

Supporting Information for “Placebo Tests for Causal Inference”

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Abstract

This appendix has three components. First, we provide formal proof of the propositions stated informally in Section 2.2. Second, we discuss a special case in which one can either test identification assumptions via a placebo treatment test or relax those assumptions using instrumental variables; word limits prevented us from including this in the main text of the paper. Third, we provide a nearly exhaustive list of every observational study mentioning a “placebo test,” “balance test,” or “falsification test” in the *APSR*, *AJPS*, *JOP*, and *IO* between 2009 and 2018. The main exception is that we have only included a small sample of the simplest types of placebo tests (balance tests and fake-cutoff tests from RDD studies). Papers that have more than one type of placebo test were included under all relevant types; within types, we only include one test per paper. We identified a total of 110 of placebo tests, including 64 placebo outcome tests, 34 placebo treatment tests, and 12 placebo population tests. To summarize each test, we report the population, treatment, and outcome used in the core analysis followed by the alteration made in the placebo analysis (e.g. the placebo outcome, for placebo outcome tests).

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A Formal proof of propositions in the paper

Proposition -1 (false positive rate in the core analysis): $\Pr(\hat{\delta} \in R \mid \delta = 0 \wedge \mathcal{IA} \wedge \mathcal{EA}) \leq \alpha$.

Proof: \mathcal{BA} and $\delta = 0$ imply that $\hat{\delta} \leq \varepsilon$; the result then follows from \mathcal{DA} .

Proposition 0 (size of the placebo test): Let H_0 be that the bias assumptions \mathcal{BA} and distributional assumptions \mathcal{DA} hold. Then given Assumptions 1, 2, and 3, the false-positive rate p_0 of a test that rejects H_0 when $\hat{\delta}_p \in R_p$ is no more than α_p , the nominal size of the test.

Proof: Assumption 1 (NATE), Assumption 2 (LBA), and \mathcal{BA} imply $\hat{\delta}_p = \varepsilon_p$: the estimate in the placebo test is purely sampling error. Then given \mathcal{DA} and Assumption 3 (LDA), $\Pr(\hat{\delta}_p \in R_p) \leq \alpha_p$.

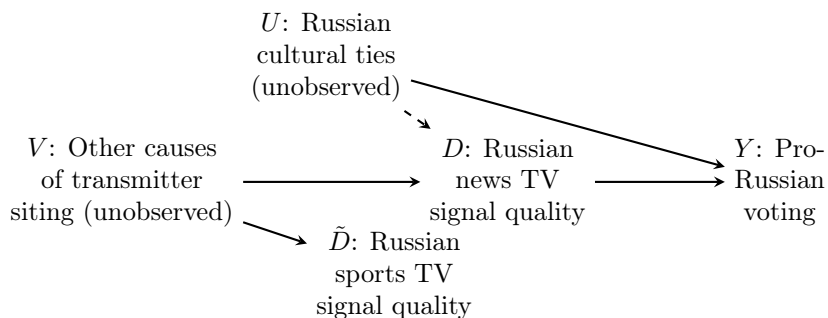
Proposition 1a (power of a placebo test of bias assumptions): Let H_{1a} be that the distributional assumptions \mathcal{DA} hold but the bias assumptions \mathcal{BA} fail. Given Assumptions 1, 3, 5, and 6, the true-positive rate p_1 of a test that rejects H_0 when $\hat{\delta}_p \in R_p$ is greater than α_p , the nominal size of the test.

Proof: Given Assumption 1 (NATE), $\hat{\delta} = b_p + \varepsilon_p$. Proposition 0 implies that $\Pr(b_p + \varepsilon_p \in R_p)$ is α_p where $b_p = 0$; Assumption 6 implies that $\Pr(b_p + \varepsilon_p \in R_p) > \alpha_p$ for other values of b_p . Assumption 5 (LVBA) implies that, given H_{1a} , $b_p \neq 0$.

Proposition 1b (power of a placebo test of distributional assumptions): Let H_{1b} be that the bias assumptions \mathcal{BA} hold but the estimation assumptions \mathcal{DA} fail. Then given Assumptions 1, 2, and 4, the true-positive rate p_1 of a test that rejects H_0 when $\hat{\delta}_p \in R_p$ is greater than α_p , the nominal size of the test.

Proof: Assumption 1 (NATE), Assumption 2 (LBA), and \mathcal{BA} jointly imply $\delta_p = \varepsilon_p$. Assumption 4 (LVDA) then implies that, given H_{1b} , $\Pr(\hat{\delta}_p \in R_p) > \alpha_p$.

Figure 1: Placebo treatment or instrumental variable? (based on Peisakhin and Rozenas’s placebo treatment test)



B Testing vs relaxing assumptions in placebo treatment tests

Digging deeper into placebo treatment tests, we discover another opportunity to choose whether to test or relax identification assumptions. Consider the DAG in Figure 1, which offers a simplified view of Peisakhin and Rozenas (2018)’s placebo treatment test under the assumption that the confounder U might affect the actual treatment D (Russian news TV signal quality) but not the placebo treatment \tilde{D} (Russian sports TV signal quality); the only common cause of D and \tilde{D} is V , which is not a confounder. Intuition suggests that if the placebo treatment is not affected by a potential confounder U (as in the DAG), the placebo treatment test cannot be sensitive to confounding due to U . But conditional on D , the only open path between \tilde{D} and Y is $\tilde{D} \leftarrow V \rightarrow D \leftarrow U \rightarrow Y$ (because conditioning on the collider D opens the path); thus a placebo test using Russian sports TV signal as a placebo treatment can detect confounding due to Russian cultural ties (U) even if those ties affect the placement of news transmitters but not the placement of sports transmitters. More generally, a variable that shares causes with the treatment (none of which affect the outcome) but is not affected by the relevant confounders can nonetheless detect those confounders when we use it as a placebo treatment and condition on the actual treatment. This property of placebo treatment tests has apparently not previously been noticed.

Note, however, that V is a valid instrument for D in this DAG, and that the placebo treatment \tilde{D} can be considered a proxy for this instrument. Thus given the DAG in Figure 1 we can use \tilde{D} as an instrument to estimate the (local) effect of D on Y given confounding due to U , rather than use \tilde{D} as a placebo treatment to test whether there is confounding due to U . Both procedures could be useful but the IV is more directly relevant to the research objective.

C Placebo Outcome Tests

Paper	Core analysis			Placebo outcome
	Population	Treatment	Outcome	
Alexander, Berry and Howell (2016)	US counties, 1984-2010	Ideological distance between county's congressional representative and chamber median	Federal outlays of non-formula grants to county in given year	Formula-based grants; direct disability and retirement payments
Alt, Marshall and Lassen (2016)	6000 Danish survey respondents	Unemployment expectations (instrumented by information provided experimentally)	Intention to vote for (left-wing) government parties; trust in government	Intention to vote for left-wing parties not in gov't; preferences on redistribution
Arceneaux et al. (2016)	Roll call votes by members of US House, 1997-2002	The presence of Fox News in a member's district	Voting with one's party in a partisan vote in Congress	Votes in period before Fox News introduction (1991-1996)
Ariga (2015)	Candidates in Japanese elections between 1958 and 1993	Winning (close) election	Election results in subsequent election	Pre-treatment covariates
Bateson (2012)	Survey respondents from 70 countries across the world	Past crime victimization	Political participation, variously measured	Voting history
Bayer and Urpelainen (2016)	Countries (up to 112) in the period 1990-2012	Having democratic political institutions	Adoption of feed-in tariffs (FIT) to combat climate change	Adoption of less politically attractive policies ¹
Bechtel and Hainmueller (2011)	German electoral districts	Being affected by the 2002 Elbe River floods	SPD's proportional representation vote share in a given district	Lagged dependent variable (parallel trends test)
Bhavnani and Lee (2018)	Indian political districts	Local bureaucrats being "embedded" (i.e. from the state)	The proportion of villages with high schools	The number of landline phones
Boas and Hidalgo (2011)	Brazilian city council candidates in 2000 & 2004 who applied for a radio license	Winning a city council election	Success of applications filed after the election	Success of applications decided before the election ²
Boas, Hidalgo and Richardson (2014)	Brazilian federal deputy candidates in the 2006 election	Winning election (narrowly)	Government contracts for the candidate's donor firms	Gov't contracts for firms that donated only to other candidates

¹The adoption rate of these policies is low, resulting in low power. In one test the coefficient estimate is larger than the treatment effect in the core analysis, but the test "passes" because the standard error is large.

²The population is also shifted to include *all* city council candidates. The low rate of applications decided before the election may limit the power.

Placebo outcome tests - continued from previous page

Paper	Core analysis			Placebo outcome
	Population	Treatment	Outcome	
Braun (2016)	Registered Jews in 439 municipalities in the Netherlands in 1941	Proximity to minority churches (instrumented by distance to Delft, the base of influential 17th century Catholic vicar/missionary)	Evasion of deportation during WWII	Pre-treatment municipality covariates
Brollo and Nannicini (2012)	Brazilian municipalities between 1997 and 2008	Partisan alignment between the mayor and the president (via RDD)	Infrastructure transfers from central government	Formula-based transfers
Chaudoin (2014)	Tariffs imposed by the US in response to anti-dumping petitions by US firms	Domestic factors in US theorized to affect support for free trade (unemployment, election year)	Initiation of WTO dispute by country targeted by tariff	Unilateral removal of tariff ³
Clinton and Enamorado (2014)	Members of Congress (US)	Entrance of Fox News in congressional district	Change in “presidential support score” (roll call voting agreement w. president)	Previous change in presidential support score
Cooper, Kim and Urpelainen (2018)	Roll-call votes on environmental issues by northeastern U.S. House reps in 2003/4 (pre-shale boom) & 2010/11 (post-shale boom)	The presence of shale gas resources interacted with post-shale boom dummy (diff-in-diff)	Casting a pro-environmental vote	District characteristics in two pre-shale boom periods ⁴
Cox, Fiva and Smith (2016)	Norwegian electoral districts before and after the election reform of 1919	Winning margin in election before reform	Turnout change between election before reform to election after reform	Turnout change between elections that both took place before/after the reform
Cruz and Schneider (2017)	610 Philippines municipalities	Whether or not the municipality participated in the KALAHAI aid program	Number of visits to the municipality by local officials	Number of visits to the municipality by midwives
Dasgupta, Gawande and Kapur (2017)	Districts in Indian states where most Maoist conflict occurs	National Rural Employment Guarantee Scheme (NREGS) adopted in a district	Maoist conflict violence, measured in terms of violent incidents and deaths	Pre-treatment covariates

³Unilateral removal and initiation of WTO dispute are “competing risks”, which implies that the placebo analysis retains the treatment effect from the core analysis (reversed in sign).

⁴The balance tests compare changes in district characteristics for shale and non-shale districts between 2000 and 2005, which differs from the main diff-in-diff estimation strategy in form but is similar in spirit.

Placebo outcome tests - continued from previous page

Paper	Core analysis			Placebo outcome
	Population	Treatment	Outcome	
De Kadt and Larreguy (2018)	Wards (political unit) in and just outside of all Bantustans in South Africa	Alignment between local chief and ANC candidate (changes with the election of Jacob Zuma in 2006)	ANC vote share	Lagged dependent variable
de Benedictis-Kessner (2018)	Candidates in mayoral elections in U.S. cities, 1950-2014	Whether the candidate wins at time t (via RDD)	Whether the candidate runs at time $t + 1$, whether the candidate wins at time $t + 1$	Lagged dependent variable(s)
Dube, Dube and Garcia-Ponce (2013)	Mexican municipalities located close to U.S. border, 2002-2006	Assault weapon availability from neighboring US state (federal ban expires in 2004 but does not affect CA)	Gun-related homicides	Accidents, non-gun homicides, and suicides
Egan and Mullin (2012)	U.S. residents	Local temperature	Belief in climate change	Assessment of the decision to invade Iraq; assessment of George W. Bush's presidency
Eggers and Hainmueller (2009)	Candidates to the British House of Commons	Winning office	Wealth at death	Pre-treatment covariates (e.g. education)
Enos, Kaufman and Sands (2017)	Precincts in LA	Proximity to riot activity in 1992	Difference in support for spending on public schools between 1990 and 1992	Vote on racialized ballot initiatives from 1986 to 1990
Feigenbaum and Hall (2015)	U.S. House members, 1990-2010	District's exposure to Chinese imports	Voting on trade bills	Voting on other bills
Folke, Hirano and Snyder (2011)	U.S. states, 1885-1995	State's adoption of civil service reforms	Party control of legislature and statewide offices	Lagged dependent variable(s)
Folke and Snyder (2012)	U.S. states, 1882-2010	Election of a Democratic Governor at time t	Change in proportion of seats held by Democrats, t to $t + 1$	Lagged dependent variable
Fourinaies and Hall (2018)	Members of U.S. Congress	Being a member of specific congressional committee	Campaign contributions from donors affected by committee	Campaign contributions from other donors
Fukumoto and Horiuchi (2011)	Japanese municipalities in 2003	Municipal election in 2003	Population change three months before the elections	Population change more than three months before the election and after the election

Placebo outcome tests - continued from previous page

Paper	Core analysis			Placebo outcome
	Population	Treatment	Outcome	
Gerber and Huber (2009)	Counties in 26 U.S. states, 1992-2004	Election of president matching county's partisanship ⁵	Growth rate of consumption after election (measured by tax data)	Growth rate of consumption before election (lagged dependent variable)
Gerber and Hopkins (2011)	U.S. cities (largest 120)	Election of a Democratic (vs. Republican) mayor	Spending on public safety, tax policy, social policy	Pre-treatment covariates
Grossman (2015)	Countries in Sub-Saharan Africa	Population proportion of Renewalist Christians	Political salience of LGBT issues	Political salience of agriculture, corruption
Hainmueller and Hangartner (2015)	1,400 municipalities in Switzerland, 1991-2009	Whether naturalization decisions are made by popular vote	Rate of naturalization through ordinary process	Rate of naturalization through marriage
Hajnal, Kuk and Lajevardi (2018)	US voters	Presence of voter ID laws	Voter turnout among racial and ethnic minorities	Lagged dependent variable
Hall (2015)	Primary elections for the U.S. House, 1980-2010, involving a moderate candidate and an extremist candidate	Nomination of an extremist candidate	Party vote share; party victory; voting ideology of winning general-election candidate	Pre-treatment covariates
Hayes and Lawless (2015)	US voters in 2010 (CCES survey)	News coverage of district's House race	Respondent's ratings of incumbent & candidates' ideologies; respondent's vote intention	Respondent's political knowledge; ratings of Congress as a whole
Henderson and Brooks (2016)	Member-congresses in US House of Representatives, 1956-2008	Democratic win margin (instrumented by rainfall)	Ideal points on roll call votes (estimated one per member-congress)	Lagged ideal points (for reduced form), lagged Democratic vote margin (for first stage)
Holbein and Hillygus (2016)	Young adults in the 2012 Florida voter file who were marginally eligible or ineligible to vote in 2008	Whether the individual was pre-registered to vote in 2012 election (instrumented by whether the individual was 18 in 2008)	Whether the individual votes in 2012	Pre-treatment covariates (i.e. balance tests)
Holland (2015)	Districts in three Latin American capital cities	Being poor	Enforcement against street vendors	Police action against violent crimes

⁵In their regressions, the key coefficient is an interaction between county partisanship and partisanship of president who is elected.

Placebo outcome tests - continued from previous page

Paper	Core analysis			Placebo outcome
	Population	Treatment	Outcome	
Jha and Wilkinson (2012)	Districts in South Asia around partition of India	Average combat exposure of WWII recruits from the district	Degree of violence and ethnic cleansing during partition	Prewar covariates and outcomes
Knutsen et al. (2017)	92,762 Afrobarometer survey respondents	The presence of an active or inactive mine	Perceptions of (and experience of) local corruption	Perceptions of national-level corruption
Ladd and Lenz (2009)	British voters	Reading a newspaper that switched to endorsing Labour in 1997 election	Voting for Labour in the 1997 election	Vote intention in 1996 (before shift)
Laitin and Ramachandran (2016)	All countries worldwide	Linguistic distance between official language and local language(s) ⁶	Human development	State capacity
Levendusky (2018)	US citizens (interviewed in 2008 NAES)	Heightened sense of American identity close to July 4	Attitude towards presidential candidates of the opposite party	Attitude towards presidential candidate of own party
Malesky, Nguyen and Tran (2014)	Vietnamese communes covered by government surveys, 2006-2010	Abolition of District People's Council (DPC)	Public service delivery (30 measures)	Lagged dependent variable (parallel trends test)
Malhotra, Margalit and Mo (2013)	US survey respondents in areas with strong high-tech presence	Measures of economic threat from high-skilled immigrants (working in high tech, feeling insecure about job)	Support for high-skilled immigration	Support for Indian immigration in general
Margalit (2011)	US counties in 2000 and 2004	Trade-related job dislocations from foreign competition	Change in Republican presidential vote share, 2000-2004	Lagged outcome (change in Republican presidential vote share, 1996-2000)
Margalit (2013)	3,000 US respondents in panel survey (2009, 2010, 2011)	Economic shock (loss of job, job insecurity, income drop)	Support for social spending	Attitudes on climate change, immigration
Mendelberg, McCabe and Thal (2017)	64,924 college students	Attending an affluent college or university	Support for higher taxes on the wealthy	Support for other conservative political positions (e.g. restricting abortion)
Meredith (2013) (first stage)	U.S. counties during gubernatorial elections	Whether a local candidate runs for governor as Democrat, Republican, or both/neither	Vote share of Dem. gubernatorial candidate	Vote share of Dem. presidential candidate in most proximate presidential election (past or future)

⁶This is instrumented by the country's distance from a site where writing was independently developed.

Placebo outcome tests - continued from previous page

Paper	Core analysis			Placebo outcome
	Population	Treatment	Outcome	
Mo and Conn (2018)	Teach for America (TFA) applicants	Serving in TFA (which depends partly on applicant's selection score)	Attitudes on injustice, inequality, closeness to people of different races	How close respondents feel to "the elderly" and "Christians"
Nellis and Siddiqui (2018)	Electoral constituencies in Pakistan, 1988-2011	Share of seats occupied by secular-party politicians ⁷	Incidence and severity of militant and sectarian attacks	Lagged dependent variable
Peisakhin and Rozenas (2018)	Ukrainian election precincts	Russian news TV reception	Vote share for pro-Russian parties	Lagged dependent variable, other pre-treatment covariates
Pierskalla and Sacks (2018)	Indonesian electoral districts	Electoral year (local elections)	Level of local government capital expenditure	Shifts in revenue
Pietryka and DeBats (2017)	Voters in a campus election in 2010	Social proximity to candidate	Turnout	Lagged dependent variable
Potoski and Urbatsch (2017)	US survey respondents 1970-2014 (CPS and NES)	Quality and local-ness of Monday Night Football game on night before election	Self-reported turnout	Early/absentee voting, pre-election day voter registration
Querubin and Snyder (2013)	First-time candidates to the U.S. House, 1845-1875	Winning office	Wealth accumulation after candidacy	Wealth accumulation before candidacy
Rueda (2017)	Polling stations in Colombia	Size of polling station	Reported vote buying	Reported turnout suppression
Samii (2013)	Burundian military officers	Participation in an integrated Burundian military	Levels of prejudicial behavior and ethnic salience	Various pre-treatment covariates
Sekhon and Titunik (2010)	Election precincts in Texas	Being assigned to a new congressional district	Incumbent vote share after redistricting	Incumbent vote share before redistricting
Stokes (2016)	Ontario districts (ridings) where wind projects were proposed or operational	Precincts in which a turbine project was proposed or operational in 2011 ⁸	Vote share for Liberal Party (incumbent in province) in 2011 provincial election	Vote share for Liberal Party in 2003 election
Szakonyi and Urpelainen (2014)	1,094 manufacturing firms in India	Bribes reported paid by the firm; experience of lobbying through a business association	Change in firm's (subjective) power quality 2002-2005	Change in perceived quality of other services (rail, phone, internet) over same 2002-2005 period

⁷This is instrumented by the outcome of close elections between secular and religious candidates.

⁸In IV analysis, this is instrumented by average wind power in the district.

Placebo outcome tests - continued from previous page

Paper	Core analysis			Placebo outcome
	Population	Treatment	Outcome	
Thachil (2014)	Indian states, 1996-2004	Provision of welfare by religious organizations	Support for the BJP among non-elites	Support for the BJP among elites
Vernby (2013)	183 Swedish municipalities in 1970s	Change in proportion of non-citizen voters (triggered by law enfranchising non-citizens)	Change in spending on policies of particular interest to non-citizens (education, social/family services)	Change in spending on policy not of particular interest to non-citizens (waste handling)

D Placebo Treatment Tests

Paper	Core analysis			Placebo treatment
	Population	Treatment	Outcome	
Archer (2018)	American partisan-affiliated newspapers between 1932 and 2004 (aggregated by pres. election year)	Vote margin of the Republican presidential candidate	Change in total circulation of Republican- vs. Democratic-aligned local newspapers	Vote margin of the Republican presidential candidate in prior or subsequent elections
Barber (2016)	Legislators in lower houses of U.S. states	Limits on campaign contributions from PACs and individuals	Ideological polarization of each state legislator	Future contribution limits
Brollo and Nannicini (2012)	Brazilian municipalities between 1997 and 2008	Partisan alignment between mayor and president (based on election RDD)	Infrastructure transfers from central government	Fake cutoffs (median margin on right and left of true threshold)
Broockman (2013)	6,928 U.S. state legislators asked by (evidently) African-American for help with unemp. benefits	Recipient's race	Response rate and response quality	Recipient's partisanship, recipient's gender
Burnett and Kogan (2017)	Electoral precincts in San Diego city-wide elections in 2008 and 2010	Citizen pothole complaints before election	Incumbent electoral performance	Pothole complaints in 6 months after election
Condra and Shapiro (2012)	Iraqi districts from 2004 to 2009	Change in civilian casualties in previous period	Change in attacks on coalition forces by insurgents	Change in civilian casualties in future period

Placebo treatment tests - continued from previous page

Paper	Core analysis			Placebo treatment
	Population	Treatment	Outcome	
Dasgupta, Gawande and Kapur (2017)	Districts in Indian states where most Maoist conflict occurs	Anti-poverty program adopted in a district	Violent incidents and deaths due to Maoist conflict	Leads and lags of treatment
Dinas (2014)	Americans born around 1947, and thus eligible to vote around 1968	Voting in 1968 (instrumented by being born before eligibility cutoff in 1947)	Subsequent strength of party identification	Being born before another date in 1947
Eggers and Hainmueller (2009)	Candidates to the British House of Commons	Winning office (election RDD)	Wealth at death	Fake cutoffs
Enos, Kaufman and Sands (2017)	Precincts in LA	Proximity to riot activity in 1992	Difference in support for spending on public schools between 1990 and 1992 ⁹	Proximity to areas with large African-American population where there was no riot activity
Ferwerda and Miller (2014)	1371 French communes around the Vichy demarcation line	Being on German side of demarcation line	Resistance activity	Being on one side of false lines on either side of true line (fake cutoff)
Fourinaies and Mutlu-Eren (2015)	Local governments in England, 1992-2012	Being governed by the same party as the central government	Grants allocated from the central government	Future value of treatment
Franck and Rainer (2012)	Survey respondents in 18 African countries	Having a co-ethnic serve as national leader during one's primary school years	Attending/completing primary school	Having a co-ethnic leader eight years after one's primary school years
Garfias (2018)	Mexican municipalities 1920s-1940s	Commodity potential in the municipality ¹⁰	Local presence of state officials; degree of asset expropriation/land redistribution	Commodity potential one decade in the future
Gerber and Huber (2009)	Counties in 26 U.S. states, 1992-2004	Election of president matching county's partisanship ¹¹	Growth rate of consumption after election (measured by tax data)	Future election of president matching county's partisanship

⁹The authors argue that spending on public schools is “associated with African Americans and racial minorities more generally and is often implicated in the social welfare demands of riot participants”.

¹⁰This is computed based on the relative suitability and price of a set of crops.

¹¹In their regressions, the key coefficient is an interaction between county partisanship and partisanship of president who is elected.

Placebo treatment tests - continued from previous page

Paper	Core analysis			Placebo treatment
	Population	Treatment	Outcome	
Gordon (2011)	U.S. Congressional districts	Designation by White House Office of Political Affairs as a priority district in 2007 (prior to the 2008 election)	Federal (GSA) contracts in district (new buildings and rental contracts)	Hypothetical treatment assigned before or after the true date of the designation
Grimmer et al. (2018)	US voters	Presence of voter ID laws (interacted with respondent race)	Turnout	Future value of treatment
Hall (2015)	Contested primary elections for the U.S. House, 1980-2010, involving a moderate candidate and an extremist candidate	Nomination of an extremist candidate	Party vote share; party victory; voting ideology of winning general-election candidate	Fake cutoffs
Healy and Lenz (2017)	Zip codes in California	Change in proportion of mortgages delinquent before the 2008 election	Democratic share of the two-party vote for president in 2008	Change in proportion of mortgages delinquent after the 2008 election
Holbein and Hillygus (2016)	Young adults in the 2012 Florida voter file who were marginally eligible or ineligible to vote in 2008	Being pre-registered to vote in 2012 election (instrumented by being 18 in 2008)	Voting in 2012	Fake age cutoffs
Hopkins (2011)	4,330 Latino-Americans in 2004 survey	Provision of Spanish-language election materials, which depends on language-minority population in county being above a cutoff	Turnout; support for CA Prop 227, which restricted bilingual education	Fake population cutoffs
Jha (2013)	Towns in South Asia proximate to the coast	Whether the town was a medieval trading port	Incidence of Hindu-Muslim riots in 19th and 20th centuries	Whether the town was a colonial overseas port
Kim (2017)	Swedish municipalities, 1921-44	Having a population above 1500 (which requires a representative council rather than direct democracy)	Gender gap in voter turnout in Sweden	Having a population above 1000 (fake population cutoff)
Kogan, Lavertu and Peskowitz (2016)	Local school tax referendums in Ohio from 2003 to 2012	State government determination of whether the district has made adequate yearly progress (AYP)	Passage of proposed school tax	Future AYP failure

Placebo treatment tests - continued from previous page

Paper	Core analysis			Placebo treatment
	Population	Treatment	Outcome	
Ladd and Lenz (2009)	British voters	Reading a newspaper that switched to endorsing Labour in 1997 election	Voting for Labour in the 1997 election	Reading the Labour-endorsing papers in the past (but stopping before the Labour endorsement)
Lindgren, Oskarsson and Dawes (2017)	Swedes born between 1943 and 1955	Being in a cohort facing longer compulsory schooling ¹²	Running for political office 1991-2010	Being in a cohort two to six years too old to face longer compulsory schooling
Lindsey and Hobbs (2015)	US president-months from 1946-1993	Impending presidential election (shown to reduce president's attention to foreign policy)	Level of conflict within the American bloc	Impending midterm election (shown not to reduce president's attention to foreign policy)
Malik and Stone (2018)	World Bank projects between 1994 and 2013	Participation by multinational companies/Fortune 500 companies as contractors	World Bank loan disbursement rates	Foreign Direct Investment (FDI) flows and stocks
Malhotra, Margalit and Mo (2013)	US survey respondents in areas with strong high-tech presence	Working in high tech	Support for high-skilled immigration	Being a white collar worker not in high tech
Montgomery and Nyhan (2017)	Members of the House of Representatives during the 105th to 111th Congresses	Votes by members "adjacent" to a given member, where adjacency reflects how many senior staff have recently served for both members	The member's own votes	Adjacency alternatively defined by looking at shared junior staff, or at senior staff serving in future
Peisakhin and Rozenas (2018)	Ukrainian election precincts	Russian news TV reception	Vote share for pro-Russian parties	Reception of Russian entertainment channels
Potoski and Urbatsch (2017)	US survey respondents 1970-2014 (CPS and NES)	Quality and local-ness of Monday Night Football game on night before election	Self-reported turnout	Quality and local-ness of game in week after election
Sexton (2016)	All districts in Afghanistan	Commander's Emergency Response Program (CERP) spending in a specific district	Violence	Future CERP spending

¹²This is interacted with parents' class background to test for inequality-reducing effects of the reform.

Placebo treatment tests - continued from previous page

Paper	Core analysis			Placebo treatment
	Population	Treatment	Outcome	
Stasavage (2014)	173 Western European cities with population of at least 10,000 by 1500 (unit of analysis is city-century)	Being an autonomous city, and time since autonomy	Economic growth (proxied by population growth)	Autonomous city and time since autonomy in the <i>next</i> century (i.e. leads of treatments)
Weaver and Lerman (2010)	15,170 adolescents from “Add Health” survey between ages of 18 and 26 years old	Interactions with the criminal justice system	Political involvement: voter registration, turnout, civic participation, etc.	Future criminal contact

E Placebo Population Tests

Paper	Core analysis			Placebo population
	Population	Treatment	Outcome	
Acharya, Blackwell and Sen (2016) (reduced form)	Americans living in the U.S. South	County’s suitability for cotton production	Attitudes towards African-Americans today	Americans living in the U.S. North
Braun (2016)	Registered Jews in 439 municipalities in the Netherlands in 1941	Proximity to minority churches (instrumented by distance to Delft, the base of influential 17th century Catholic vicar/missionary)	Evasion of deportation during WWII	Registered Jews in the predominantly Catholic southern part of the Netherlands
Chen (2013)	1.1 million households who applied for FEMA aid before Nov. 2004 election ¹³	Award of FEMA aid	Turnout in 2004 general election	Households who applied for FEMA aid after the November election
Erikson and Stoker (2011)	260 draft-eligible, college-bound men ¹⁴	Lottery draft number in 1969	Attitude toward Vietnam War in 1973 ¹⁵	Non-college bound men; college-bound women

¹³Voters also needed to be registered to vote in both 2002 and 2004 and registered as either Democrat or Republican (pp. 204-205).

¹⁴“College bound” respondents identified based on college prep courses taken in 1965, and not yet being in military service as of 1969.

¹⁵Table 3 also investigates vote choice, presidential candidate evaluations, and issue attitudes.

Placebo population tests - continued from previous page

Paper	Core analysis			Placebo population
	Population	Treatment	Outcome	
Flavin and Hartney (2015)	US teachers, as surveyed by the American National Election Survey	Being in a state with a mandatory collective bargaining law for teachers	Political participation level (donating, volunteering, etc)	Non-teachers
Gailmard and Jenkins (2009)	Members of the U.S. Senate in presidential election years	Being directly elected (after passage of 17th amendment in 1913)	Members' responsiveness to mass electorate and discretion ¹⁶	Members of the U.S. House of Representatives
Jenkins and Monroe (2012)	Members of the majority party in 107th-110th Congress (2001-2009)	Being in the center-most wing of the party caucus ideologically	Campaign contributions from majority-party leaders	Members of the minority party
Novaes (2018)	Brazilian mayors eligible for re-election	Court ruling restricting elected officials' ability to switch parties	Ability of mayors to affect higher-level election results (measured via close-election RDD)	Brazilian mayors not eligible for re-election (purportedly unaffected by court ruling)
Peisakhin and Rozenas (2018)	Ukrainian survey respondents who watch analog TV	Watching Russian news TV	Vote choice for pro-Russian parties; opinion on post-Maidan Ukrainian government; trust in Putin	Survey respondents who do not have access to terrestrial TV
Rozenas (2016)	Elections in autocracies, 1947 to 2008	Economic crisis (a proxy for office insecurity), instrumented by an index of economic shocks in nearby countries	Electoral manipulation	Elections in countries with closed economies
Rozenas, Schutte and Zhukov (2017)	Oblasts in western Ukraine	Deportations during the 1940s (instrumented by distance to railways)	Pro-Russian vote share between 2004 and 2014	Oblasts in the southwestern corner of Ukraine, annexed to USSR after main wave of deportations

¹⁶Responsiveness measured by correlation of roll-call voting record with state-wide electoral results; discretion measured by within-delegation differences in voting records.

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