Next Steps in
Research
Transparency

Christensen

BITSS
Activities
Manual of Best
Practices
Registrations
P-Hacking
Pre-Analysis Plan
Replication
Meta-Research
Grant Initiative
Leamer-Rosenthal
Prizes
Developing Country
Researcher
Transparency
Help Desk
BITSS Research
BITSS Education

Partner
Activities
Center for Open
Science
Other Orgs
Badges
Design-Based
Publication

Next Steps in Research Transparency
Where do we go from here?

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[1]UC Berkeley: Berkeley Initiative for Transparency in the Social Sciences
Berkeley Institute for Data Science

APHRC, Summer 2015

Outline

BITSS

BERKELEY INITIATIVE FOR TRANSPARENCY
IN THE SOCIAL SCIENCES

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1 BITSS Activities
- Manual of Best Practices
- Meta-Research Grant Initiative
- Leamer-Rosenthal Prizes
- Developing Country Researcher Transparency
- Help Desk
- BITSS Research
- BITSS Education

2 Partner Activities
- Center for Open Science
- Other Orgs
- Badges
- Design-Based Publication
- Transparency & Openness Promotion Guidelines

3 You

Our goal:

- Detailed hands-on how-to manual for transparent social science research.

- Cover all aspects of a transparent research project, from beginning (study design, hypothesis registration) to end (publication, data sharing).

- Keep the manual updated.

- Encourage participation from the community.
  `http://github.com/garretchristensen`

- Extend into short textbook.

Registration as Solution to Publication Bias:

- Publicly stating all research you will do, what hypotheses you will test, prospectively.
- Near universal adoption in medical RCTs. Top journals (ICMJE) won't publish if it's not registered.
  `http://clinicaltrials.gov`
- Even better if registry requires outcomes from after study. Currently limited, but NIH is moving on this.
- Newer to social sciences, but:
  - AEA registry, currently only for RCTs.
    `http://socialscienceregistry.org`
  - EGAP registry
    `http://egap.org/design-registration`
  - 3ie registry, for developing country evaluations.
    `http://ridie.3ieimpact.org`
  - Open Science Framework
    `http://osf.io`

- Synthesize results systematically
- Cochrance Collaboration (medicine), Campbell Collaboration (policy), What Works Clearinghouse
- Funnel plots (Card & Krueger 1995)
- P-curve (Simonsohn et al. 2014)

Define the problem:

- Also called fishing, researcher degrees of freedom, or data-mining.
- Definition: flexibility in data analysis allows portrayal of *anything* as below an arbitrary p-value threshhold; significance loses its meaning.
- Not something only evil people do. It's subconcious, or simply built into statistics (Gelman, Loken 2013).

Pre-Analysis Plan

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Prizes
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Explain the solution:

- From 3ie: "A pre-analysis plan is a detailed description of the analysis to be conducted that is written in advance of seeing the data on impacts of the program being evaluated. It may specify hypotheses to be tested, variable construction, equations to be estimated, controls to be used, and other aspects of the analysis. A key function of the pre-analysis plan is to increase transparency in the research. By setting out the details in advance of what will be done and before knowing the results, the plan guards against data mining and specification searching. Researchers are encouraged to develop and upload such a plan with their study registration, but it is not required for registration."

Replication

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Prizes
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1. The Problem (JMCB Project)
2. Project Protocol, Reporting Standards
3. Organizing Workflow
4. Code & Data Sharing

Meta-Research Grant Initiative

Funding directed to methodological research projects that advance understanding and design of new approaches for reproducibility and reliability. ($15K-$30K)

- Laura and John Arnold Foundation
- RFP available now! Link
- Analysis of various pre-specification practices, including impacts on reported research findings;
- Application of specification curves to existing influential studies in economics;
- Experiments involving the research community to reveal the effects of a researchers' degrees of freedom on study outcomes;
- Cumulative meta-analyses, to track the evolution of a body of evidence over time;

Also, recent small grants from Sloan Foundation for data publication.

Leamer-Rosenthal Prizes

- Emerging Leaders in Open Social Science Research – up to $15,000 [Link]
- Focusing on young scholars, this prize will reward graduate students, postdoctoral researchers, and junior faculty who have (i) authored papers demonstrating exceptionally transparent and reproducible research practices, or (ii) engaged in projects advancing our understanding of research transparency and/or methodological tools to achieve this objective.
- Leaders in Open Social Science Education – up to $10,000
- This prize will reward university instructors at top-tier research institutions who have developed a curriculum on research transparency, or incorporated at least three lectures on the topic into a relevant course.
- Templeton Foundation

New Initiative

- Incorporate transparency with CEGA, train Developing Country researchers
- EASST Scholars/EASST Summit
- Training workshops in developing countries (Yours? Let us know!)
- More developing country researchers at BITSS Summer Institute
- Hewlett Foundation

BITSS collaborates with Center for Open Science to provide free statistical/reproducibility consulting. Link

- Free one-one-one consulting
- Workshops

- Christensen, Dafoe, Miguel: Data Sharing and Citations
- BITSS Annual Meeting
  (December 10-11, Open Call for Papers!)
- BITSS-organized session at AEA/ASSA meeting
- APPAM, APSA, MozFest (London)

- Econ 270D
- Available as Youtube Playlist Link
- EdX MOOC under contstruction (BITSS/J-PAL)

- Center for Open Science
    - OSF suggestions welcome. COS Community Link
    - Pre-Reg Prize (Get $1000) Link
    - Badges
    - Design-based Publication (Registered Reports)
    - TOP Guidelines
- Meta-Research Innovation Center at Stanford (METRICS)
    - John Ioannidis
    - Daniele Fanelli
- Teaching Integrity in Empirical Research (TIER)
    - Small teaching grants, October workshop Apply now!

- Computational Reproducibility
  - Big Data
  - Victoria Stodden
  - Roger Peng
  - iPython
- Berkeley Institute for Data Science (BIDS)
  - Also at UW, NYU.
- Differential privacy
  - JEP intro
  - Latanya Sweeney
  - Cynthia Dwork

3 Badges Link

- Tech based on http://openbadges.org/
- 9+ journals
  - Open Data
  - Open Materials
  - Preregistered

Design-Based Publication

AKA Registered Reports, moves peer review before data gathering, results, and analysis.

1. Design a project
2. Submit
3. Reviewed based on importance of question and quality of design
4. Get in-principle acceptance
5. Follow through, and nulls get published

14 Journals, 4 more with Special Issues ▸ Link

- `http://cos.io/top`
- November 2014 COS, AAAS, BITSS Meeting
- Guidelines for journals on citation standards, data & code & materials sharing, design, registration of study, pre-analysis plan, replication.
- Published in *Science* June 26.
- 510+ journals endorsed already, more coming.

- Register your trial.
- Write a PAP.
- Write code (not Excel).
- Literate Programming (i.e. comment the hell out of your code).
- Use version control.
- Write reproducible dynamic documents.
- Share your data.
- Submit reproducible code when you submit your paper?
- Include meta-analysis/replication in your work.

- Last year's Summer Institute Participants
    - Brazil: opinion piece in *Revista Política Hoje*. `Link`
    - Sweden: transparency training `Link`
    - Berkeley: P-curve the What Works Clearinghouse, Clearinghouse for Labor Evaluation and Research, published observational PAP. `Link`
    - Spain: Barcelona Graduate School of Economics presentatation on PAP
- Organize a conference session?
- Stay in touch (garret@berkeley.edu).
- Blog for us!
- Tweet @UCBITSS!

- What questions do you have?
- Small group activities:
    - Draft pre-analysis plan.
    - Search a registry for an interesting topic.
    - Search a repository for a paper to replicate.