The Replication and Verification Policy at the *American Journal of Political Science*

William G. Jacoby

Editor, *American Journal of Political Science*

Michigan State University

`jacoby@msu.edu`

Prepared for the 2016 Dataverse
Community Meeting, Harvard University,
July 11, 2016

Scientific Objectives

Scientific Objectives

The *American Journal of Political Science* (*AJPS*) is committed to the general objectives of science

Scientific Objectives

The *American Journal of Political Science* (*AJPS*) is committed to the general objectives of science

Generating and testing powerful theories of political and social phenomena

Scientific Objectives

The *American Journal of Political Science* (*AJPS*) is committed to the general objectives of science

Generating and testing powerful theories of political and social phenomena

Rigorous and cumulative research efforts

Scientific Objectives

The *American Journal of Political Science* (*AJPS*) is committed to the general objectives of science

Generating and testing powerful theories of political and social phenomena

Rigorous and cumulative research efforts

Science is inherently a social enterprise

Scientific Objectives

The *American Journal of Political Science* (*AJPS*) is committed to the general objectives of science

Generating and testing powerful theories of political and social phenomena

Rigorous and cumulative research efforts

Science is inherently a social enterprise

Progress within any field can only occur when researchers have ready access to the procedures, tools, data, and results that were used to produce the existing state of knowledge within that field.

AJPS is Taking a Leadership Role

AJPS is Taking a Leadership Role

Establishing a research-conducive environment within the political science discipline

AJPS is Taking a Leadership Role

Establishing a research-conducive environment within the political science discipline

Publishing great scientific work!

AJPS is Taking a Leadership Role

Establishing a research-conducive environment within the political science discipline

Publishing great scientific work!

Making sure that interested researchers have access to the "raw materials" that generated work published in the *AJPS*

AJPS is Taking a Leadership Role

Establishing a research-conducive environment within the political science discipline

Publishing great scientific work!

Making sure that interested researchers have access to the "raw materials" that generated work published in the *AJPS*

Only feasible way to establish and confirm the quality of evidence-based claims within the social science research community

AJPS is Taking a Leadership Role

Establishing a research-conducive environment within the political science discipline

Publishing great scientific work!

Making sure that interested researchers have access to the "raw materials" that generated work published in the *AJPS*

Only feasible way to establish and confirm the quality of evidence-based claims within the social science research community

***AJPS* has made public commitment to best practices in data access, research transparency and reproducibility of published research**

AJPS Has Always Encouraged Replication

AJPS Has Always Encouraged Replication

For many years, authors of *AJPS* articles have been asked to provide their data for replication purposes

AJPS Has Always Encouraged Replication

For many years, authors of *AJPS* articles have been asked to provide their data for replication purposes

Compliance with request was entirely voluntary

AJPS Has Always Encouraged Replication

For many years, authors of *AJPS* articles have been asked to provide their data for replication purposes

Compliance with request was entirely voluntary

Availability and quality of replication materials varied widely

AJPS Has Always Encouraged Replication

For many years, authors of *AJPS* articles have been asked to provide their data for replication purposes

Compliance with request was entirely voluntary

Availability and quality of replication materials varied widely

Previous *AJPS* Editor, Rick Wilson, established a new policy in 2013

AJPS Has Always Encouraged Replication

For many years, authors of *AJPS* articles have been asked to provide their data for replication purposes

Compliance with request was entirely voluntary

Availability and quality of replication materials varied widely

Previous *AJPS* Editor, Rick Wilson, established a new policy in 2013

Authors must upload replication files to the AJPS Dataverse within the Harvard Dataverse Network (`https://dataverse.harvard.edu/dataverse/ajps`)

AJPS Has Always Encouraged Replication

For many years, authors of *AJPS* articles have been asked to provide their data for replication purposes

Compliance with request was entirely voluntary

Availability and quality of replication materials varied widely

Previous *AJPS* Editor, Rick Wilson, established a new policy in 2013

Authors must upload replication files to the AJPS Dataverse within the Harvard Dataverse Network (https://dataverse.harvard.edu/dataverse/ajps)

No real guidance about what information and materials should be provided

AJPS Has Always Encouraged Replication

For many years, authors of *AJPS* articles have been asked to provide their data for replication purposes

Compliance with request was entirely voluntary

Availability and quality of replication materials varied widely

Previous *AJPS* Editor, Rick Wilson, established a new policy in 2013

Authors must upload replication files to the AJPS Dataverse within the Harvard Dataverse Network (https://dataverse.harvard.edu/dataverse/ajps)

No real guidance about what information and materials should be provided

Content of replication files continued to vary across articles

New Policy Initiated in March 2015

New Policy Initiated in March 2015

Authors of *AJPS* articles still required to upload replication materials to the *AJPS* Dataverse

New Policy Initiated in March 2015

Authors of *AJPS* articles still required to upload replication materials to the *AJPS* Dataverse

Now provide detailed guidance about materials that need to be provided

New Policy Initiated in March 2015

Authors of *AJPS* articles still required to upload replication materials to the *AJPS* Dataverse

Now provide detailed guidance about materials that need to be provided

"The *American Journal of Political Science* Guidelines for Preparing Replication Files"

New Policy Initiated in March 2015

Authors of *AJPS* articles still required to upload replication materials to the *AJPS* Dataverse

Now provide detailed guidance about materials that need to be provided

"The *American Journal of Political Science* Guidelines for Preparing Replication Files"

Originally oriented toward quantitative data, recently updated to include guidelines for qualitative data

New Policy Initiated in March 2015

Authors of *AJPS* articles still required to upload replication materials to the *AJPS* Dataverse

Now provide detailed guidance about materials that need to be provided

"The *American Journal of Political Science* Guidelines for Preparing Replication Files"

Originally oriented toward quantitative data, recently updated to include guidelines for qualitative data

Replication materials are verified to make sure that they do, in fact, reproduce the analysis results

AJPS Guidelines for Replication Files

AJPS Guidelines for Replication Files

For quantitative analyses, the Replication Dataset must contain:

AJPS Guidelines for Replication Files

For quantitative analyses, the Replication Dataset must contain:

A README file listing and describing all replication files contained in the article's Dataset

AJPS Guidelines for Replication Files

For quantitative analyses, the Replication Dataset must contain:

A README file listing and describing all replication files contained in the article's Dataset

The analysis dataset and a codebook describing its contents

AJPS Guidelines for Replication Files

For quantitative analyses, the Replication Dataset must contain:

A README file listing and describing all replication files contained in the article's Dataset

The analysis dataset and a codebook describing its contents

Detailed, clear code to reproduce all tables, figures, and exhibits in the *AJPS* article

AJPS Guidelines for Replication Files

For quantitative analyses, the Replication Dataset must contain:

A README file listing and describing all replication files contained in the article's Dataset

The analysis dataset and a codebook describing its contents

Detailed, clear code to reproduce all tables, figures, and exhibits in the *AJPS* article

Information about the source of the analysis dataset

AJPS Guidelines for Replication Files

For quantitative analyses, the Replication Dataset must contain:

A README file listing and describing all replication files contained in the article's Dataset

The analysis dataset and a codebook describing its contents

Detailed, clear code to reproduce all tables, figures, and exhibits in the *AJPS* article

Information about the source of the analysis dataset

Instructions for extracting the analysis dataset from the source data (including all recodes, transformations, details about missing observations, etc.)

AJPS Guidelines for Replication Files

AJPS Guidelines for Replication Files

Diversity of qualitative analyses requires more flexibility in replication requirements

AJPS Guidelines for Replication Files

Diversity of qualitative analyses requires more flexibility in replication requirements

Certain qualitative analyses (e.g., automated content analysis or qualitative comparative analysis) require data in matrix form, so requirements parallel those for quantitative data

AJPS Guidelines for Replication Files

Diversity of qualitative analyses requires more flexibility in replication requirements

Certain qualitative analyses (e.g., automated content analysis or qualitative comparative analysis) require data in matrix form, so requirements parallel those for quantitative data

A "granular" approach requires consideration of specific individual sources of information and typically requires a "Tracking Appendix" (TRAX)

AJPS Guidelines for Replication Files

Diversity of qualitative analyses requires more flexibility in replication requirements

Certain qualitative analyses (e.g., automated content analysis or qualitative comparative analysis) require data in matrix form, so requirements parallel those for quantitative data

A "granular" approach requires consideration of specific individual sources of information and typically requires a "Tracking Appendix" (TRAX)

An overview of research trajectory

AJPS Guidelines for Replication Files

Diversity of qualitative analyses requires more flexibility in replication requirements

Certain qualitative analyses (e.g., automated content analysis or qualitative comparative analysis) require data in matrix form, so requirements parallel those for quantitative data

A "granular" approach requires consideration of specific individual sources of information and typically requires a "Tracking Appendix" (TRAX)

An overview of research trajectory

Annotations that make connections between information sources and inferences/interpretations

AJPS Guidelines for Replication Files

AJPS Guidelines for Replication Files

Objective is to establish a general standard for the information that must be made available

AJPS Guidelines for Replication Files

Objective is to establish a general standard for the information that must be made available

The *Guidelines* probably will not cover every possible situation.

AJPS Guidelines for Replication Files

Objective is to establish a general standard for the information that must be made available

The *Guidelines* probably will not cover every possible situation.

They should be sufficient for most data analyses that are reported in *AJPS* articles.

AJPS Guidelines for Replication Files

Objective is to establish a general standard for the information that must be made available

The *Guidelines* probably will not cover every possible situation.

They should be sufficient for most data analyses that are reported in *AJPS* articles.

Authors can request exemptions from replication requirements in some limited circumstances

AJPS Guidelines for Replication Files

Objective is to establish a general standard for the information that must be made available

They *Guidelines* probably will not cover every possible situation.

They should be sufficient for most data analyses that are reported in *AJPS* articles.

Authors can request exemptions from replication requirements in some limited circumstances

Restricted access datasets

AJPS Guidelines for Replication Files

Objective is to establish a general standard for the information that must be made available

The *Guidelines* probably will not cover every possible situation.

They should be sufficient for most data analyses that are reported in *AJPS* articles.

Authors can request exemptions from replication requirements in some limited circumstances

Restricted access datasets

Human subjects protection

Verifying Replication Materials

Verifying Replication Materials

Authors are informed that acceptance of a manuscript is contingent upon successful replication of the results.

Verifying Replication Materials

Authors are informed that acceptance of a manuscript is contingent upon successful replication of the results.

Verification carried out by third parties

Verifying Replication Materials

Authors are informed that acceptance of a manuscript is contingent upon successful replication of the results.

Verification carried out by third parties

For quantitative analyses, verification is carried out by the Archive Staff at the Odum Institute for Research in Social Science, University of North Carolina at Chapel Hill.

Verifying Replication Materials

Authors are informed that acceptance of a manuscript is contingent upon successful replication of the results.

Verification carried out by third parties

For quantitative analyses, verification is carried out by the Archive Staff at the Odum Institute for Research in Social Science, University of North Carolina at Chapel Hill.

For qualitative analyses, verification is carried out by the staff of the Qualitative Data Repository (QDR), Syracuse University.

Verifying Replication Materials

Authors are informed that acceptance of a manuscript is contingent upon successful replication of the results.

Verification carried out by third parties

For quantitative analyses, verification is carried out by the Archive Staff at the Odum Institute for Research in Social Science, University of North Carolina at Chapel Hill.

For qualitative analyses, verification is carried out by the staff of the Qualitative Data Repository (QDR), Syracuse University.

Support for the verification process is provided by the Midwest Political Science Association

Verifying Replication Materials

Verifying Replication Materials

Verification is now a regular component of the publication workflow.

Verifying Replication Materials

Verification is now a regular component of the publication workflow.

Author uploads replication files to the *AJPS* Dataverse when final draft of the manuscript is submitted.

Verifying Replication Materials

Verification is now a regular component of the publication workflow.

Author uploads replication files to the *AJPS* Dataverse when final draft of the manuscript is submitted.

Odum or QDR staff verify that the full set of replication files have been provided and that they do reproduce all analytic results from the *AJPS* article.

Verifying Replication Materials

Verification is now a regular component of the publication workflow.

Author uploads replication files to the *AJPS* Dataverse when final draft of the manuscript is submitted.

Odum or QDR staff verify that the full set of replication files have been provided and that they do reproduce all analytic results from the *AJPS* article.

If problems occur, Odum or QDR staff inform the *AJPS* Editor, who then informs the author.

Verifying Replication Materials

Verification is now a regular component of the publication workflow.

Author uploads replication files to the *AJPS* Dataverse when final draft of the manuscript is submitted.

Odum or QDR staff verify that the full set of replication files have been provided and that they do reproduce all analytic results from the *AJPS* article.

If problems occur, Odum or QDR staff inform the *AJPS* Editor, who then informs the author.

Author resolves the issues and resubmits replication materials for rechecking by Odum or QDR staff.

Verifying Replication Materials

Verification is now a regular component of the publication workflow.

Author uploads replication files to the *AJPS* Dataverse when final draft of the manuscript is submitted.

Odum or QDR staff verify that the full set of replication files have been provided and that they do reproduce all analytic results from the *AJPS* article.

If problems occur, Odum or QDR staff inform the *AJPS* Editor, who then informs the author.

Author resolves the issues and resubmits replication materials for rechecking by Odum or QDR staff.

Process continues until the replication is carried out successfully.

Verifying Replication Materials

Verification is now a regular component of the publication workflow.

Author uploads replication files to the *AJPS* Dataverse when final draft of the manuscript is submitted.

Odum or QDR staff verify that the full set of replication files have been provided and that they do reproduce all analytic results from the *AJPS* article.

If problems occur, Odum or QDR staff inform the *AJPS* Editor, who then informs the author.

Author resolves the issues and resubmits replication materials for rechecking by Odum or QDR staff.

Process continues until the replication is carried out successfully.

Odum or QDR staff release Dataverse Dataset for public access.

Verifying Replication Materials

Articles that are verified successfully receive a notation to that effect in the Dataverse Dataset

Articles that are verified successfully receive a notation to that effect in the Dataverse Dataset

Articles that are verified successfully qualify for "Open Practices Badges" from the Center for Open Science:

Verifying Replication Materials

Articles that are verified successfully receive a notation to that effect in the Dataverse Dataset

Articles that are verified successfully qualify for "Open Practices Badges" from the Center for Open Science:

Verifying Replication Materials

Articles that are verified successfully receive a notation to that effect in the Dataverse Dataset

Articles that are verified successfully qualify for "Open Practices Badges" from the Center for Open Science:

Badges are displayed in the Dataverse Dataset and in the published article

How is the *AJPS* Policy Working?

The AJPS Dataverse was first announced in July 2012

How is the *AJPS* Policy Working?

The AJPS Dataverse was first announced in July 2012

The first Study (i.e., set of replication files for an *AJPS* article) was released for public use in September 2013

How is the *AJPS* Policy Working?

The AJPS Dataverse was first announced in July 2012

The first Study (i.e., set of replication files for an *AJPS* article) was released for public use in September 2013

The *AJPS* Dataverse currently contains 235 Datasets (formerly called Studies)

How is the *AJPS* Policy Working?

The AJPS Dataverse was first announced in July 2012

The first Study (i.e., set of replication files for an *AJPS* article) was released for public use in September 2013

The *AJPS* Dataverse currently contains 235 Datasets (formerly called Studies)

The new AJPS Replication Policy was announced on March 26, 2015

How is the *AJPS* Policy Working?

The AJPS Dataverse was first announced in July 2012

The first Study (i.e., set of replication files for an *AJPS* article) was released for public use in September 2013

The *AJPS* Dataverse currently contains 235 Datasets (formerly called Studies)

The new AJPS Replication Policy was announced on March 26, 2015

As of June 15, 2016, Odum Institute staff have worked with replication materials for 72 accepted manuscripts.

How is the *AJPS* Policy Working?

The AJPS Dataverse was first announced in July 2012

The first Study (i.e., set of replication files for an *AJPS* article) was released for public use in September 2013

The *AJPS* Dataverse currently contains 235 Datasets (formerly called Studies)

The new AJPS Replication Policy was announced on March 26, 2015

As of June 15, 2016, Odum Institute staff have worked with replication materials for 72 accepted manuscripts.

Of these, 59 have been released and are now available on the *AJPS* Dataverse.

How is the Replication Policy Working?

How is the Replication Policy Working?

Initial replication files provided by authors usually need additional work

How is the Replication Policy Working?

Initial replication files provided by authors usually need additional work

Most authors need to correct and resubmit their replication files one or more times

Initial replication files provided by authors usually need additional work

Most authors need to correct and resubmit their replication files one or more times

Mean number of resubmissions is 1.71

How is the Replication Policy Working?

Initial replication files provided by authors usually need additional work

Most authors need to correct and resubmit their replication files one or more times

Mean number of resubmissions is 1.71

Only five cases (out of 68) in which replication files successfully reproduced all analyses on the first try

How is the Replication Policy Working?

Initial replication files provided by authors usually need additional work

Most authors need to correct and resubmit their replication files one or more times

Mean number of resubmissions is 1.71

Only five cases (out of 68) in which replication files successfully reproduced all analyses on the first try

Reasons for failure to verify usually relatively minor

Initial replication files provided by authors usually need additional work

Most authors need to correct and resubmit their replication files one or more times

Mean number of resubmissions is 1.71

Only five cases (out of 68) in which replication files successfully reproduced all analyses on the first try

Reasons for failure to verify usually relatively minor

Missing or inappropriately formatted documentation

How is the Replication Policy Working?

Initial replication files provided by authors usually need additional work

  Most authors need to correct and resubmit their replication files one or more times

  Mean number of resubmissions is 1.71

  Only five cases (out of 68) in which replication files successfully reproduced all analyses on the first try

Reasons for failure to verify usually relatively minor

  Missing or inappropriately formatted documentation

  Missing software commands for parts of analysis

How is the Replication Policy Working?

Initial replication files provided by authors usually need additional work

Most authors need to correct and resubmit their replication files one or more times

Mean number of resubmissions is 1.71

Only five cases (out of 68) in which replication files successfully reproduced all analyses on the first try

Reasons for failure to verify usually relatively minor

Missing or inappropriately formatted documentation

Missing software commands for parts of analysis

Small differences in numeric or graphical results

How is the Replication Policy Working?

Verification process does add some time to the publication workflow

How is the Replication Policy Working?

Verification process does add some time to the publication workflow

Number of days from arrival at the Odum Institute to release of Dataverse Dataset ranges from 8 to 156

How is the Replication Policy Working?

Verification process does add some time to the publication workflow

Number of days from arrival at the Odum Institute to release of Dataverse Dataset ranges from 8 to 156

Mean length of verification process is 53.37 days and median is 44 days.

How is the Replication Policy Working?

Verification process does add some time to the publication workflow

Number of days from arrival at the Odum Institute to release of Dataverse Dataset ranges from 8 to 156

Mean length of verification process is 53.37 days and median is 44 days.

Part of the time in the verification process is due to author responses

How is the Replication Policy Working?

Verification process does add some time to the publication workflow

Number of days from arrival at the Odum Institute to release of Dataverse Dataset ranges from 8 to 156

Mean length of verification process is 53.37 days and median is 44 days.

Part of the time in the verification process is due to author responses

Number of days from arrival at the Odum Institute to the initial Verification Report ranges from 1 to 63

How is the Replication Policy Working?

Verification process does add some time to the publication workflow

Number of days from arrival at the Odum Institute to release of Dataverse Dataset ranges from 8 to 156

Mean length of verification process is 53.37 days and median is 44 days.

Part of the time in the verification process is due to author responses

Number of days from arrival at the Odum Institute to the initial Verification Report ranges from 1 to 63

Mean time until initial Verification Report is 22.48 days, and the median is 17 days

Conclusions

The *AJPS* Replication and Verification Policy is only possible because of the Harvard Dataverse Network

Conclusions

The *AJPS* Replication and Verification Policy is only possible because of the Harvard Dataverse Network

The *AJPS* policy makes an important contribution to the infrastructure of social science research.

The *AJPS* Replication and Verification Policy is only possible because of the Harvard Dataverse Network

The *AJPS* policy makes an important contribution to the infrastructure of social science research.

Social sciences traditionally have paid lip service to the standards of research transparency and replicability of results

Conclusions

The *AJPS* Replication and Verification Policy is only possible because of the Harvard Dataverse Network

The *AJPS* policy makes an important contribution to the infrastructure of social science research.

Social sciences traditionally have paid lip service to the standards of research transparency and replicability of results

The *AJPS* policy requires us to "practice what we preach" and adhere to standards in a meaningful way.

Conclusions

Conclusions

Benefits of replication and verification process far outweigh any costs to author, Editor, or publisher

Conclusions

Benefits of replication and verification process far outweigh any costs to author, Editor, or publisher

Hopefully, the *AJPS* will serve as a "role model" in a way that facilitates transparency and improves the integrity of political science research more generally

Conclusions

Benefits of replication and verification process far outweigh any costs to author, Editor, or publisher

Hopefully, the *AJPS* will serve as a "role model" in a way that facilitates transparency and improves the integrity of political science research more generally

The new *AJPS* replication standards should contribute directly to a more rigorous, rational, theory-driven, and cumulative approach to understanding political and social phenomena.