

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

Little experiment [10mins]

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>

Explanation to researchers

You just 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 hands-on exercise, you can use this experiment, or work with your own paper/project.

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 Register? Publication Bias [10 min version]

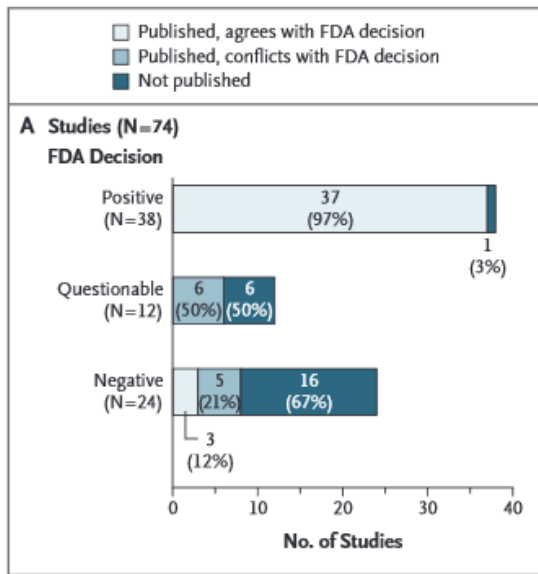
Effect sizes diminish with sample size (Gerber, Green, Nickerson 2001).

There is a higher fraction of rejected hypothesis tests in social compared to hard sciences (Fanelli 2010).

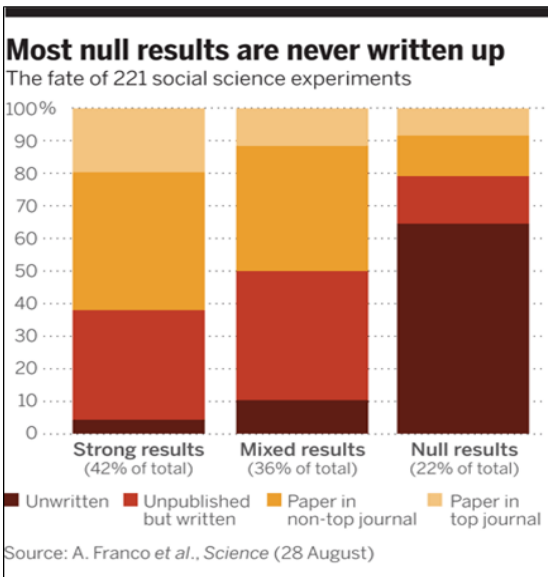
Published null results are disappearing over time, in all disciplines (Fanelli 2011).

The file drawer problem is large. (Turner et al 2008, Franco et al. 2014)

Publication Bias in FDA Approved Drugs



Publication Bias Across Social Science



Why Do We Need PAPs? 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 ⁺
Everybody had equal say in deciding how to use the tarp	0.51	-0.11 ⁺
Community used the tarp (verified by physical assessment)	0.90	-0.08 ⁺
Community can show research team the tarp	0.84	-0.12 [*]
Respondent would like to be a member of the VDC	0.36	-0.04 [*]
Respondent voted in the local government election (2008)	0.85	-0.04 [*]
Panel B: GoBifo “strengthened” institutions		
Community teachers have been trained	0.47	0.12 ⁺
Respondent is a member of a women’s group	0.24	0.06 ^{**}
Someone took minutes at the most recent community meeting	0.30	0.14 [*]
Building materials stored in a public place when not in use	0.13	0.25 [*]
Chieftdom official did not have the most influence over tarp use	0.54	0.06 [*]
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 [*]
Correctly able to name the year of the next general elections	0.19	0.04 [*]

Why Do We Need PAPs? Athey 2018

What We Say v. What We Do (Econometrics)

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? BuzzFeed 2018!

From: [Brian Wansink](#)
To: [David Just](#)
Cc: [Collin Payne](#); [Sandra Quellar](#)
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](#)

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 filedrawer problem; others can ask what happened to your project.

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Costs:

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.
3. Pre-specifying the wrong analyses (ex ante or ex post). This is potentially serious.

Reducing costs:

1. Time cost: make the PAP your methods section later.
2. Exploratory work: datamine 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.

Registration & PAP: How

Difference between Registration and PAP?

- ▶ Key difference is the amount of detail/effort.
- ▶ Registration: very easy, goal is to address publication bias.
- ▶ PAP: much more detail required. Similar to grant application/work plan.
- ▶ It is more a matter of degree.



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
 - ▶ Social Science (RCTs): socialscienceregistry.org
 - ▶ Social Science (Observational in dev. countries): RIDIE (3ie)
 - ▶ All disciplines and methods: osf.io

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:
 - ▶ Open format
 - ▶ AsPredicted (will work with this one)
- ▶ Explore AEA Registry at www.socialscienceregistry.org

Registration of our Little Experiment

Using Aspredicted format:

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- **Research question:** Does exposure to a large number increases the offer made in the ultimatum game?

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- **Dependent variable:** Amount offered in the ultimatum game.
- **Treatment:** Participant will be randomly assigned a large number ([960, 999]) or a small number ([10, 49]) to be read and remember, before reading the ultimatum game question.

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- **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



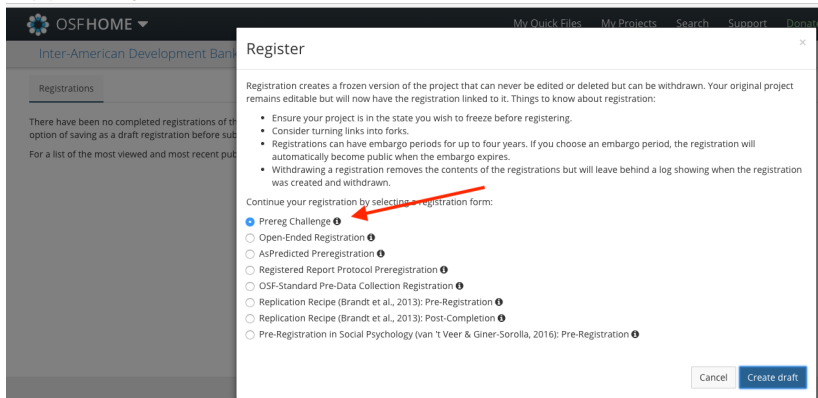
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Inter-American Development Bank (IDB...) Files Wiki Analytics **Registrations** Contr

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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Category: Project
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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Impact Factor: **1.889** ⓘ

5-Year Impact Factor: **3.305** ⓘ

Source Normalized Impact per Paper (SNIP): **2.732** ⓘ

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 [10mins]

Why Do We Need Reporting Guidelines?

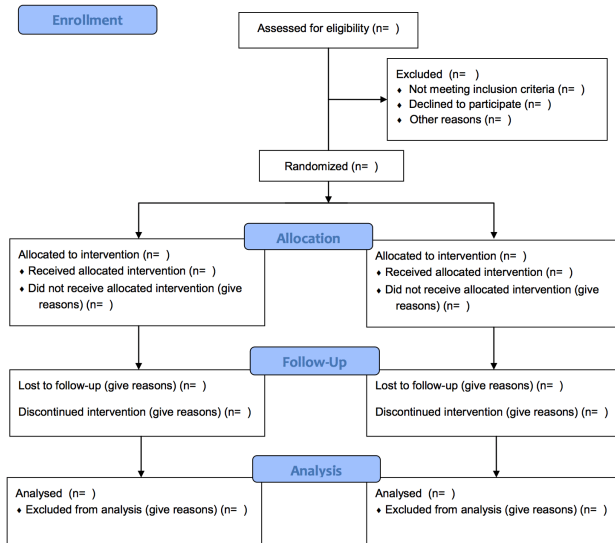
Defines minimal set of elements required in a scientific paper. Helps with:

- Structured PAPs
- Replicability
- Meta-analysis

How to follow Reporting Guidelines

- ▶ CONSORT Guidelines & EQUATOR network.
- ▶ Recent APA guidelines.
- ▶ JDE suggested guidelines for register reports.

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
Title and abstract		
	1a	Identification as a randomised trial
	1b	Structured summary of trial design,
Introduction		
Background and objectives	2a	Scientific background and explanation of rationale
	2b	Specific objectives or hypotheses
Methods		
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.