator Degrees of Freedom Allow Publication of Misleading Failures to Replicate. *Proceedings of the National Academy of Sciences* 116(51): 25535-25545.

Bueno de Mesquita B. et al. (2003). Symposium on Replication in International Studies Research. *International Studies Perspectives* 4(1): 72-107.

Camerer C. F. et al. (2018). Evaluating the Replicability of Social Science Experiments in Nature and Science between 2010 and 2015. *Nature Human Behaviour* 2(9): 637-644.

Camerer C. F. et al. (2016). Evaluating Replicability of Laboratory Experiments in Economics. *Science* 351(6280): 1433-1436.

Chang, A. C. and Li P. (2022). Is Economics Research Replicable? Sixty Published Papers From Thirteen Journals Say "Often Not". *Critical Finance Review* 11(1), 185-206.

Christensen G, Miguel E. (2018). Transparency, Reproducibility, and the Credibility of Economics Research. Journal of Economic Literature, 56, 920-980.

Clark C. J. and Tetlock P. E. (2023). Adversarial Collaboration: The Next Science Reform. In Frisby C. L., Redding R. E., O'Donohue W. T. and Lilienfeld S. O. (eds) *Ideological and Political Bias in Psychology: Nature, Scope, and Solutions*. Cham: Springer International Publishing, pp. 905-927.

Clemens M. A. (2017). The Meaning of Failed Replications: A Review and Proposal. *Journal of Economic Surveys* 31: 326–342.

Colliard J. E. et al. (2021). *The Economics of Research Reproducibility*. HEC Paris Research Paper No. FIN-2019-1345.

Dafoe A. (2014). Science Deserves Better: The Imperative to Share Complete Replication Files. *PS: Political Science & Politics* 47(1): 60-66.

Demgenski R. et al. (2021). Introducing the Qualitative Data Repository's Curation Handbook. *Journal of eScience Librarianship*, 10(3).

Dreber A. and Johannesson M. (2023). *A Framework for Evaluating Reproducibility and Replicability in Economics*. I4R Discussion Paper Series No. 38.

Esterling K. M. et al. (2023). *The Necessity of Construct and External Validity for Generalized Causal Claims*. I4R Discussion Paper Series No. 18.

Findley, M.G., et al. (2021). External Validity. Annual Review of Political Science 24: 365-393.

Gleditsch N. P. and Janz N. (2016). Replication in International Relations. *International Studies Perspectives* 17(4): 361-366.

Gerber A. and Malhotra N. (2008). Do Statistical Reporting Standards Affect What is Published? Publication Bias in Two Leading Political Science Journals. *Quarterly Journal of Political Science* 3(3): 313-326.

Gertler P. Galiani S. and Romero M. (2018). How to Make Replication the Norm. *Nature* 554(7693): 417-419.

Hamermesh D. S. (2007). Viewpoint: Replication in Economics. *Canadian Journal of Economics* 40: 715–733.

Ioannidis J. P., Stanley T. D. and Doucouliagos H. (2017). The Power of Bias in Economics Research. *Economic Journal* 127(605): 236-265.

Janz N. (2016). Bringing the Gold Standard into the Classroom: Replication in University Teaching. *International Studies Perspectives* 17(4), 392-407.

Kahneman D. and Klein G. (2009). Conditions for Intuitive Expertise: A Failure to Disagree. *American Psychologist 64*(6): 515.

Karcher et al. (2021). How data curation enables epistemically responsible reuse of qualitative data. *The Qualitative Report*.

Key E. M. (2016). How Are we Doing? Data Access and Replication in Political Science. *PS: Political Science & Politics* 49(2): 268-272.

King G. (1995). Replication, Replication. PS: Political Science & Politics 28(3): 444-452.

Laitin D. D. and Reich R. (2017). Trust, Transparency, and Replication in Political Science. *PS: Political Science & Politics* 50(1): 172-175.

Lin, W. and Green D. P. (2016). Standard Operating Procedures: A Safety Net for Pre-analysis Plans. *PS: Political Science & Politics* 49(3): 495-500.

McCrary J. (2002). Using Electoral Cycles in Police Hiring to Estimate the Effect of Police on Crime: Comment. *American Economic Review* 92(4): 1236-1243.

McCullough B. D., McGeary K. A. and Harrison T. D (2006). Lessons from the JMCB Archive. *Journal of Money, Credit and Banking* 38(4): 1093-1107.

O'Brien et al. (2014). Standards for reporting qualitative research: a synthesis of recommendations. *Academic Medicine* 89(9): 1245-1251.

Peters J. Langbein J. and Roberts G. (2018). Generalization in the Tropics—Development Policy, Randomized Controlled Trials, and External Validity. *The World Bank Research Observer* 33(1): 34-64.

Schafmeister F. (2021). The effect of Replications on Citation Patterns: Evidence from a Large-Scale Reproducibility Project. *Psychological Science* 32(10): 1537-1548.

Serra-Garcia M. and Gneezy U. (2021). Nonreplicable Publications Are Cited More than Replicable Ones. *Science Advances* 7(21): eabd1705.

Simmons J. P., Nelson L. D. and Simonsohn U. (2011). False-Positive Psychology: Undisclosed Flexibility in Data Collection and Analysis Allows Presenting Anything as Significant. *Psychological Science* 22(11): 1359–1366.

Young C. and Holsteen K. (2017). Model Uncertainty and Robustness: A Computational Framework for Multimodel Analysis. *Sociological Methods & Research* 46(1): 3-40.

Institute for Replication I4R DP No. 100

Online Appendix

Table A1: Responses to the survey among editors of 28 Political Science journals

| Journal | Contacted editors | [Q1] Do you publish comments? | [Q2] If yes, do you also publish com- ments on original pa- pers that have been published elsewhere? | Does the website mention that the journal publishes comments or replications? |
|---|-------------------------------------|-------------------------------------|--|---|
| American Journal of Political Science | Kathleen Dolan, Jennifer Lawless | No | No | No |
| American Political Science Review | Aili Mari Tripp | Yes | Yes | Yes |
| British Journal of Political Science | Robert A. Johns | Yes | Yes | Yes |
| Comparative Political Studies | David Samuels | No | No | No |
| Comparative Politics | Yekaterina Oziashvili | No | No | No |
| European Journal of Political Research | Emiliano Grossman | Yes | Yes | No |
| International Organization | Erik Voeten | Yes | Yes | No |
| International Studies Quarterly | Brandon C. Prins | Yes | No | No |
| Journal of Conflict Resolution | Paul Huth | Yes | No | No |
| Journal of Experimental Political Science | Kevin Arceneaux | Yes | No | Yes |
| Journal of Public Administration Research and Theory | Mary K. Feeney | No | No | No |
| Legislative Studies Quarterly | Guillermo Rosas | Yes | Yes | No |
| Political Analysis | Jeff Gill | No | No | Yes |
| Political Communications | Regina G. Lawrence | No | No | Yes |
| Political Research Quarterly | Seth C. McKee | No | No | No |
| Public Opinion Quarterly | Eric Plutzer | Yes | Yes | Yes |
| Quarterly Journal of Political Science | Anthony Fowler | Yes | Yes | No |

| Journal | Contacted editors | [Q1] Do you publish comments? | = | Does the website mention that the journal publishes comments or replications? |
|--|--------------------|-------------------------------------|-----|---|
| Research & Politics | Kevin M. Esterling | Yes | Yes | Yes |
| Review of International Organizations | Axel Dreher | Yes | Yes | Yes |
| No responses from editors | | | | |
| American Politics Research | - | | | No |
| Journal of Law, Economics and Organization | - | | | No |
| Journal of Politics | - | | | No |
| Journal of Theoretical Politics | - | | | No |
| Political Behavior | - | | | No |
| Political Geography | - | | | Yes |
| Political Psychology | - | | | No |
| Political Science Research and Methods | - | | | Yes |
| Public Choice | - | | | No |

Notes: For Q1 and Q2, we further specified the word comment: "By comment we mean a paper that discusses and potentially challenges the empirical results from another paper, for example based on a reanalysis or additional robustness checks." The last column is based on a review of journal websites, while Q1 and Q2 were part of the editor survey. The APSR website mentions in its Q&A section that letters can be submitted in case an "error [in a previously published paper] might not be a 'mistake' (e.g. in interpretation or coding), but instead reflect a substantive scholarly debate about theory, evidence, or method in political science."

Full Answers from Survey of Editors

1- American Journal of Political Science – Kathleen Dolan and Jennifer Lawless

"We don't publish comments."

- 2- American Political Science Review Aili Mari Tripp
- "Q1: Yes, we would consider publishing a comment in our Letter (research notes) format that challenges the empirical results from another paper if
- i) the article is of interest to a sufficiently broad section of our readership; or ii) if the article makes a methodological advance that would be of interest to a broader readership.
- Q2: We have generally avoided publishing comments on manuscripts published elsewhere. We privilege commentary on our own articles, as we believe that the responses to articles in other journals belong in those journals. But this is not to say that we would never consider doing this. It would depend on the importance of the debate and the extent to which the issues are of general interest. But as a general principle, we would not do so."
- 3- British Journal of Political Science Robert A. Johns
- "Q1: Yes, we do. Not many -- perhaps one every second issue, or something like that -- but some.

(Quite a few -- maybe even half -- of these are accompanied by a follow-up rejoinder from the original author, although that's as far as we take an exchange.)

Q2: We don't have a rule against comments on papers published elsewhere, and occasionally that happens, but the clear majority of our comments are on BJPolS papers. That's partly because we feel more of an obligation to correct/refine findings published in our own journal. It's also because I guess there's a natural 'level' issue here: we probably wouldn't publish a comment on an article in a journal well below us in the rankings/prestige/hierarchy, simply because the original contribution is unlikely to have been of a size that we'd have published in the first place; meanwhile, someone wanting to comment on an article in the AJPS is unlikely to want to publish it with us."

4- European Journal of Political Research – Emiliano Grossman

"The quick answer ist that we do not have a specific format for this."

We have done it recently in an ad hoc move in response to an author who approached us regarding a recently published paper (by us). We published his comment as a "research note", an existing format. While we may do this again, subject to agreement bw the three editors, we do not currently have a policy on this."

5- International Organization – Erik Voeten

"We do not have a separate comments or letters to the editors section."

We do publish research notes that are based on replications of articles we have published and occasionally articles that were published elsewhere. Those notes go through the regular review process."

6- International Studies Quarterly – Brandon C. Prins

"Q1. Yes.

Q2: Only publish responses to manuscripts published in ISQ."

7- Journal of Experimental Political Science – Kevin Arceneaux

"This is a bit of a theoretical question for us, because we have yet to receive a submission directly challenging something published in the journal, but if we did, we would be open to publishing it as a comment that allows the authors of the original piece to respond. For your second question, I have a complicated response. We would only consider publishing a paper that "comments" on a publication in a venue other than JEPS if it consisted of original research (e.g., a replication study), but we would not consider it if it only re-analyzed data published elsewhere. I should also add that these polices are not written in stone and perhaps a future editorial team will do something different!"

8- Political Research Quarterly – Seth C. McKee

"As a rule, no, we do not publish comments in Political Research Quarterly. We have not done this at all under our editorial tenure."

9- Public Opinion Quarterly – Eric Plutzer

"Q1: Yes we do. But we do not distinguish these from any other submission.

Indeed, every submission "discusses" empirical results from other papers and a large majority of submissions "challenge" prior empirical results. A "Comment" is often a special case, one that focuses on a single paper's conclusions. If we receive such a submission, we treat it like any other, with one exception: at least one author of the targeted article is invited to serve as a reviewer in the double-blind condition. If the commenter is assured that one of the original authors will be a reviewer, I think there is a pressure towards professional, less aggressive and less pejorative framing. The original author can choose to disclose their identity or not. We can take into account potential conflicts of interest when reviewing the full set of reviews. Here is a recent example: Urbatsch, R., 2020. Revisiting "The First-Daughter Effect". Public Opinion Quarterly, 84(2), pp.523-537. I think the process worked well in this case. Q2: This is irrelevant since we do not

treat comments differently from any other submission. If the contribution to knowledge is substantial, it makes no difference where the original findings were published (and vice verse). It's useful to add that if a third party points out a simple error (e.g., a variable was reverse coded and thereby mis-interpreted by the authors, or the authors incorrectly included or excluded cases, etc.), the preferred mechanism is collegial: (a) the person who identified the error contacts the authors, hopefully copying us in the email thread, and then (b) the authors formulate a corrigendum, (c) which we publish. There is no need for the "corrector" to have authorship in these cases. We publish corrigenda from time to time and many are the result of these normal collegial interactions. We've never had a retraction, but in the case of a more serious error, that could occur. That is how science ought to work."

10- Research & Politics – Kevin M. Esterling

"Yes to both questions. R&P does strongly encourage and publish both replications and comments.

We have a clear policy for dealing with replication studies which is detailed here: https://journals.sagepub.com/author-instructions/RAP#ArticleTypes."

11- Review of International Organizations – Axel Dreher

"Q1: Yes. Q2: Also elsewhere (explicit journal policy)."

12- Journal of Politics: No response.

Data Availability Journal Policy

American Journal of Political Science

The corresponding author of a manuscript that is accepted for publication in the American Journal of Political Science must provide materials that are sufficient to enable interested researchers to verify all of the analytic results that are reported in the text and supporting materials.

All verification files must be stored in a Dataset within the AJPS Dataverse, on the Harvard Dataverse Network.

When the final draft of the manuscript is submitted, the materials will be verified to confirm that they do, in fact, reproduce the analytic results reported in the article.

Publication in the American Journal of Political Science is contingent upon provision of complete verification materials and successful verification of their content.

American Political Science Review

Upon conditional acceptance for publication in the APSR, authors (particularly those whose work directly engages human participants in the research process) will be expected to prepare and deposit in the APSR Dataverse the datasets and code necessary to reproduce all results described in the text and any appendix, including in-text references to tests or statistics, tables, figures, or other illustrations, unless legal, ethical or methodological constraints prevent such data sharing.

American Politics Research

Authors can upload the code associated to their published article so that readers can view and execute it.

British Journal of Political Science

Authors of accepted articles using quantitative data are required to deposit (1) their data, (2) the codebook or any other relevant description of the data, which includes information about the source of the analysis data and instructions for extracting the analysis data from source data, (3) a file containing the exact and detailed commands used by author to reproduce all tables, figures, and exhibits (i.e., "do" or "run" files), and (4) a file containing the actual output from the statistical software used (i.e., "log" or "output" file) on the BJPolS Dataverse

Comparative Political Studies

Papers that present quantitative analyses will not be granted final acceptance until replication materials (data, code, log files etc.) have been deposited at the CPS Dataverse.

Comparative Politics

No policy.

European Journal of Political Research

Manuscripts accepted for publication must be in line with the common ECPR policy on data access and research transparency. This implies that we will request authors of papers partially or fully relying on

quantitative data to submit all data required to enable full replication; this data will be published as an online appendix together with the manuscript.

International Organization

Prior to final acceptance, results of papers using quantitative data and proofs of formal models will be verified by *IO* staff. The editors will not issue final acceptances until all results of all reported analyses are confirmed. Authors of papers using quantitative data must provide the data and accompanying command files to reproduce tables presented in the paper and support any other claims made in the manuscript based on analysis of the data (for example, results verbally described in the main text or in footnotes).

Upon final acceptance, authors should upload quantitative data sets and supporting files to the IO Dataverse.

International Studies Quarterly

We require that quantitative data used in accepted articles are successfully replicated by our editorial team prior to publication. When their articles are accepted for publication with the journal, authors must also submit quantitative data used in articles to our Dataverse site.

Journal of Conflict Resolution

Authors of quantitative empirical articles must make their data and other relevant material available for replication purposes. Please note the firm *JCR* replication policy. The *JCR* will not publish any articles (in print or online) until the Editor has received all the necessary replication materials. Required material would include all data, specialized computer programs, program recodes, and an explanatory file describing what is included and how to reproduce the published results. This material must be posted by the month of publication.

Journal of Experimental Political Science

Before final acceptance, authors of empirical papers (either using experimental or observational data) will be required to submit additional files for replication purposes.

Authors should submit data and other replications files in a single folder to the JEPS Dataverse site.

Journal of Law, Economics and Organization

It is the policy of *The Journal of Law, Economics, & Organization* to publish papers only if the data used in the analysis are clearly and precisely documented and are available to any researcher for purposes of replication. Authors of accepted papers that contain empirical work, simulations, or experimental work must provide to *The Journal of Law, Economics, & Organization*, prior to publication, the data, programs, and other details of the computations sufficient to permit replication. These will be posted on the *JLEO* website.

Journal of Politics

Acceptance is conditional on successful replication of empirical (quantitative or qualitative) analysis.

Authors of quantitative papers must submit their data and all associated replication files to the JOP's Dataverse.

Journal of Public Administration Research and Theory

JPART requires all authors, where ethically possible, to publicly release all data and software code underlying any published paper as a condition of publication. Authors are required to include a Data Availability Statement in their article.

We require that data be presented in the main manuscript or additional supporting files, or deposited in a public repository whenever possible.

Journal of Theoretical Politics

Authors are encouraged to share research data in a relevant public data repository.

Legislative Studies Quarterly

This journal expects data sharing.

Political Analysis

The authors of conditionally accepted manuscripts must provide data, code, and other necessary materials and make them publicly available prior to publication.

Political Behavior

Authors of accepted manuscripts will be required to deposit all of the data and script files needed to replicate the published results in a trusted data repository such as ICPSR or Dataverse. Manuscripts will not be published, even online, until those data are made available.

Political Communication

At the point of submission, you will be asked if there is a data set associated with the paper. If you reply yes, you will be required to provide the DOI, pre-registered DOI, hyperlink, or other persistent identifier associated with the data set(s).

Political Geography

To facilitate reproducibility and data reuse, this journal also encourages you to share your software, code, models, algorithms, protocols, methods and other useful materials related to the project.

Political Psychology

Authors are not required to share their data/materials or to pre-register their studies, rather they are required to indicate whether or not they have done so.

Political Psychology requires authors to include a declaration that indicates whether or not the data, methods used in the analysis, and materials used to conduct the research will be made available to any researcher for purposes of reproducing the results or replicating the procedure.

Political Research Quarterly

The corresponding author of a manuscript accepted for publication is expected to address data availability and replication in the final draft, typically in a footnote. *PRQ*'s authors may use an online public archive of their choice, or may submit their replication data directly to the *PRQ* editorial office for long-term storage on SAGE Publications' servers, where they will be accessible as supplementary material through *PRQ*'s website. While the data necessary to replicate results are required to be publicly available, we also suggest that authors include any codebook, specialized computer programs, lists of computer program recodes, or program-specific syntax files, as appropriate.

Political Science Research and Methods

Authors are required to make replication material publicly available at time of publication of the article. The replication materials must be sufficient to replicate results in all tables and figures printed in the article and in the online appendix, including simulation material for both theoretical (e.g. agent based models) and empirical (e.g. Monte Carlo experiments) work.

Data and replication code for your article, as well as a log demonstrating smooth running of all the replication files, must be uploaded in a single .zip file to the PSRM Dataverse at https://dataverse.harvard.edu/dataverse/PSRM.

Public Choice

A submission to the journal implies that materials described in the manuscript, including all relevant raw data, will be freely available to any researcher wishing to use them for non-commercial purposes, without breaching participant confidentiality.

The journal strongly encourages that all datasets on which the conclusions of the paper rely should be available to readers. We encourage authors to ensure that their datasets are either deposited in publicly available repositories (where available and appropriate) or presented in the main manuscript or additional supporting files whenever possible.

Public Opinion Quarterly

Our *Open Science and Replication Policies* require all authors of accepted manuscripts to either (a) place replication data and code in a permanent archive or (b) secure an exception from the editors.

Quarterly Journal of Political Science

Authors of empirical papers may be asked to supply a replication data set for editors or referees. Upon acceptance of a manuscript, authors will be required to submit a replication dataset/archive prior to publication. The dataset, documentation, command files, etc. will be reviewed in-house and made available at this site coincident with publication.

Research & Politics

Making datasets publicly available is also a policy of Research & Politics. Authors should ensure that data is available at the time of publication through a recognised third party data repository and will be prompted to upload their data to Dataverse on acceptance of their article. The manuscript will not be

moved through to Production until data is uploaded to a third party data repository and the link has been provided as instructed on acceptance. If cited data is restricted (e.g. classified, require confidentiality protections, were obtained under a non-disclosure agreement, or have inherent logistical constraints), authors must notify the editor at the time of submission. The editor shall have full discretion to follow their journal's policy on restricted data, including declining to review the manuscript of granting an exemption with or without conditions. The editor shall inform the author of this decision prior to review.

It is the responsibility of the author to make their data available via third party repository. It is preferred that data is uploaded to the Research & Politics Dataverse site.

Review of International Organizations

Authors publishing in this journal must provide a data availability statement as part of their articles.

Authors are encouraged to share their data or other materials underpinning their study, but are not required to do so.

The journal does not require that research data are shared in a repository, although authors are recommended to do so if possible.

American Journal of Political Science



When the final draft of the manuscript is submitted, the materials will be verified to confirm that they do, in fact, reproduce the analytic results reported in the article. For quantitative analyses, the verification process is carried out by the Archive Staff at the Odum Institute for Research in Social Science, at the University of North Carolina, Chapel Hill. For qualitative analyses, the verification process will be handled by the staff of the Qualitative Data Repository (QDR), at Syracuse University. Immediately after successful verification, the Odum Institute staff or the QDR staff will release the Dataset for public access and the AJPS Editorial Staff will forward the final draft of the manuscript to the publisher for copyediting, production, and publication. The AJPS Editor retains the final authority for determining whether an article's verification materials will be verified by the Odum Institute or the QDR. Publication in the American Journal of Political Science is contingent upon provision of complete verification materials and successful verification of their content.

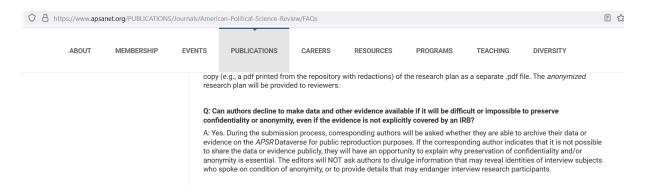
AJPS articles that do not contain empirical data analyses are not subject to this verification policy. In some limited circumstances, an author may request an exemption from the verification policy. This exemption would allow the author to withhold or limit public access to some or all of the data used in an analysis. All other verification materials (e.g., software commands, etc.) still must be provided. The primary reasons for such exemptions are restricted access to datasets and human subjects protection. If an exemption is granted, then the author must include a note at the beginning of the published article explicating acknowledging the limitations on data availability and describing the restrictions that prevent public access to the exempted data. Any exemptions from the verification policy must be approved explicitly by the AJPS Editor, who retains final authority to decide whether the requested exemption will be granted.

American Political Science Review

Upon conditional acceptance for publication in the APSR, authors (particularly those whose work directly engages human participants in the research process) will be expected to

- affirm a set of ethical and/or transparency declarations related to these principles;
- submit an appendix that explains any exceptions or issues related to the above principles, revised if relevant in light of comments from reviewers and editors, including relevant additional documents, such as but not limited to
- ethics certificates or approvals from all organizations that approved the research and/or
- other research documentation, such as survey instruments, interview guides, or other codebooks; and
- for quantitative research, prepare and deposit in the APSR Dataverse the datasets and code necessary to reproduce all
 results described in the text and any appendix, including in-text references to tests or statistics, tables, figures, or other
 illustrations, unless legal, ethical or methodological constraints prevent such data sharing.

The corresponding author will be responsible for preparing these materials and submitting them for archiving in the APSR Dataverse.



American Politics Research

Code Ocean Trial

Through 2019 American Politics Research is running a trial with Code Ocean. Authors can upload the code associated to their published article so that readers can view and execute it. The platform, which is based on Docker, hosts the code and data in the necessary computational environment and allows users to re-run the analysis in the cloud and reproduce the results, bypassing the need to install the software. A link to the code, data and computational environment will be included in the journal article enabling readers to seamlessly access and reproduce the code or rerun it against their own inputs. Please visit this page for more information and instructions for how to utilise this service for your article. If you wish to use this service, please upload your code as soon as possible after receiving an acceptance letter, to ensure the code can be linked to your article during the production process.

British Journal of Political Science

The *British Journal of Political Science* (*BJPolS*) is a signatory of the Data Access and Research Transparency (DA-RT) statement, promoting data sharing and research transparency in Political Science. The journal thus maintains a strict policy requiring authors of accepted articles using quantitative data to provide all data and code necessary to reproduce their results.

Authors of accepted articles using quantitative data are required to deposit (1) their data, (2) the codebook or any other relevant description of the data, which includes information about the source of the analysis data and instructions for extracting the analysis data from source data, (3) a file containing the exact and detailed commands used by author to reproduce all tables, figures, and exhibits (i.e., "do" or "run" files), and (4) a file containing the actual output from the statistical software used (i.e., "log" or "output" file) on the *BJPolS* Dataverse:

https://dataverse.harvard.edu/dataverse/BJPolS

Authors may post the data on their own websites as well, but the version cited in the article must be the Dataverse one. Please include the following sentence following the acknowledgments:

"The data, replication instructions, and the data's codebook can be found at https://dx.doi.org/doi xxxxxx."

Where "xxx" is the article-specific DOI generated by Dataverse.

Authors are encouraged to include additional information such as mentioning, listing, or describing any specialized software that competent scholars in the field might need to reproduce the results. The replication material has to be deposited on Dataverse as soon as possible after the acceptance of the manuscript.

Articles are held back at the copy editing stage until the replication materials are deposited and it has been checked that these materials have been properly deposited in Dataverse.

Comparative Political Studies

11. **Replication materials**: Papers that present quantitative analyses will not be granted final acceptance until replication materials (data, code, log files etc.) have been deposited at the CPS Dataverse, at https://dataverse.harvard.edu/dataverse/cps. Embargoes on proprietary data may be considered. Accepted papers may also include online-only appendices that explain and comment on data-gathering procedures, particularly if they employ qualitative analysis.

Comparative Politics

European Journal of Political Research

Transparency

At EJPR we are committed to transparency in research. We therefore strongly advise authors to make data and any other supporting information available in an anonymised appendix file. Those materials will be sent to the reviewers together with the PDF proof of the manuscript.

Manuscripts accepted for publication must be in line with the common ECPR policy on data access and research transparency. This implies that we will request authors of papers partially or fully relying on quantitative data to submit all data required to enable full replication; this data will be published as an online appendix together with the manuscript. If authors find it hard to comply with this policy, they are requested to get in touch with the editorial team prior to submission of the manuscript to discuss their situation (ejpr@ecpr.eu).

International Organization

Research transparency

Prior to final acceptance, results of papers using quantitative data and proofs of formal models will be verified by *IO* staff. The editors will not issue final acceptances until all results of all reported analyses are confirmed. Authors of papers using quantitative data must provide the data and accompanying command files to reproduce tables presented in the paper and support any other claims made in the manuscript based on analysis of the data (for example, results verbally described in the main text or in footnotes). The editorial staff will request data at the time of conditional acceptance; authors do not need to provide data or command files upon initial submission. Authors of papers including formal models must provide complete proofs at the time of initial submission. We also encourage authors of papers using qualitative data to be as transparent as possible about their research methodology and, with ethical considerations in mind, provide as much information as feasible to allow others to verify their claims.

IO Dataverse

Upon final acceptance, authors should upload quantitative data sets and supporting files to the IO Dataverse. The Dataverse entry should_include the article title and abstract; Dataverse will provide a DOI (a permanent identifier) for the entry, which should be included in the published article.

International Studies Quarterly

Data and Formal Models

Authors should present quantitative data and elucidate statistical models in forms that are accessible to a general audience. Statistical tables should include names for both variable rows and model columns that are comprehensible, and should report both coefficients and standard errors. Asterisks or other indicators to denote statistical significance should be included where relevant, but must be consistent across the manuscript.

The International Studies Association and ISQ are committed to the transparency of scholarship and accumulation of knowledge. Therefore, we require that quantitative data used in accepted articles are successfully replicated by our editorial team prior to publication. When their articles are accepted for publication with the journal, authors must also submit quantitative data used in articles to our Dataverse site. For more information, contact the editorial team.

Authors using formal models should clearly specify their technical innovation(s) as one of the contributions of the manuscript. When presenting formal models, authors should strive for simple and parsimonious notation. Purely technical developments, such as proofs, should be presented in a clearly written appendix, which may be submitted as supplementary materials. This technical appendix should enable any sophisticated reader to check the mathematical proofs.

Journal of Conflict Resolution

Replication Policy. Authors of quantitative empirical articles must make their data and other relevant material available for replication purposes. Please note the firm JCR replication policy. The JCR will not publish any articles (in print or online) until the Editor has received all the necessary replication materials. Required material would include all data, specialized computer programs, program recodes, and an explanatory file describing what is included and how to reproduce the published results. This material must be posted by the month of publication. Information that must remain confidential--such as that which would identify survey respondents--should be removed. All files should be sent electronically to the Managing Editor at https://journals.sagepub.com/home/jcr. In addition, authors may post their data files on their own websites or anywhere else they wish. Users of all data posted at the JCR SAGE web site will be expected to acknowledge the posting used.

Journal of Experimental Political Science

b. Data and Relevant Replication Information: Before final acceptance, authors of empirical papers (either using experimental or observational data) will be required to submit additional files for replication purposes. For experiments these files should include original experimental instructions or other experimental instruments used in the study such as surveys, videos, computer programs, etc., and the raw data from the experiment. For empirical papers using either experimental or observational data, authors should upload to Dataverse: 1) the raw data, prior to any recoding or combining of variables, 2) well-commented code used to recode the data and produce the final dataset, 3) well-commented code used to produce results in the article and online appendix (placed in the order that the results appear in the manuscript), 4) a log file that displays the results produced by running the code, and, 5) a ReadMe file that includes descriptions of the other files, any variables used in the analysis and a description of how previous intermediate data sets and programs were used to create the final data sets. The data files and code can be provided in any format using any statistical package or software. If a request for an exemption based on proprietary data is made, authors should inform the editors if the data can be accessed or obtained in some other way by independent researchers for purposes of replication. Authors are also asked to provide information on how the proprietary data can be obtained by others in their Readme file. A copy of the code used to create the final results is still required.

c. Submission of data: Authors should submit data and other replications files in a single folder to the JEPS Dataverse site, which can be found here: https://dataverse.harvard.edu/dataverse/xps. For more detailed instructions see the author's guide for uploading your data and replication files to the JEPS Dataverse.

Journal of Law, Economics and Organization

It is the policy of *The Journal of Law*, *Economics*, & *Organization* to publish papers only if the data used in the analysis are clearly and precisely documented and are available to any researcher for purposes of replication. Authors of accepted papers that contain empirical work, simulations, or experimental work must provide to *The Journal of Law*, *Economics*, & *Organization*, prior to publication, the data, programs, and other details of the computations sufficient to permit replication. These will be posted on the *JLEO* website.

Journal of Politics

Replication of empirical analysis: Acceptance is conditional on successful replication of empirical (quantitative or qualitative) analysis. For more information see "Instructions for Authors of Accepted Manuscripts" below.

Data and Replication Files: Note that authors of quantitative papers **must submit their data and all associated replication files** to the *JOP*'s Dataverse. While it is not necessary to provide this information at the R-and-R stage, please note that this is a required step at the "Accept with Revisions" (i.e., "Conditional Accept") stage.

Journal of Public Administration Research and Theory

Availability of Data and Materials

JPART requires all authors, where ethically possible, to publicly release all data and software code underlying any published paper as a condition of publication. Authors are required to include a Data Availability Statement in their article.

We require that data be presented in the main manuscript or additional supporting files, or deposited in a public repository whenever possible. Information on general repositories for all data types, and a list of recommended repositories by subject area, is available here.

Authors may request an exemption to withhold or limit public access to some or all data. Any such exemptions due to legal, ethical, or methodological constraints must be explicitly approved by the *JPART* Editor, who retains final authority to decide whether the requested exemption will be granted. The corresponding author must inform the *JPART* Editor that they will be requesting an exemption and explain the reasons for the request when the manuscript is conditionally accepted. If the *JPART* Editor grants the exemption, a Data Availability Statement still must be included in the article.

Journal of Theoretical Politics

2.4 Declaration of conflicting interests

The Journal of Theoretical Politics encourages authors to include a declaration of any conflicting interests and recommends you review the good practice guidelines on the <u>SAGE Journal Author Gateway</u>.

2.5 Research Data

The journal is committed to facilitating openness, transparency and reproducibility of research, and has the following research data sharing policy. For more information, including FAQs please visit the SAGE Research Data policy pages.

Subject to appropriate ethical and legal considerations, authors are encouraged to:

- share your research data in a relevant public data repository
- include a data availability statement linking to your data. If it is not possible to share your data, we encourage you to consider using the statement to explain why it cannot be shared.
- · cite this data in your research

Legislative Studies Quarterly

Data Sharing and Data Availability

This journal expects data sharing. Review <u>Wiley's Data Sharing policy</u> where you will be able to see and select the data availability statement that is right for your submission.

Refer to the table below to understand the various standardized data sharing policy categories:

| | Data availability statement is published ¹ | Data has been shared ² | Data has been peer reviewed ³ | Example Wiley journals |
|--|--|--------------------------------------|---|--|
| Encourages Data Sharing | Optional | Optional | Optional | |
| Expects Data Sharing | Required | Optional | Optional | British Journal of Social Psychology |
| Mandates Data Sharing | Required | Required | Optional | Ecology and Evolution |
| Mandates Data Sharing and Peer Reviews Data | Required | Required | Required | Geoscience Data Journal American Journal of Political Science |

¹ A data availability statement confirms the presence or absence of shared data.

Political Analysis

Making Data Available for Replication

Political Analysis requires conditionally accepted manuscripts to go through a rigorous replication process and demonstrate full reproducibility. The authors of conditionally accepted manuscripts must provide data, code, and other necessary materials and make them publicly available prior to publication. The editor should be notified at the time of submission if access to the data used in the paper is restricted or limited, or if, for some other reason, the requirements above cannot be met. The replication team at Political Analysis will assess compliance with these guidelines, and replicate and verify the information and results of the manuscript prior to approval and formal acceptance by the editor.

The below document describes how to prepare a replication package, including both general principles and specific instructions. The objective is to establish a broad standard for the information that must be made available to demonstrate the reproducibility of the results that appear in *Political Analysis* and to allow the broad scientific community to evaluate and use the methodology proposed in the research. *Political Analysis* recognizes that the guidelines may not cover all the situations that may occur. Therefore, some adjustments can be made on a case-by-case basis. Nevertheless, the following principles should sufficiently address the vast majority of research contexts.

 $^{^2}$ Links to data in data availability statements are checked to ensure they link to the data that the authors intended. If data have been shared in a data repository, the data availability statement includes a permanent link to the data. Shared data is also cited.

³ Quality and/or replicability of linked data are peer reviewed. Depending on the journal, this may be to peer review the quality of the data by ensuring that the results in the paper and the data in the repository align (for example, sample sizes and variables match), or it may be to peer review the replicability of the data to ensure that the claims presented in the journal article are valid and can be reproduced.

Political Behavior

Data availability and replication policy

Authors of accepted manuscripts will be required to deposit all of the data and script files needed to replicate the published results in a trusted data repository such as ICPSR or Dataverse. Manuscripts will not be published, even online, until those data are made available. There may be occasions where the author may not be able to comply due to data embargoes or privacy concerns. These cases will be handled individually and the rationale for the inability to provide the replication files must be included in the manuscript prior to submission. Reviewers may wish to take this into account when they are reviewing and it should not come as a surprise to them or the editor after a decision has been made.

Political Communication

Data Sharing Policy

This journal applies the Taylor & Francis share upon reasonable request data sharing policy. Authors agree to make data and materials supporting the results or analyses presented in their paper available upon reasonable request. It is up to the author to determine whether a request is reasonable. Authors are required to cite any data sets referenced in the article and provide a Data Availability Statement. Please note that data should only be shared if it is ethically correct to do so, where this does not violate the protection of human subjects, or other valid ethical, privacy, or security concerns.

At the point of submission, you will be asked if there is a data set associated with the paper. If you reply yes, you will be required to provide the DOI, pre-registered DOI, hyperlink, or other persistent identifier associated with the data set(s). If you have selected to provide a pre-registered DOI, please be prepared to share the reviewer URL associated with your data deposit, upon request by reviewers.

Where one or multiple data sets are associated with a manuscript, these are not formally peer reviewed as a part of the journal submission process. It is the author's responsibility to ensure the soundness of data. Any errors in the data rest solely with the producers of the data set(s).

Political Geography

Research data

This journal encourages and enables you to share data that supports your research publication where appropriate, and enables you to interlink the data with your published articles. Research data refers to the results of observations or experimentation that validate research findings. To facilitate reproducibility and data reuse, this journal also encourages you to share your software, code, models, algorithms, protocols, methods and other useful materials related to the project.

Political Psychology

Please note that for points 21-23, the requirement is simply to include a *declaration* with regard to your own practice, that is, authors are not required to share their data/materials or to preregister their studies, rather they are required to indicate whether or not they have done so. For this reason, it is useful for all authors to include a "Data Accessibility Statement" at the end of your manuscript (before the References), where these declarations can be placed. Please also note that the outcome of the review process will not be based on authors' decision to share data/materials or preregister studies (or not). However, where data/materials have been shared, these should be made available for review; similarly, where a study has been preregistered, the pre-registration should be made available to reviewers.

- 21. Availability of Materials/data/code: Political Psychology requires authors to include a declaration that indicates whether or not the data, methods used in the analysis, and materials used to conduct the research will be made available to any researcher for purposes of reproducing the results or replicating the procedure.
 - a. Authors must indicate if they will or will not make their data, analytic methods, and study materials available to other researchers. We suggest this be included in the form of a "Data Accessibility Statement" at the end of the manuscript (before the References)
 - b. If an author agrees to make materials available, the author must specify where that material will be available.

Political Research Quarterly

Replication Policy. As a leading outlet for political research, *PRQ* is dedicated to increasing research transparency. The corresponding author of a manuscript accepted for publication is expected to address data availability and replication in the final draft, typically in a footnote. *PRQ*'s authors may use an online public archive of their choice, or may submit their replication data directly to the *PRQ* editorial office for long-term storage on SAGE Publications' servers, where they will be accessible as supplementary material through *PRQ*'s website. While the data necessary to replicate results are required to be publicly available, we also suggest that authors include any codebook, specialized computer programs, lists of computer program recodes, or program-specific syntax files, as appropriate. Finally, authors are advised to remove information from their datasets that should remain confidential, such as the names of survey respondents.

Political Science Research and Methods

PSRM Data Replication Policy

PSRM has a strict replication policy which adheres to the Data Access and Research Transparency (DA-RT) statement subscribed to by many Political Science Journal Editors in 2015. Authors are required to make replication material publicly available at time of publication of the article. The replication materials must be sufficient to replicate results in all tables and figures printed in the article and in the online appendix, including simulation material for both theoretical (e.g. agent based models) and empirical (e.g. Monte Carlo experiments) work.

Data and replication code for your article, as well as a log demonstrating smooth running of all the replication files, must be uploaded in a single .zip file to the PSRM Dataverse at https://dataverse.harvard.edu/dataverse/PSRM. (See the PSRM Dataverse Guide for a step-by-step walkthrough for uploading your material, which is also linked to on the PSRM Dataverse homepage). This is a necessary condition for publication of the manuscript. All manuscripts are accepted contingent on their replicability, which will initially be assessed by PSRM staff. Manuscripts that are not replicable will be rejected for publication. If your analysis relies on simulation techniques (MCMC, MC experiments) we require authors to set and communicate a seed, so that exact results can be replicated. If this is impossible due to the design of the analysis, replication results need not deviate by more than 5 per cent from published results in the manuscript.

Public Choice

Research Data Policy and Data Availability Statements

This journal operates a <u>type 2 research data policy</u>. A submission to the journal implies that materials described in the manuscript, including all relevant raw data, will be freely available to any researcher wishing to use them for non-commercial purposes, without breaching participant confidentiality.

The journal strongly encourages that all datasets on which the conclusions of the paper rely should be available to readers. We encourage authors to ensure that their datasets are either deposited in publicly available repositories (where available and appropriate) or presented in the main manuscript or additional supporting files whenever possible. Please see Springer Nature's information on recommended repositories.

Public Opinion Quarterly

Transparency and Replicability Requirements

POQ promotes open science and replicability through two related sets of requirements and policies: our implementation of best practices for reporting methodological information including the AAPOR Code of Professional Ethics & Practices and our Open Science and Replication Policies. Authors are required to acknowledge and pledge to follow both sets of guidelines at the time of manuscript submission.

Our *Open Science and Replication Policies* require all authors of accepted manuscripts to either (a) place replication data and code in a permanent archive or (b) secure an exception from the editors whenever (i) the safety and privacy of the respondents would be jeopardized, (ii) disclosure is prohibited by the owners of the data, or (iii) there is another compelling ethical rationale for not placing the data in the public domain.

- Replication materials must allow an independent researcher to reproduce exactly all
 published tables and figures.
- 2. The replication materials must be placed in a permanent archive such as the Harvard Dataverse, ICPSR, Roper Center, the Odum Institute, etc. The investigator's personal or department web page is not sufficient.
- 3. The materials need not include data that was not used in the article (e.g., other variables in the data collection that are not included in the analysis).
- 4. Authors concerned about archiving before all data have been fully analyzed may request an embargo of six months from the appearance of the article in the print edition. That request should be made to the editor(s) and it should identify the future archive location, explain the rationale for an embargo, explain how future analyses are clearly different from those appearing in *POQ*, and provide editors access to all replication materials at the time of acceptance.
- 5. Authors must acknowledge the replication policy at the time of submission and confirm the archiving of data before accepted manuscripts are advanced to the typesetting stage.
- 6. If a paper is accepted for publication, authors will be required to include a Data Availability Statement in the endmatter of their article.

Additional expectations for modeling and statistical contributions: Manuscripts whose central contribution involves original statistical estimators, Monte Carlo simulations, or computer algorithms are encouraged to include the relevant code in the appendix of the original simulation. The assigned associate editor may request code and data as a necessary part of the peer review process.

Quarterly Journal of Political Science

Authors of empirical papers may be asked to supply a replication data set for editors or referees. Upon acceptance of a manuscript, authors will be required to submit a replication dataset/archive prior to publication. The dataset, documentation, command files, etc. will be reviewed in-house and made available at this site coincident with publication. Online appendices, if any, will be handled similarly. Authors of theory papers may provide an appendix with supplementary proofs for editors or referees. The online appendix and supplemental files are not copyedited and are posted directly on the website as supplementary information to the article. Authors are required to send the final version of their supplemental files when submitting the final manuscript.

Research & Politics

Making datasets publicly available is also a policy of *Research & Politics*. Authors should ensure that data is available at the time of publication through a recognised third party data repository and will be prompted to upload their data to Dataverse on acceptance of their article. The manuscript will not be moved through to Production until data is uploaded to a third party data repository and the link has been provided as instructed on acceptance. If cited data is restricted (e.g. classified, require confidentiality protections, were obtained under a non-disclosure agreement, or have inherent logistical constraints), authors must notify the editor at the time of submission. The editor shall have full discretion to follow their journal's policy on restricted data, including declining to review the manuscript of granting an exemption with or without conditions. The editor shall inform the author of this decision prior to review.

It is the responsibility of the author to make their data available via third party repository. It is preferred that data is uploaded to the <u>Research & Politics Dataverse</u> site, but other trusted digital repositories can be found below:

- DRYAD*
- FigShare
- The Open Science Framework

Review of International Organizations

Research Data Policy and Data Availability Statements

This journal operates a <u>type 3 research data policy</u> (social sciences). Authors publishing in this journal must provide a data availability statement as part of their articles. Authors are encouraged to share their data or other materials underpinning their study, but are not required to do so. Editorial decisions on the acceptance and publication of submitted articles will not be affected by whether or not authors share their research data.

If the journal that you're submitting to uses double-blind peer review and you are providing reviewers with access to your data (for example via a repository link, supplementary information or data on request), it is strongly suggested that the authorship in the data is also blinded. There are <u>data repositories that can assist with this</u> and/or will create a link to mask the authorship of your data.

Data availability statements

The journal requires authors to include a data availability statement as part of their article. If no data was generated or analysed, a statement to that effect should be included.

For the purposes of the data availability statement, "data" refers to any of the materials or sources that were used as inputs to your study, or were generated as outputs: they may include text extracts or images, maps, archival documents, photographs, audio or film recordings, field notes, spreadsheets, interview notes, or other material.

^{*}Note that there is a charge for using this service.

The inclusion of a data availability statement will be verified as a condition of publication. Data availability statements should include information on where data associated with the article can be found including, where applicable, hyperlinks to publicly archived datasets analysed or generated during the study.

Where research data are not publicly available, for instance when individual privacy could be compromised, this must be stated in the data availability statement along with any conditions for accessing the data. Data availability statements may take one of the following forms (or a combination of more than one if required for multiple types of research data):

Data sharing

The journal does not require that research data are shared in a repository, although authors are recommended to do so if possible.

In particular, the journal does not require public sharing of quantitative or qualitative data that could identify a research participant unless participants have consented to data release.

Additionally the journal does not require public sharing of other sensitive data, such as the locations of archaeologically sensitive areas.

If authors would like to share sensitive or personal data, recommended methods include:

- Deposition of research data in controlled access repositories
- · Anonymisation or deidentification of data before public sharing
- · Only sharing metadata about the research data
- Stating the procedures for accessing your research data in your article and managing data access requests from other researchers