David Broockman

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17 Jan, 19 tweets, 5 min read

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How do you write a PAP in practice, especially in limited time?

Regardless of how you feel about @The_JOP's new policy, a lot of political scientists will be writing PAPs for the first time.

I wanted to share my experiences/thoughts having written many PAPs.

Thread follows..🧵

What counts as a PAP? In my view, all that makes a PAP a PAP is that it pre-specifies procedures for data analysis, ideally as precisely as possible.

Note what this does *not* include: lit review, theory, etc.

Some people like to write PAPs that include all this, but...

..I do not think this is necessary. In my view, as long as your PAP pre-specifies procedures for data analysis, it's a PAP, regardless of what else you may want to add to it. Add more if you want, but you don't need to imo.

That means PAPs can be super short/fast to write.

How do you do this practically?

Idea 1: For people getting started, I highly recommend aspredicted.org. Screenshot attached. You'll answer 6 questions about your analysis, each answer requires ~a few sentences. Should take you around 15 minutes. And that's it!

1) Data collection. Have any data been collected for this study already?

- ○ Yes, we already collected the data.
- ● No, no data have been collected for this study yet.
- ○ It's complicated. We have already collected some data but explain in Question 8 why readers may consider this a valid **pre-**registration nevertheless.
  (Note: "Yes" is not an accepted answer.)

2) Hypothesis. What's the main question being asked or hypothesis being tested in this study?

> Example: A month-long academic summer program for disadvantaged kids will reduce the drop in academic performance that occurs during the summer

3) Dependent variable. Describe the key dependent variable(s) specifying how they will be measured.

> Example: Simple average GPA across all courses during the first semester after the intervention.

4) Conditions. How many and which conditions will participants be assigned to?

> Example 1: Two conditions: Offering summer program: yes vs no.Example 2: 12 conditions in a mixed design lab study. Participants will be assigned to one of four conditions: math training, verbal training, memory task, or control (4 between-subject conditions). Each participant will complete a math test, a verbal test, and a memory test (3 within-subject conditions).

5) Analyses. Specify exactly which analyses you will conduct to examine the main question/hypothesis.

Example. Linear regression predicting the simple average GPA in the semester after the intervention with a dummy variable indicating whether the participant was offered the summer program or not (intention-to-treat analysis). We will also conduct the same regression controlling for simple average GPA during the semester before the intervention, gender, & household income (an 8-point scale ranging from 1 = below $20,000 and 8 = above $150,000).

6) Outliers and Exclusions. Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.

Example 1. We will compute the overall mean and standard deviation across all conditions, and winsorize at 2.5 SD above/below the mean.Example 2: We will exclude participants who incorrectly answer at least 2 of our 3 attention check questions.Example 3. We will exclude any participants who complete the survey in less than 30 seconds.

7) Sample Size. How many observations will be collected or what will determine sample size?
No need to justify decision, but be precise about <u>exactly</u> how the number will be determined.

Example: We will offer the program until 500 people have agreed to participate in it or until June 30, 2016 (whichever comes first).

8) Other. Anything else you would like to pre-register?
(e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)

Example: We will include a battery of questions for exploratory purposes, including life satisfaction, amount of videogame playing, and family activity. We will also provide an additional survey with 24 questions assessing achievement orientation.We will not report the results of those analyses for the project being pre-registered.NOTE: If you leave this blank it will read 'Nothing else to pre-register.'

The tool will create a) an anonymized PDF with your answers you can upload with a paper submission and b) a blinded link (eg aspredicted.org/blind.php?x=kc...) you can include that verifies you pre-registered. And you're done!

There's many more options. Here's two more things I've done:

Idea 2: This is my preferred method for survey experiments: Get simulated data, write your analysis code for it, and pre-register this code.

In Qualtrics, use Generate Test Responses qualtrics.com/support/survey... to create fake data, then write your analysis code for this fake data.

Advantages:

You need to write this code eventually anyway! The PAP is taking you 0 extra minutes.

In my experience, this gives you new ideas/flags problems in advance.

When you get the real data back, code is already written - results are now instant. 😎

Big thing: Must comment your code and name your variables *REALLY* well so other humans (reviewers) can read it.

I'll usually comment certain lines like this: "# Main hypothesis test" "# Secondary test" "# Will also plan to present this" etc.

I then upload code as PDF & raw .do/.R files (with identifying info removed) to a new project in osf.io using the "open-ended preregistration" feature. Instructions here: help.osf.io/hc/en-us/artic….

Net time cost: ~5 min (since doing work you'd have to do later)

Register Your Project
 This article is licensed under CC0 for maximum reuse. A registration is a frozen, time-stamped copy of an OSF project. Registrations cannot be edited or deleted. You might create a registration...
https://help.osf.io/hc/en-us/articles/360019930893-Register-Your-Project

Idea 3: Short doc verbally describing analysis plan. Eg, osf.io/78kn4/. I usually do this for field experiments bc the analysis is straightforward but there's a lot of DVs and covariates and decisions about what DVs to put into what indices & how that I want to pre-reg.

Pre-Analysis Plan for Summer 2018 Immigration Experiment
Hosted on the Open Science Framework
https://osf.io/78kn4/

Animating spirit: What am I going to want to say is pre-specified?

One goal is for writeup one day to be able to call as many things "pre-reg'd" as possible, allaying reader concerns that results are due to fishing. There's so many "researcher degrees of freedom"--minimize them!

Another goal: convince my future self. If I know that I made certain decisions ex ante, I won't worry later "hmm, is knowing how the results turn out affecting my thinking about what analysis decision to make?"

PAPs can also provide a time capsule of your expectations at the design stage. This has been helpful to me in making me confront when my expectations are wrong, forcing me to change my mind or abandon cherished but incorrect hunches.

Idea 4: I don't write PAPs like this, but many prefer to essentially write up the theory and design section of the paper in advance. See, e.g., thaddunning.com/wp-content/upl….

I wish I did this more - seems like it has great advantages in helping people think through costly projects carefully in advance. HOWEVER, I don't think it is the only model.

Pick the model that is right and practical for you! I strongly believe there is no one right way.

Having read many PAPs, my view of the #1 thing that is missing: adjustments for multiple hypothesis testing. If you pre-register 20 hypotheses, you should be adjusting your p-values.

I have some projects in progress where I pre-register how to do this. More should.

In others, I clearly denote one hypothesis as the primary test and the rest as secondary, adjust those.

Would be good to see more of this, imo.

Lots of issues to discuss remain & I expect norms to evolve and to realize there were flaws I hadn't thought of in how I do PAPs now.

So, don't take any of this as me saying what I believe is the one true path. However, I hope this helps provide some practical advice to folks who are new to this. (end)

Addendum: I think a common misconception about PAPs is that their goal is to try to show off how many results you can predict in advance. "We predicted it, and it was true!"

I don't think that is the purpose. Purpose is to reduce researcher degrees of freedom. That's it.

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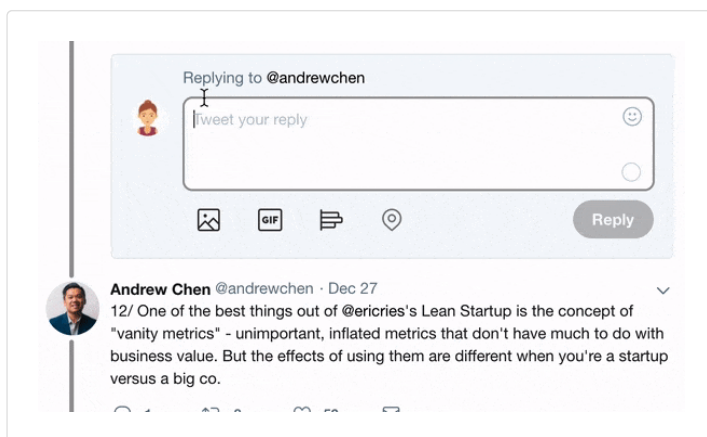Missing some Tweet in this thread? You can try to force a refresh

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22 Dec 20

New draft paper: "Does Affective Polarization Undermine Democratic Norms or Accountability? Maybe Not" (w/ @j_kalla & @seanjwestwood) Would love comments! Draft is here: osf.io/9btsq/. For those who want a quick summary, a thread... 🧵 (1/n)

Does Affective Polarization Undermine Democratic Norms or Accountability? Maybe Not*

Read 19 tweets

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16 Jul 20

NEW PAPER: evidence of broad cross-national public support for accelerated COVID-19 vaccine trials, including Challenge Trials. People prefer scientists conduct accelerated over standard trials ~3 to 1. They even see challenge trials as more ethical. osf.io/au3fq (1/n)

Broad Cross-National Public Support for Accelerated COVID-19 Vaccine Trial Designs

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28 Apr 20

Excited that my research note on what partisan donors want (with @namalhotra) is now out at POQ. academic.oup.com/poq/advance-ar... We report the results of a survey of large partisan campaign donors and compare their policy preferences to voters'.

Abstract Influential theories indicate concern that campaign donors exert outsized political influence. However, little data have documented what donors actually want from government, and existing research has

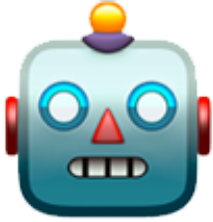Read 5 tweets

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29 Jan 20

New w/ @j_kalla in APSR @APSAtweets: field experiments on reducing exclusionary attitudes towards unauthorized immigrants and transgender people. ocf.berkeley.edu/~broockma/kall... A few key findings: (1/7)

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