



# Causal Inference for IR and IPE with Substantive Applications

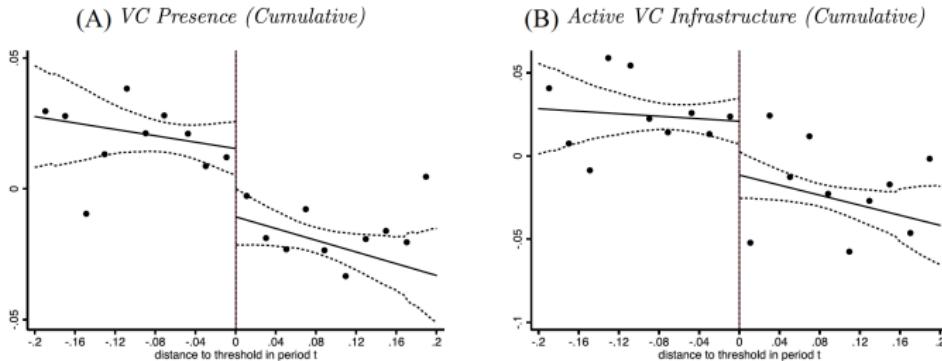
Carlos Felipe Balcazar

MacMillan Center

April, 2024



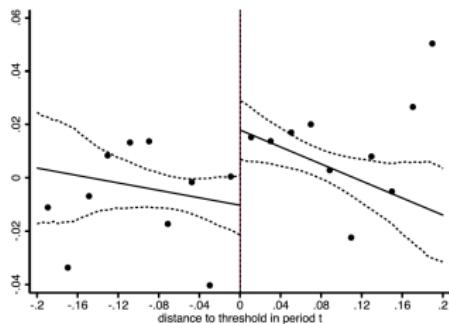
# Hearts and minds (soft power)



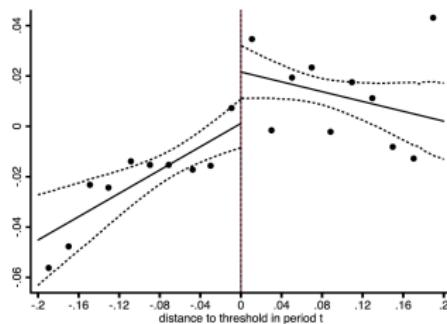
- ▶ Coercion and firepower may generate grievances.

# Hearts and minds (soft power)

(E) Access to a Primary School (Cumulative)



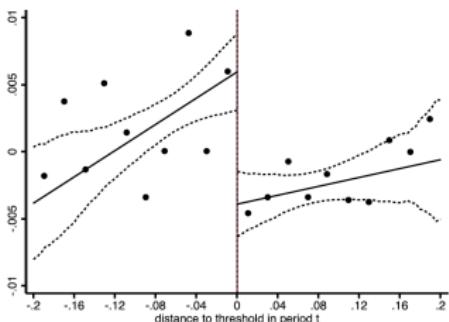
(F) Participation in Civic Orgs (Cumulative)



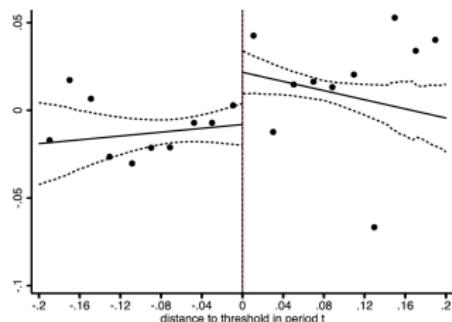
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(C) U.S. Initiated Attacks (Cumulative)

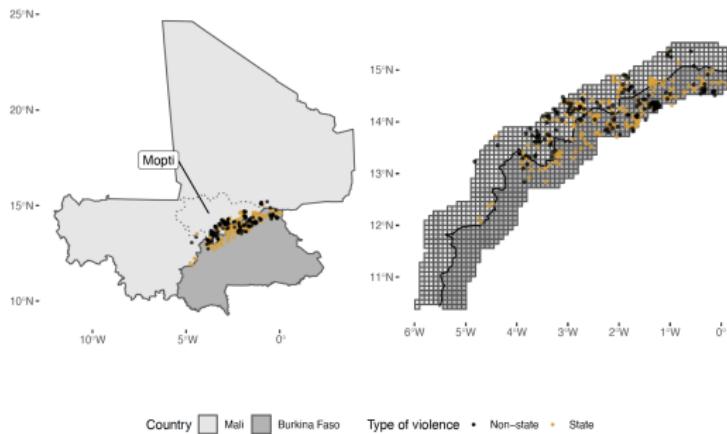


(D) Village Committee Filled (Cumulative)



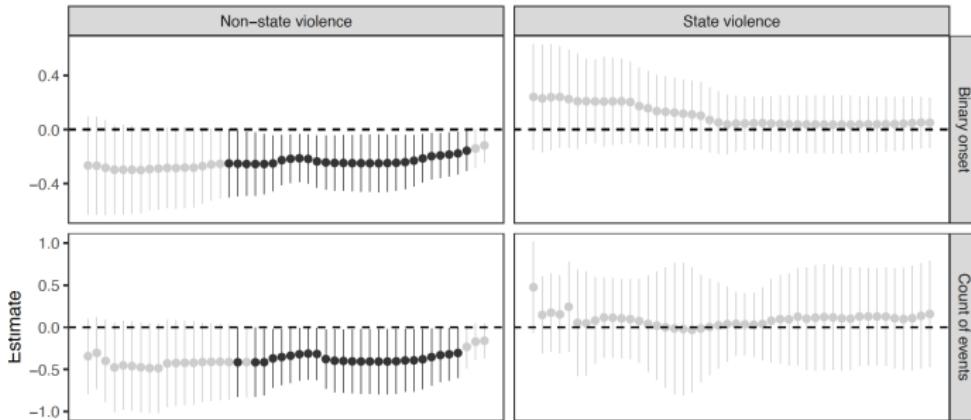
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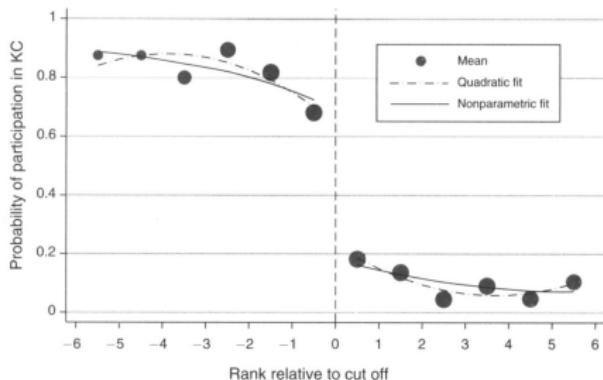
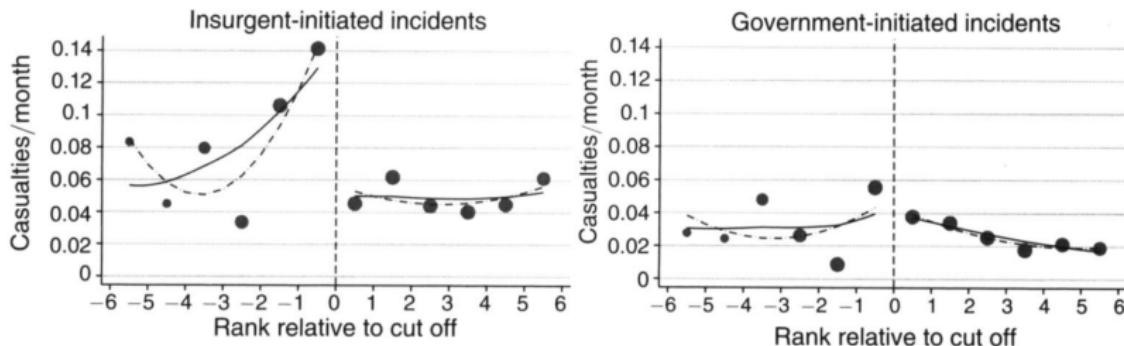


FIGURE 3. THE EFFECT OF ELIGIBILITY ON PARTICIPATION

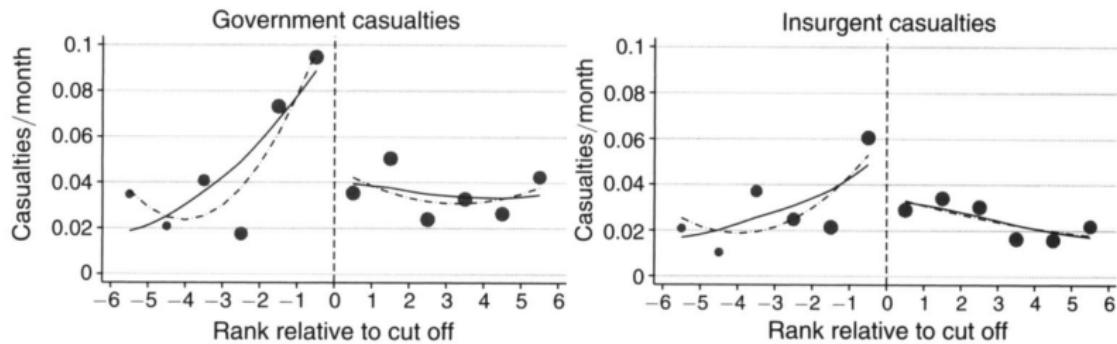
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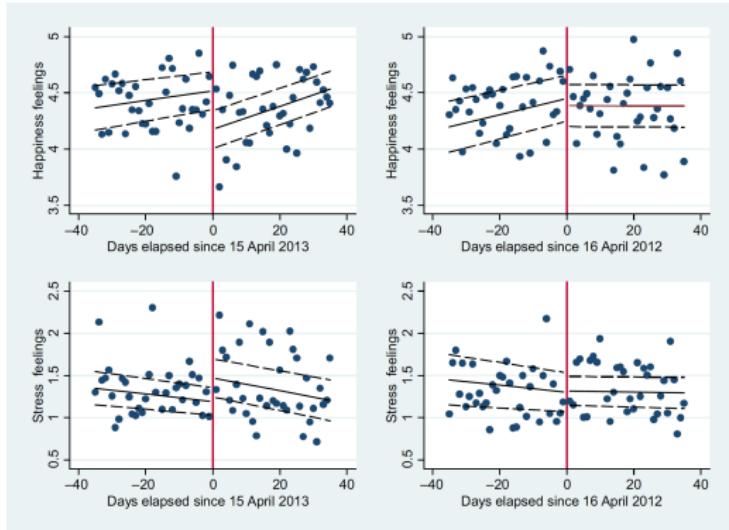
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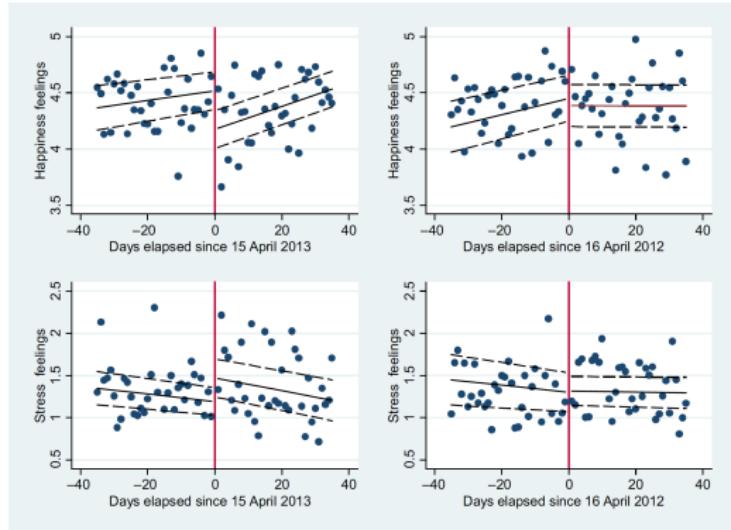
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# Terrorism



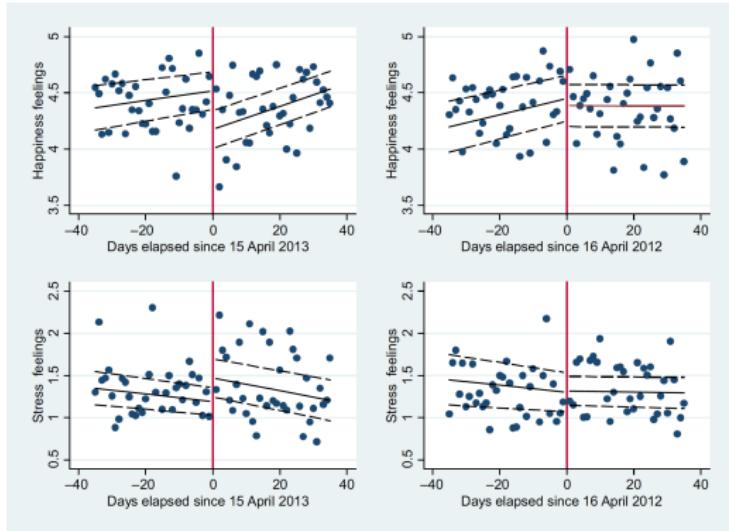
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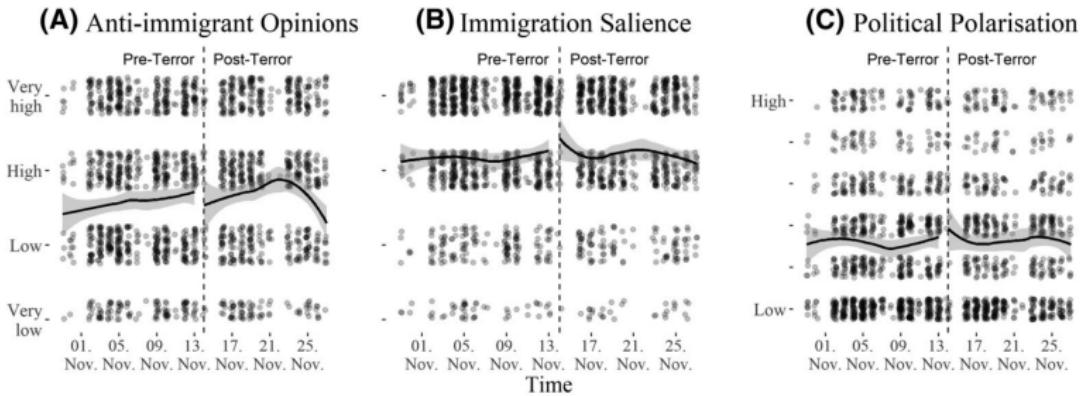
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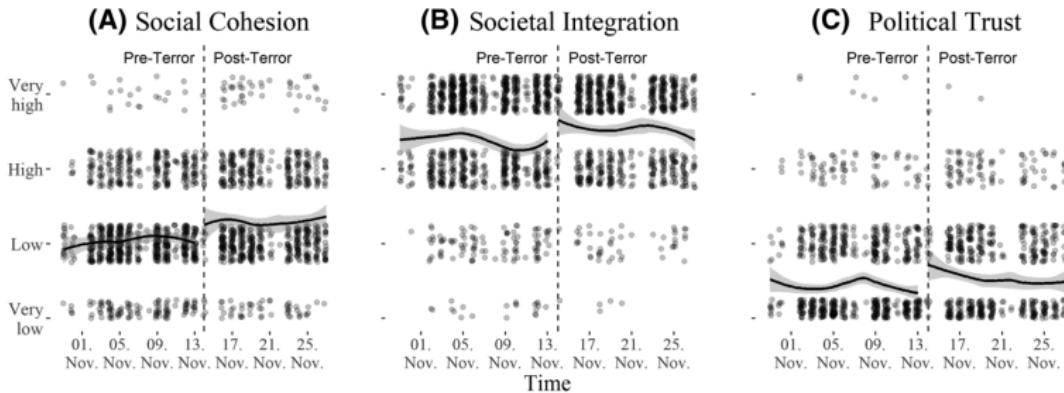
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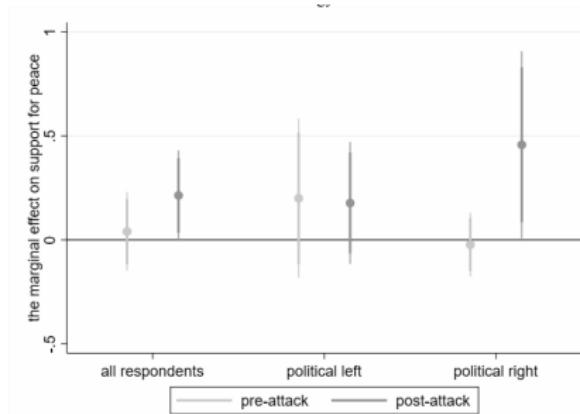
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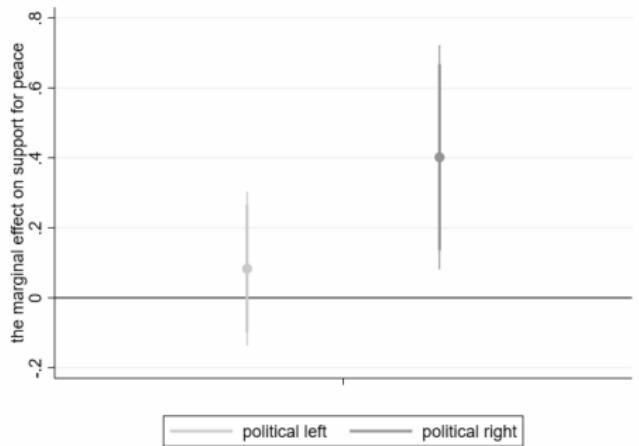
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# Terrorism

Distance from attack	10 kilometers
within_range	-0.32 (0.16)
after_attack	-0.05 (0.19)
group	1.05 (0.44)
within_range x after_attack	<b>0.36*</b> (0.21)
within_range x after_attack x group	0.21 (0.71)
Full effect for Arabs	0.57 (0.67)

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# Thresholds as valuable experiments

- ▶ Arbitrary rules or assignment based on thresholds.
  - ▶ Rule with arbitrary cut-off (e.g., decision to bomb). What else?
  - ▶ Geographic boundaries (e.g., which areas get aid). What else?
  - ▶ Unexpected events (e.g., terrorism). What else?
- ▶ Treatment status depends on position relative to threshold.
  - ▶ Sharp RDD or fuzzy RDD.
- ▶ RDiT: Events can be used to define thresholds.
  - ▶ Can combine with DID in an *event study design*.
- ▶ The assumption is that *around* the threshold all else is equal!
  - ▶ Check balance; check functional form; check density points.

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# Considerations for RDD

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- ▶ No sorting: No discontinuities for confounders; McCrary Test.
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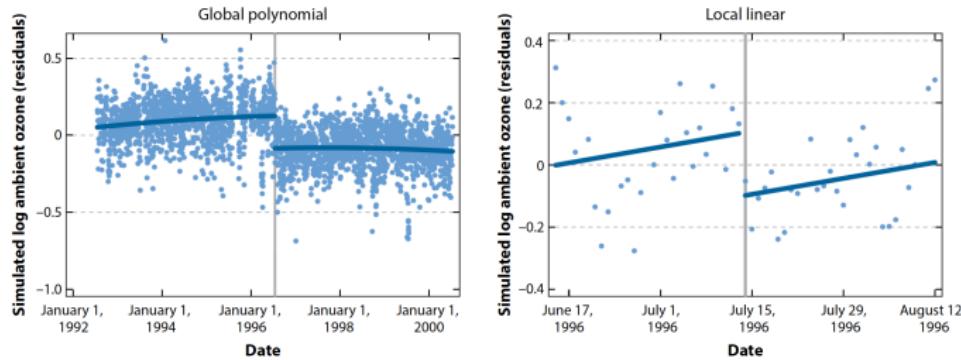
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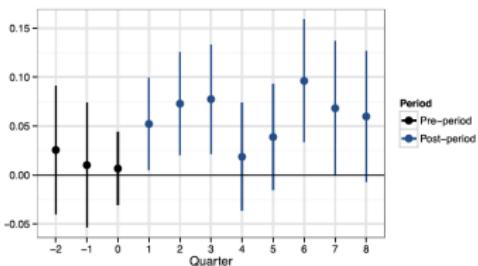
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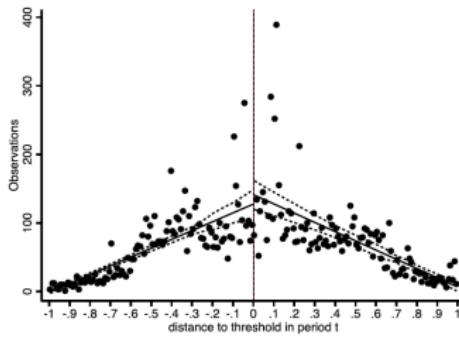
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# Good practices for RDD

(C) Impacts by Quarter

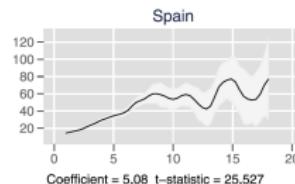
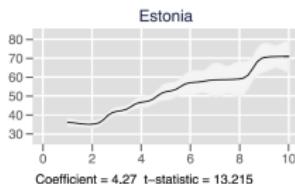
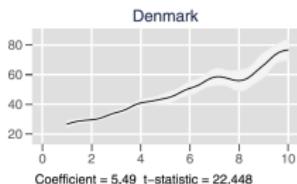
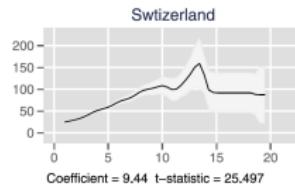
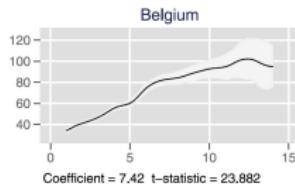
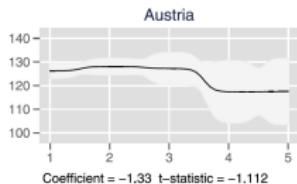


(D) McCrary Test



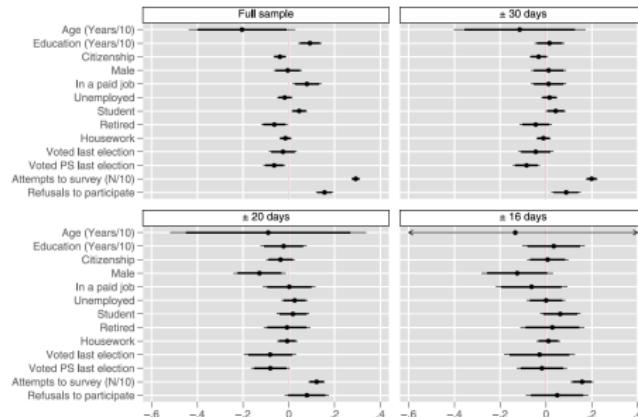
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# Good practices for RDD

Check	Proportion of publications
Plot of data	0.79
Robustness: bandwidth or polynomial order	0.79
Placebo	0.29
Regression discontinuity on continuous controls (e.g., weather, economic activity)	0.36
Donut regression discontinuity	0.14
Test for autoregression	0.14
Augmented local linear	0.14

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# Good practices for RDD

Check	N	Proportion
Covariate adjustment	40	0.91
Balance tests	33	0.75
In-depth description of the event	25	0.57
Multiple bandwidths	17	0.39
Falsification tests on other outcome variables	13	0.30
In-depth description of the survey	12	0.27
Inspection of preexisting time trends	11	0.25
Falsification tests through other surveys/units	9	0.20
Analysis of nonresponse	8	0.18
Placebo treatments at different dates of the control group	6	0.14
Pseudo-manipulation checks	6	0.14
Restricted interpretation of treatment effect	1	0.02

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# Good practices for RDD

Potential pitfalls	Intuition
Unobservables correlated with time	Covariates are more important than in many cross-sectional regression discontinuities. Even with covariates included, bias is possible—for instance, a global polynomial control may overfit.
Time-varying treatment effects	Misspecification of the treatment effect will lead to bias, particularly when using a global polynomial control.
Autoregressive properties	Short- and long-run treatment effects will differ. Unless the nature of autoregression is known, estimates could approximate the short- or long-run effects, or neither.
Selection and strategic behavior	The running variable follows a uniform distribution across the discontinuity. It is thus impossible to test for sorting/selection around the threshold (e.g., the McCrary test).

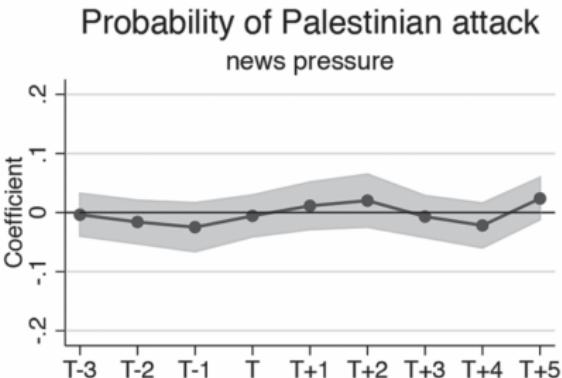
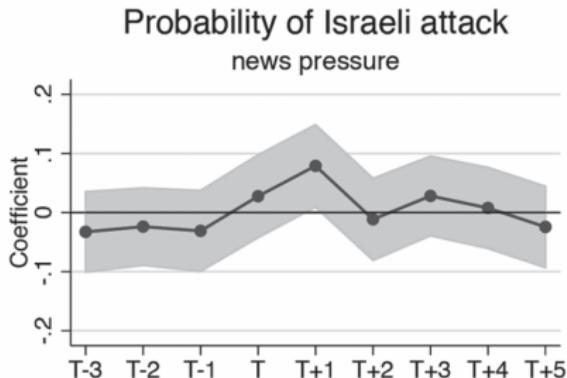
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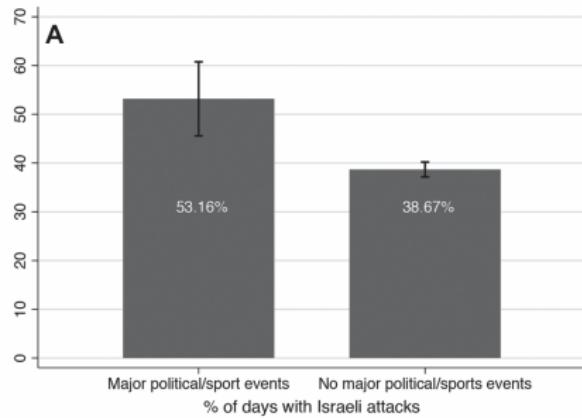
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Next class...

## **Transparency, cooperation and (in)stability!**