

# Registration, Pre-Analysis Plans and Reporting Guidelines

Introduction, Hands-on with the Open Science Framework (OSF) and AEA Registry

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Slides at <https://goo.gl/aBQ3LR>

Inter-American Development Bank Workshop, March 2018

Let's Start With a Little Experiment!

## Explanation to participants

- ▶ Read and complete the sheet. Do not look at others sheets.
- ▶ Go to the website bellow and complete with your answers.

<https://goo.gl/aj8W61>

# Thank you for participating

We will refer back to this exercise in the hands-on part of the presentation.

# Outline

Let's Start With a Little Experiment!

Registration & PAP: What

Registration & PAP: Why

Registration & PAP: How

Reporting Guidelines

Registration & PAP: What

# What is a Registration and a PAP? (Clark 2017)

## Registration:

Title, country, status, keyword, abstract, start and end dates, outcomes, intervention, basic research design, whether treatment clustered, IRB information.

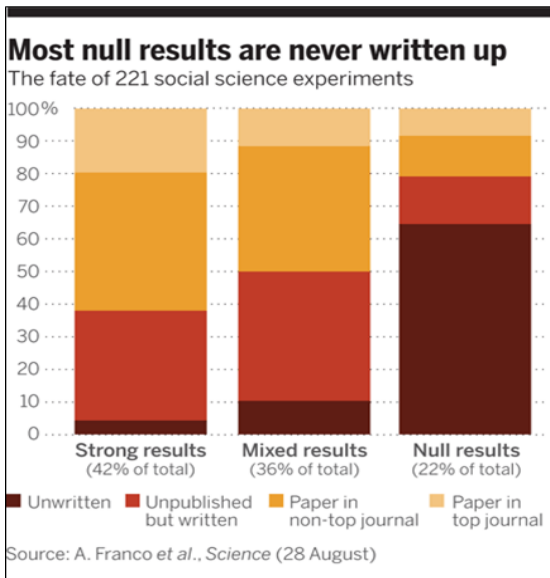
## PAP:

Detailed description of research design and data analysis plans, submitted to a registry BEFORE looking at the data.

## Registration & PAP: Why



# Why Do We Need Registration? Publication Bias Across Social Science



# Why Do We Need PAPs? The Threat of P-Hacking

Casey et al. 2012

Outcome variable	(1) Mean for controls	(2) Treatment effect
Panel A: GoBifo “weakened” institutions		
Attended meeting to decide what to do with the tarp	0.81	-0.04 <sup>+</sup>
Everybody had equal say in deciding how to use the tarp	0.51	-0.11 <sup>+</sup>
Community used the tarp (verified by physical assessment)	0.90	-0.08 <sup>+</sup>
Community can show research team the tarp	0.84	-0.12 <sup>*</sup>
Respondent would like to be a member of the VDC	0.36	-0.04 <sup>*</sup>
Respondent voted in the local government election (2008)	0.85	-0.04 <sup>*</sup>
Panel B: GoBifo “strengthened” institutions		
Community teachers have been trained	0.47	0.12 <sup>+</sup>
Respondent is a member of a women’s group	0.24	0.06 <sup>**</sup>
Someone took minutes at the most recent community meeting	0.30	0.14 <sup>*</sup>
Building materials stored in a public place when not in use	0.13	0.25 <sup>*</sup>
Chieftdom official did not have the most influence over tarp use	0.54	0.06 <sup>*</sup>
Respondent agrees with “Responsible young people can be good leaders” and not “Only older people are mature enough to be leaders”	0.76	0.04 <sup>*</sup>
Correctly able to name the year of the next general elections	0.19	0.04 <sup>*</sup>

# Why Do We Need PAPs? The Extension of P-Hacking

Athey 2018

## What We Say v. What We Do (Econometrics)

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### What We Say

- Causal inference and counterfactuals
- God gave us the model
- We report estimated causal effects and appropriate standard errors
- Plus a few additional specifications for robustness

### What we do

- Run OLS or IV regressions
  - Try a lot of functional forms
  - Report standard errors as if we ran only one model
  - Have research assistants run hundreds of regressions and pick a few “representative” ones
- Use complex structural models
- Make a lot of assumptions without a great way to test them

# Why Do We Need PAPs? The Practice of P-Hacking

## BuzzFeed 2018!

**From:** [Brian Wansink](#)  
**To:** [David Just](#)  
**Cc:** [Collin Payne](#); [Sandra Cuellar](#)  
**Subject:** Can Branding Improve School Lunches?  
**Date:** Saturday, January 7, 2012 7:17:42 AM  
**Attachments:** [Elmo Icon-AJPH - 1-7-12.doc](#)  
[ATT00001.htm](#)

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Hi David,

Here's the Elmo study we are going to spin off and submit.  
I think we start with the AJPH as a Brief (80 word abstract and 800 word paper),  
and go from there. I'll give Sandra a list of the journals and the priority order we  
should consider. Let's consider these two first:

**Brief -- American Journal of Public Health**

**Research Letter -- Archives of Pediatric and Adolescent Medicine**

One sticking point is that although the stickers increase apple selection by 71%, for  
some reason this is a p value of .06. It seems to me it should be lower. Do you  
want to take a look at it and see what you think. If you can get the data, and it  
needs some tweeking, it would be good to get that one value below .05.

Best,

Brian

# Why Do We Need PAPs? The Social Planner View (Haushofer, 2017)

## **Benefits:**

1. Improves transparency: clear ex-ante what the researcher planned
2. Reduces false positives: fewer forking paths, less p-hacking
3. Reduces the file drawer problem; others can ask what happened to your project.

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1. Time cost. I don't think this is very large, see below.
2. Stifles exploratory work. I don't think this is true, see below.
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## **Reducing costs:**

1. Time cost: make the PAP your methods section later.
2. Exploratory work: data mine to your heart's delight! Just be honest about it.
3. Pre-specifying the wrong analyses: Be honest about your thought process and hope for sensible readers/referees.

# Why write one? Individual View (Haushofer, 2017+)

## Benefits

1. Signals dedication to honesty and rigor.
2. Now you can get in-principle acceptance to a good PAP (JDE).

## Costs

1. Journals (until very recently) care mainly about interesting findings than PAPs. On the margin, PAPs not very helpful.
2. Rigor and transparency can be demonstrated in other ways (e.g. good robustness checks).
3. More difficult with a PAP to make serendipitous discoveries the main story. That's as it should be.



## Registration & PAP: How

## Similarities between Registration and PAP?

- ▶ Time stamped document, public (or to be published in a specified date), that describes a prospective study.
- ▶ Both go in same registries:
  - ▶ Medicine: [clinicaltrials.gov](http://clinicaltrials.gov)
  - ▶ Social Science (RCTs): [socialscienceregistry.org](http://socialscienceregistry.org) (AEA)
  - ▶ Social Science (Observational in dev. countries): RIDIE (3ie)
  - ▶ All disciplines and methods: [osf.io](http://osf.io)

## Difference between Registration and PAP?

- ▶ Key difference is the amount of detail/effort.
- ▶ Registration: very easy, goal is to track publication bias.
- ▶ PAP: much more detail required. Similar to grant application/work plan.
- ▶ It is more a matter of degree.
- ▶ For our hands-on exercise we will be doing a quick registration.

## Back to our little experiment: Explanation to researchers

- ▶ You participated in (highly simplified) version of **The Ultimatum Game**
- ▶ The goal of the UG is to measure attitudes about fairness and/or expectations about (econ) rational behavior.
- ▶ Our little experiment was trying to measure if the responses to the UG can be anchored by a completely irrelevant number:  
**The ID number at the beginning of your sheet!**

## Explanation to researchers

- ▶ Treatment was receiving an ID number between 960 and 999.
- ▶ Control receive an ID number between 10 and 49.
- ▶ Outcome: Offer made in the UG
- ▶ For the , you can use this experiment, or work with your own paper/project.

# Hands-on Registration.

Based on a project of your own, or on our little experiment:

- ▶ Create a draft of using Open Science Framework at [osf.io](https://osf.io):
  - ▶ Open format
  - ▶ AsPredicted (will work with this one)
- ▶ Explore AEA Registry at [www.socialscienceregistry.org](http://www.socialscienceregistry.org)

# Registration of our Little Experiment

Using Aspredicted format:

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- **Research question:**



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- **Treatment:**

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- **Analyses:**

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- **Outliers and Exclusions:** Will exclude participants with missing information in any field. Amounts beyond plausible values (eg offers above max dollar value) will be will be top-coded.
- **Sample size:** We will define our sample by the number of participants in the workshop.

# How to do a PAP? Glennerster & Takavarasha Suggestions

## Report:

- ▶ The main outcome measures.
- ▶ Which outcome measures are primary and which are secondary.
- ▶ The precise composition of any families that will be used for mean effects analysis.
- ▶ The subgroups that will be analyzed.
- ▶ The direction of expected impact if we want to use a one-sided test.
- ▶ The primary specification to be used for the analysis.

# How to do a PAP? McKenzie Suggestions

## World Bank Development Impact Blog

- ▶ Description of the sample to be used in the study
- ▶ Key data sources
- ▶ Hypotheses to be tested throughout the causal chain
- ▶ Specify how variables will be constructed
- ▶ Specify the treatment effect equation to be estimated
- ▶ What is the plan for how to deal with multiple outcomes and multiple hypothesis testing?
- ▶ Procedures to be used for addressing survey attrition
- ▶ How will the study deal with outcomes with limited variation?
- ▶ If you are going to be testing a model, include the model
- ▶ Remember to archive it

# OSF registration format for Pre-reg Challenge



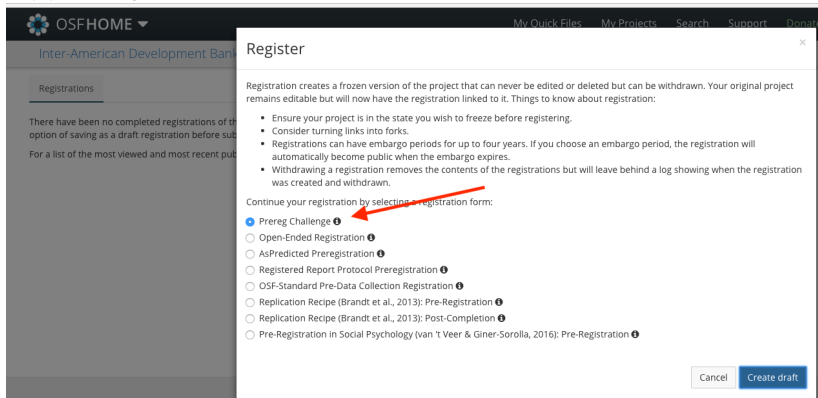
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Inter-American Development Bank (IDB...) Files Wiki Analytics **Registrations** Contr

## Inter-American Development Bank (IDB) BITSS Wi

[Contributors](#): Garret Christensen, Fernando Hoces de la Guardia  
Date created: 2018-02-16 10:27 AM | Last Updated: 2018-03-05 12:30 AM  
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Description: Add a brief description to your project  
License: Add a license

ecure | <https://osf.io/92u6k/registrations/>



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### Register

Registration creates a frozen version of the project that can never be edited or deleted but can be withdrawn. Your original project remains editable but will now have the registration linked to it. Things to know about registration:

- Ensure your project is in the state you wish to freeze before registering.
- Consider turning links into forks.
- Registrations can have embargo periods for up to four years. If you choose an embargo period, the registration will automatically become public when the embargo expires.
- Withdrawing a registration removes the contents of the registrations but will leave behind a log showing when the registration was created and withdrawn.

Continue your registration by selecting a registration form:

- ☒ **Prereg Challenge** ⓘ
- ☐ Open-Ended Registration ⓘ
- ☐ AsPredicted Preregistration ⓘ
- ☐ Registered Report Protocol Preregistration ⓘ
- ☐ OSF-Standard Pre-Data Collection Registration ⓘ
- ☐ Replication Recipe (Brandt et al., 2013): Pre-Registration ⓘ
- ☐ Replication Recipe (Brandt et al., 2013): Post-Completion ⓘ
- ☐ Pre-Registration in Social Psychology (van 't Veer & Giner-Sorolla, 2016): Pre-Registration ⓘ

Cancel Create draft

# Register Reports at the JDE.

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### Announcements

#### [NEW: Registered Reports](#)

As part of a pilot project, the JDE now offers authors the opportunity to have their prospective empirical projects reviewed and approved for publication *before* the results are known (referred to as "Registered Reports"). This pre-results review track may be particularly suitable for authors working on research projects for which they have not yet collected or processed data. Submissions in this new results review track will follow the same peer review process as other articles in the Journal.

## Guidelines and Checklist

# Final Considerations for Registrations & PAPs

## Time dimension.

- ▶ Both PAPs and Registrations should be submitted to a public registry *before* looking at the *entire dataset*.
- ▶ A broadly defined registration should not change much so the earlier the better.
- ▶ A precise PAP need as much information as possible. Ok to look at data, as long as can prove lack of access either treatment or outcome variable.

## Deviations.

- ▶ It is completely fine to deviate from the original PAP. Just label it properly.
- ▶ Really good example of how to handle deviations: Green's SOPs (Article, SOP)



## Reporting Guidelines

# Why Do We Need Reporting Guidelines?

Defines minimal set of elements required in a scientific paper. Helps with:

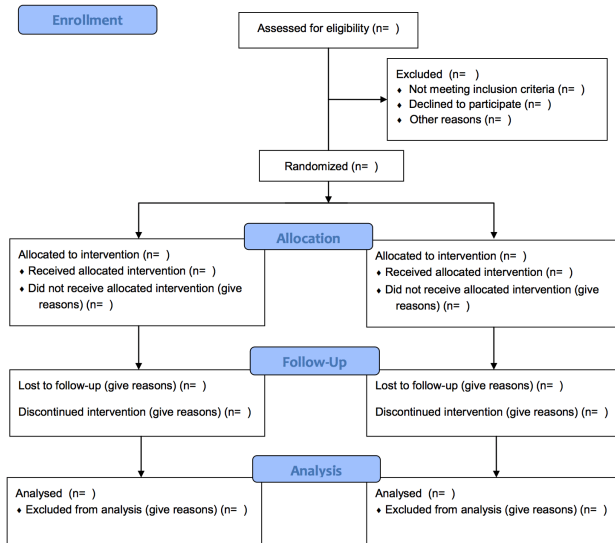
- Structured PAPs
- Replicability
- Meta-analysis (see [aidgrade.org](http://aidgrade.org))

Great discussion of standardized reporting by David Evans on the World Bank blog [here](#).

# How to follow Reporting Guidelines

- ▶ CONSORT Guidelines & EQUATOR network.
- ▶ Recent APA guidelines.
- ▶ JDE author guidelines for register reports (with a great checklist [here](#)).

# CONSORT Guidelines & EQUATOR network.



# CONSORT Guidelines & EQUATOR network.

## **CONSORT 2010** checklist of information to include when reporting a randomised trial

Section/Topic	Item No	Checklist item
<b>Title and abstract</b>		
	1a	Identification as a randomised trial
	1b	Structured summary of trial design,
<b>Introduction</b>		
Background and objectives	2a	Scientific background and explanation of rationale
	2b	Specific objectives or hypotheses
<b>Methods</b>		
Trial design	3a	Description of trial design (such as parallel, crossover, cluster, pragmatic)
	3b	Important changes to methods after trial commencement
Participants	4a	Eligibility criteria for participants
	4b	Settings and locations where the data are collected
Interventions	5	The interventions for each group with sufficient detail to allow replication, unless clearly impossible
Outcomes	6a	Completely defined pre-specified primary and secondary outcome measures
	6b	Any changes to trial outcomes after commencement
Sample size	7a	How sample size was determined
	7b	When applicable, explanation of any interim analyses and stopping rules

EQUATOR Network: website containing more than 300 other guidelines.