The effects of district partisan slant on voter party affiliation:

evidence from repeated redistricting in North Carolina

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May 2024

Terminology

- **Partisan slant**: the extent to which a district favors the D. v. R. party
  - → The predicted Democratic two-party vote share in a district
- **Party affiliation**: the extent to which a person associates with the D. v. R. party
  - Measure using data on party registration and primary voting

Question

→ Can the partisan slant of a legislative district shift a person's party affiliation?

- I.e., if a person is in a D. v. R. district, ...
  - Does that influence which party the person associates with?
  - If so, in which direction?

Question is interesting

1. Answer is not obvious
   - Stories where slant may push people toward the party that controls the district
   - But also away from or no effect

2. Policy relevant
   - Legislative districts are redrawn every 10 years ("redistricting")

   → P-makers want to understand the effects of different district configurations

3. Nature of legislative districts ⇒ considerable heterogeneity in exposure to slant
   (a) Districts last for multiple elections
   (b) People have multiple districts (w/ correl. slant)

   → Slant may be an important channel, provided it has a TE

4. No one has studied this before

Existing literature

There's a growing literature in ec. & pol. sci. on the effects of legislative districts

- Has studied the effects of a # of district attributes:
  - Competitiveness (Moskowitz & Schneer 2019; Jones et al. 2023; Ainsworth et al. 2024)
  - Racial composition (Fraga 2016)
  - Incumbent power (Ansolabehere et al. 2000; Sekhon & Titiunik 2012)
  - Incumbent race (Henderson et al. 2016)
  - Partisan slant (Fraga et al. 2021)
- But limited in that has always focused on impacts on **turnout**, not party affiliation
  - An omission bec. party affiliation is closely tied to *vote choice* (Gerber et al. 2010)

Theory

The relationship betw. district slant and party affiliation is unclear theoretically:

- Depending on the story, effects could go in different directions: $\uparrow$, $\downarrow$, $-$
- Further, effects may operate via two distinct channels:
  (a) Cause people to change their **preference** for the dominant party
  (b) Have impacts via **strategic behavior**

Theory, cont.

(A) Slant may cause people to become **more supportive** of the dominant party

- The dominant party will:
  1. Have a resource & spending advantage (use on advertising, outreach, and canvassing)
  2. Be more likely to field a candidate and more able to attract a high-quality one
  3. Get more attention from local media
  4. Receive endorsements from access-oriented groups
  5. Be able to exploit the powers of office-holding (e.g., constituent services, pork, etc.)
- Also, behavioral explanations:
  1. Enjoy voting for winners: bandwagon effect
  2. Like what are used to: mere-exposure effect
  3. Be risk-averse regarding change: status-quo bias

Theory, cont.

(B) Slant may **push people away** from the dominant party

- Legislators in uncompetitive districts may not feel accountable to their constituents

$\Rightarrow$ May behave in unpopular ways:

- Extreme policy positions, less constituent service, less pork, corruption

(C) Slant may have **no effect** on party support

1. Channels that push people toward/away from the dominant party may cancel
2. Slant may not be a big enough treatment
   - (but other papers find effects from district attributes)

Theory, cont.

(D) Slant may have impacts via **strategic behavior**

1. In uncompetitive districts, the primary might be the only chance to choose the legislator
   $\Rightarrow$ People may Δ their registration to be eligible for the dominant party's primary
2. Access-oriented groups may affiliate with the dominant party to gain favor

$\rightarrow$ Many ways by which district slant could affect party affiliation

$\Rightarrow$ Interesting to measure the effect empirically, see whether due to pref. or strategic behavior

Paper overview

- We study the effect of district slant on party affiliation
- Our empirical strategy exploits redistricting. Idea:
  - Identify people who:
    (a) Were in the same districts before
    (b) Get placed into districts of differing slant after
  - Trace effects on party affiliation in post-redistricting elections

Preview of results

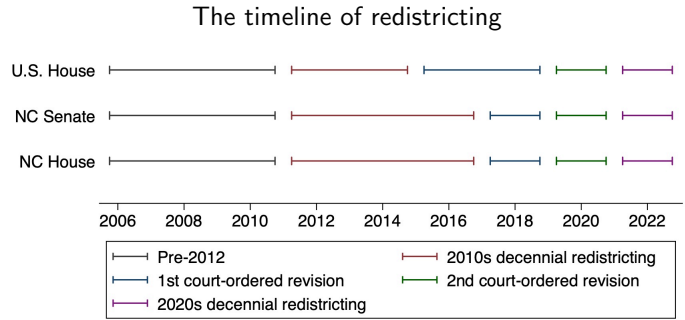
1. Slant causes people to shift their affiliation toward the party that controls the district
2. Effects are small in terms of the impact of Δ'ing slant for one district in one election
3. However, effects accumulate in a way that means they can become sizable:
   (a) $\uparrow$ with the number of elections that a person spends in a district
   (b) Sum across districts for different chambers
4. Effects are persistent
5. Effects stem mainly from changes in preferences, not strategic behavior
6. Uncompetitive districts contribute to polarization

Outline

Setting: North Carolina between 2006 and 2022

1. Three chambers: USH, NCS, NCH
2. In all chambers, representatives face reelection every two years
3. Semi-closed primary system
   - If registered with a party, may only vote in own party's primary
   - If not, may vote in any primary
4. A lot of redistricting
   - In our sample period, districts in North Carolina were redrawn four times

Redistricting in NC



- A redistricting *episode*:
  - → An instance where districts for a given chamber are redrawn
  - 4 instances for 3 chambers ⇒ 12 episodes

Data

- Use rich and publicly available administrative data
- Main component: **indiv.-level data on registered voters** ("registrants")
  - From NC's voter registration database
  - Snapshots of the database in each year 2006-2022
  - Unique registrant ID $\Rightarrow$ can link longitudinally
  - Demographics, turnout, party registration, and exact address
  - $\sim$ 10 million distinct registrants. Summary statistics

Key variables: party affiliation

- Measure party affiliation using an index of a registrant's assoc. with the Dem. Party
  - Closely related to party registration
  - But adds info. on primary voting to shed light on Unaffiliated registrants

$$p_{it} = \begin{cases} 100 & \text{if registered as } D \\ 75 & \text{if } U \text{ and most recent primary was } D \\ 50 & \text{if } U \text{ and (i) never voted in a primary or (ii) most recent was not D/R} \\ 25 & \text{if } U \text{ and most recent primary was } R \\ 0 & \text{if registered as } R \end{cases}$$

- Strong predictor of vote shares $\Rightarrow$ a good proxy for party preferences

Key variables: district slant

→ A district's predicted Dem. two-party vote share

- Written s_d for district d

  $=$ 1 in "100-0" district, 0 in a "0-100" district, 0.5 in a "50-50" district, ...

- To calculate:
  - Take precinct-level votes and aggregate to the district level
- Importantly, our measure uses data only from *pre*-redistr. elections

  ⇒ policy relevant: can be calculated during redistricting
- Strong predictor of legislative races

Outline

The identification challenge

To recover causal effects, we need to:

1. Account for the fact that slant is correlated across chambers
2. Account for past experiences w.r.t slant
3. Overcome selection bias
   - $\rightarrow$ People in more v. less Democratic districts have different attributes

Empirical strategy

1. Consider a single redistricting episode
   - Call the chamber assoc. with the episode the *chamber of interest*
2. Choose an analysis sample for the episode

   → All people who were registered in NC in the election before the episode (the *baseline*)
3. Define the *assigned district*:
   - The district that a registrant gets "assigned" to in the episode
   - I.e., the district created by the episode that covers the registrant's baseline address

Empirical strategy, cont.

4. Exact-match registrants on districts and covariates
   - Districts:
     (a) All pre-redistr. districts
     (b) Any assigned districts for other chambers
   - Covariates:
     (a) Demographics
     (b) Pre-redistr. values of turnout & the party index

   → Procedure partitions registrants into distinct groups: "match-groups"

5. Track the party index in post-redistricting elections
   - Do people assigned to a more Democratic district change their party index in comparison with others in their match-group?

Definitions

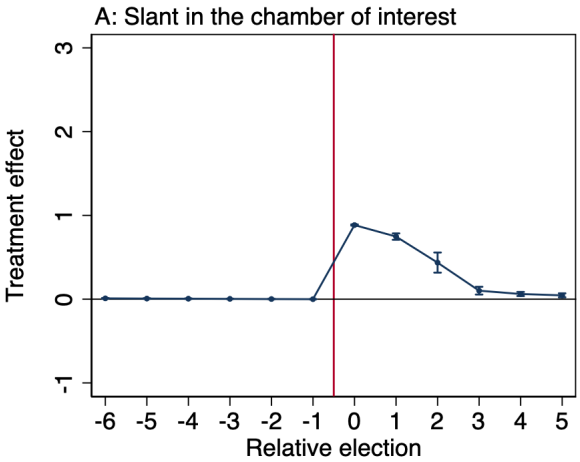
- τ: elections relative to a redistricting episode
- g_i: the match-group of registrant i
- s_{a_i}: the slant of i's assigned district, a_i
- $s_{i\tau}$: the slant of i's actual district (in the chmb. of int.) in τ

The redistricting natural experiment

- Claim:
  - In this setup, redistricting serves as a natural experiment
- Namely:
  - Assigned slant, s_{a_i}, is correlated with experienced slant, $s_{i\tau}$
  - But, within match-groups, it's not correlated with:
    (a) pre-redistr. district experiences
    (b) post-redistr. experiences in other chambers
    (c) pre-redistr. values of the party index
- Evidence:
  - Event-study plots for the effects of assigned slant:

$$Y_{i\tau} = \theta_\tau \cdot s_{a_i} + \theta_{g_i\tau} + \theta_{i\tau}$$

Effects on slant in the chamber of interest, $s_{i\tau}$

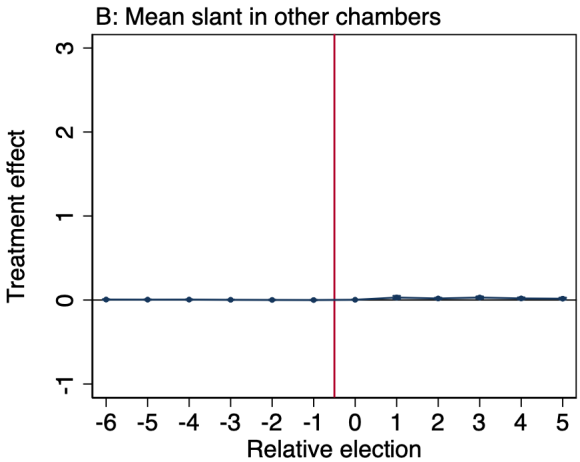


→ s_{a_i} has no effect on $s_{i\tau}$ in pre-redistr. elections

→ s_{a_i} does have an effect in post-redistr. elections

- but decays

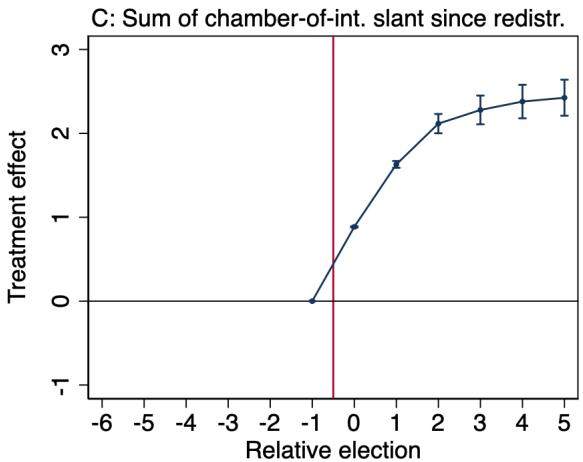
Effects on slant in other chambers



→ W/in match-groups, s_{a_i} is not assoc. with the slant that reg. experience in other chambers

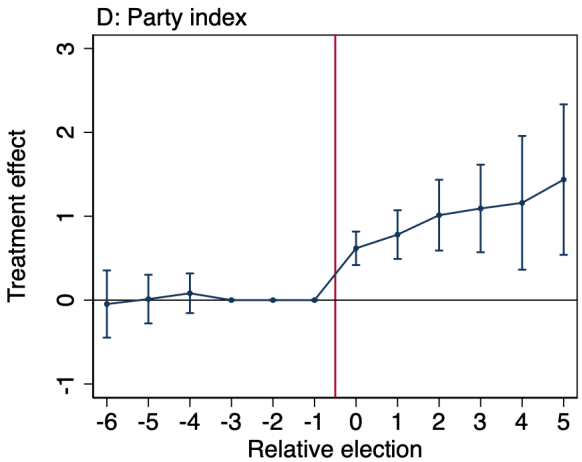
Effects on cumulative slant in the chamber of interest

$S_{i\tau} = \sum_{h=0}^{\tau} s_{ih}$:



→ s_{a_i} is strongly assoc. with $S_{i\tau}$

Effects on the party index, $p_{i\tau}$

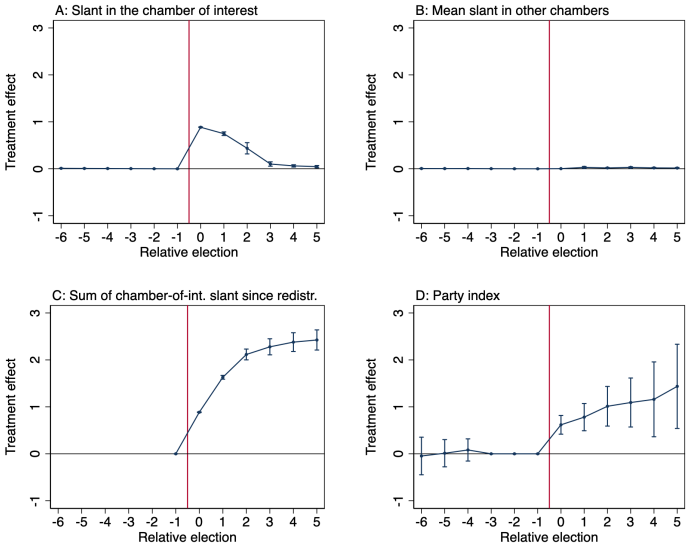


→ s_{a_i} is not assoc. with $p_{i\tau}$ in pre-redistr. elections

→ s_{a_i} *is* assoc. with $p_{i\tau}$ in post-redistr. elections

- and the association is $+$

Summary: the effects of assigned slant, s_{a_i}



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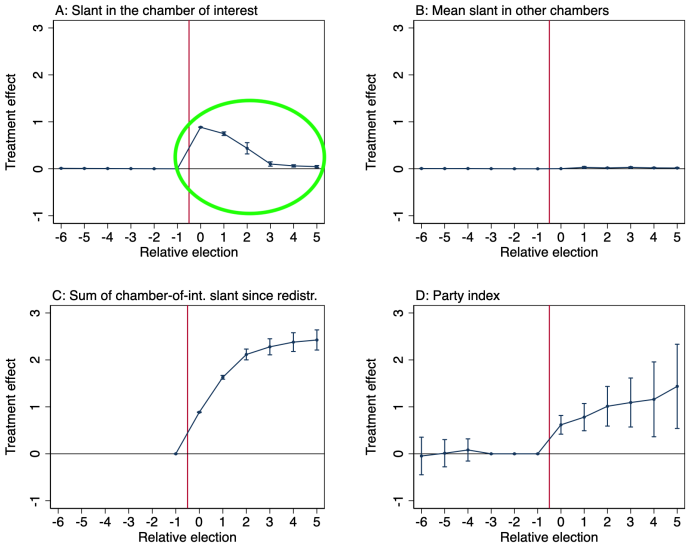

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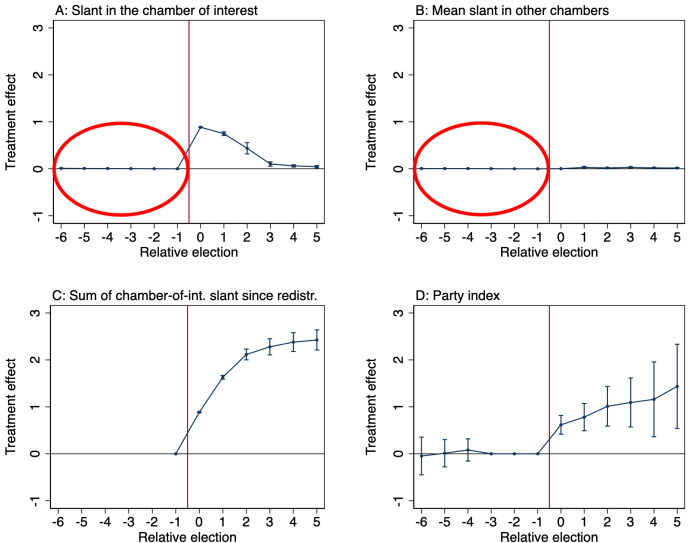

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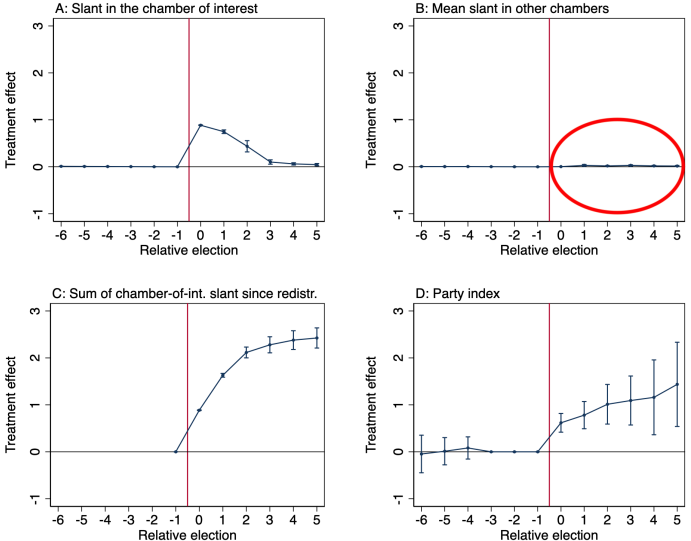

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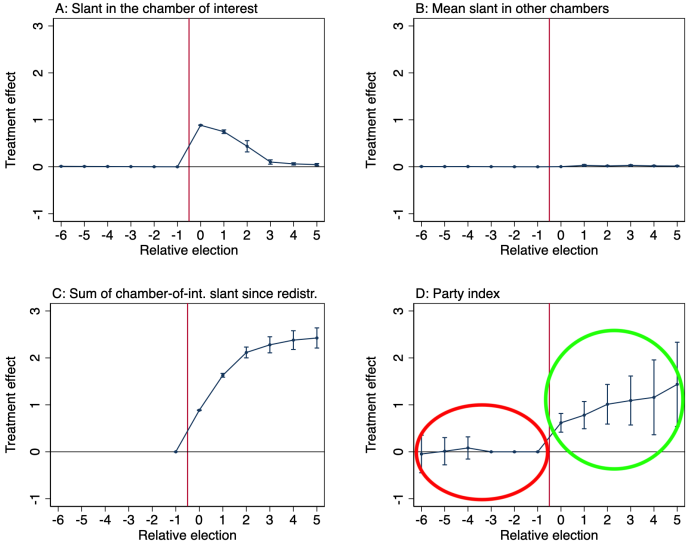

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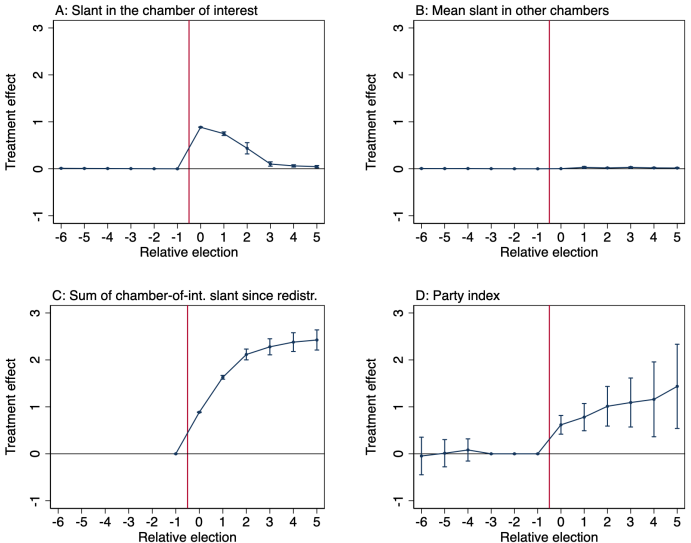
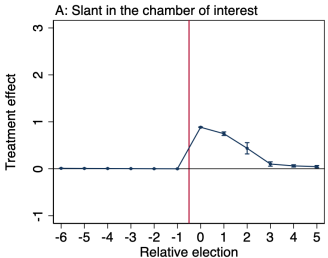


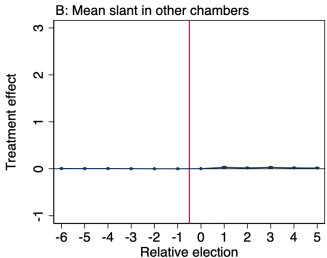
- Dealt with:
  - Past experiences
  - Experiences in other chambers
  - Selection bias

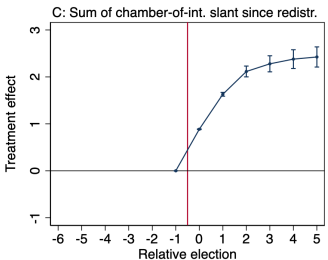
$\Rightarrow$ s_{a_i} has a causal effect on $p_{i\tau}$

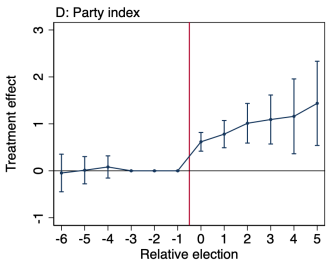
$\rightarrow$ Being placed into a district where the Democrats are powerful causes people to shift their affiliation toward the Democrats

Comments









1. Effects grow over time
2. Effects are persistent
3. Magnitude:
   - $\rightarrow$ Being assigned to a 100-0 v. 0-100 district $\Rightarrow \sim 1$ point shift in $p_{i\tau}$ by $\tau = 4$ or 5
   - Evocative, but a red. form

Outline

IV model

$\rightarrow$ Instrument for experienced slant using assigned slant

- Define the treatment & instrument based on *cumulative* slant:

$$\mathsf{p}_{i\tau} = \alpha_\tau \cdot \mathsf{S}_{i\tau} + \alpha_{g_i\tau} + \alpha_{i\tau}$$
$$\mathsf{S}_{i\tau} = \beta_\tau \cdot \mathsf{S}_{a_i\tau} + \beta_{g_i\tau} + \beta_{i\tau}, \text{ where:}$$

  - $\mathsf{S}_{i\tau} = \sum_{h=0}^{\tau} \mathsf{s}_{ih}$; analogous for $\mathsf{S}_{a_i\tau}$. (Use cumulative values due to event-study evidence)
  - α_τ: the τ-specific effect of a one unit $\uparrow$ in the cumulative slant that i has experienced in the chamber of interest since redistricting

The effects of experienced slant by relative election

- Coef. estimates and std. errors for the α_τ coefficients:

	Election relative to redistricting, τ					
	Zero	One	Two	Three	Four	Five
Sum of slant since redistricting, $S_{i\tau}$	0.698*** (0.115)	0.418*** (0.079)	0.433*** (0.088)	0.464*** (0.103)	0.504*** (0.155)	0.612*** (0.167)
Mean: party index	55.6	56.3	56.5	56.5	56.3	55.8
Clusters	439	334	255	163	151	151
Registrants	6,137,099	5,531,156	5,061,484	4,508,038	4,358,122	4,358,122
Registrant-episodes	11,175,132	9,643,736	8,267,493	6,692,831	6,110,788	6,110,788

→ Stability of the estimates matches the event-study evidence

- Reinforces the claim that the party index depends on cumulative slant

The effects of experienced slant

- Restrict the α_τ coefficients to be the same for all relative elections:

$$\mathsf{p}_{i\tau} = \alpha \cdot \mathsf{S}_{i\tau} + \alpha_{g_i\tau} + \alpha_{i\tau}$$
$$\mathsf{S}_{i\tau} = \beta_\tau \cdot \mathsf{S}_{a_i\tau} + \beta_{g_i\tau} + \beta_{i\tau},$$

	All	Chamber		Voted in baseline	
		U.S. House	NC legisl.	Yes	No
Sum of slant since redistricting, $\mathsf{S}_{i\tau}$	0.502*** (0.111)	0.486* (0.262)	0.509*** (0.119)	0.733*** (0.161)	0.318*** (0.087)
Mean: party index	56.1	58.0	55.6	53.5	58.6
Clusters	439	47	392	438	434
Registrants	6,137,099	2,142,736	5,558,333	3,444,420	3,405,321
Registrants-episodes	11,175,132	2,360,866	8,814,266	5,975,780	5,199,352
Registrant-episode-elections	48,000,768	11,126,360	36,874,408	22,954,733	25,046,035

The effects of experienced slant

$$p_{i\tau} = \alpha \cdot S_{i\tau} + \alpha_{g_i\tau} + \alpha_{i\tau}$$

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- Coef. estimates reveal the impact of one election in a 100-0 v. 0-100 district
- More realistic treatment: one election in a 75-25 v. 25-75 district
  - Magnitudes are half as big
  - Alternatively, values in the table are the impact of *two* elections in 75-25 v. 25-75

The effects of experienced slant

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→ On avg., being in a 100-0 v. 0-100 district ↑'s $p_{i\tau}$ by 0.5 points per election

The effects of experienced slant

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→ There is little heterogeneity by chamber type

The effects of experienced slant

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→ Effects are twice as large for "likely voters"

Results are robust to:

- Matching on additional covariates
- Using alternative instruments
- Using alternative slant measures
- Permutation test: randomly reassign districts' slant values
- Placebo test: pretend that redistricting happened in an earlier year

Effects are additive across chambers

- So far, we've focused on people who differ in assigned districts for a *single* chamber
- **Additional analysis**: study people who differ for *multiple* chambers
  - (Match only on pre-redistricting districts, not on any assigned districts)
- Run a similar IV model, but with multiple treatment variables
  - $\rightarrow$ Cumulative slant since redistricting in each chamber
  - Also, add interaction terms

$\Rightarrow$ Obtain similar estimates as in the main analysis

- Can't reject that the interaction terms are all zero

Changes in preferences v. strategic behavior

→ Evidence points to *changes in preferences*:

- Voting in the dominant party's primary?
  - X Effects exist for people who rarely vote in primaries
  - X Effects are comparable in presidential and midterm years
  - X People shift in ways that constrain their primary-voting eligibility
- Currying favor?
  - X Effects aren't limited to members of access-oriented groups
- Also, strategic behavior struggles to explain persistence

Outline

Implications: theory

- Results have implications for the effects of drawing districts to be uncompetitive:

1. Uncompetitive districts should contribute to polarization
   → People who lean D (R) tend to get put in D (R) districts → spread apart

2. But shouldn't advantage either party (at least, on the statewide level)
   → Effects cancel

Illustration: the impacts of the districts used in NC during the 2010s

- Predict how p_{it} would have differed if all districts in the 2010s had been competitive
  - $\rightarrow$ "48-52" v. the districts that were actually used
- I.e., for $t = 2012, \ldots, 2020$, calculate:

$$p_{it}^{\text{cfac}} = p_{it} - \hat{\alpha} \cdot \sum_{h=2012}^{t} \sum_{j \in \{\text{USH, NCS, NCH}\}} (s_{ih}^{j} - 0.48).$$

The impacts of the districts used in NC during the 2010s

The 2010s districts . . .

1. did not affect the statewide mean of the party index
2. did increase polarization
   - Spatial nature of districts $\Rightarrow$ increase was most pronounced geographically
   - e.g., 10% $\uparrow$ in the across-*county* variance of p_{it} by 2020

Conclusion

- Asked if the slant of a legislative district affects people's party affiliation
  - Found that it does:
  - People exposed to more D. districts shift their affiliation toward the Democrats
- Effects are small in terms of the impact of one election in one district
  - But accumulate in a way that means they can become sizable
- Results have implications for the effects of uncompetitive districts
  - Ainsworth et al. (2024): uncompetitive districts $\downarrow$ turnout
  - This paper : uncompetitive districts $\uparrow$ polarization
- Much is still unknown as to the optimal district configuration ...

Appendix

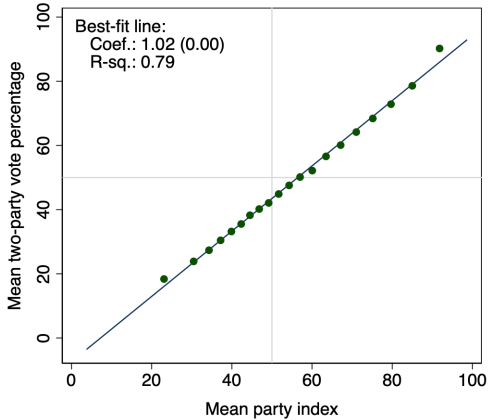
...

Summary statistics

	Mean	Std. dev.	N
Panel A: Registrants			
Demographics			
Age	48.4	18.5	34,501,586
Male	0.45	0.50	34,504,142
Black	0.22	0.42	34,504,142
White	0.69	0.46	34,504,142
Party index			
Democrat	0.40	0.49	34,504,142
Unaffiliated-Democrat	0.06	0.23	34,504,142
Unaffiliated	0.20	0.40	34,504,142
Unaffiliated-Republican	0.05	0.21	34,504,142
Republican	0.30	0.46	34,504,142
Census covariates			
Population density in census block	1,233	5,551	34,504,142
Median hhld. income in block-group	53,604	27,143	33,706,713
Share college graduates in block-group	0.32	0.21	34,502,073
Other covariates			
Parcel value per registrant	83,765	385,775	33,117,835
LOO mean party index in census block	54.8	19.2	34,456,522
Panel B: Legislative races			
Democratic candidate	0.82	0.38	1,648
Republican candidate	0.86	0.35	1,648
Democratic two-party vote share	0.48	0.31	1,648
Democratic two-party spending share	0.48	0.41	1,648
Democratic winner	0.43	0.50	1,648
Female winner	0.25	0.43	1,648
Minority winner	0.19	0.39	1,648
Share minority	0.30	0.19	1,648
Panel C: Legislator ideology			
ACU conservative score	0.63	0.33	1,098
LCV environmental score	0.47	0.37	1,464

Back

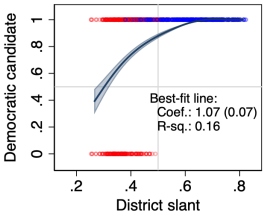
Predicting precinct vote shares using the party index

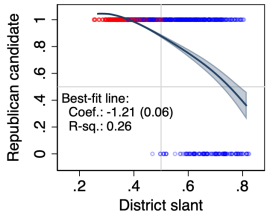


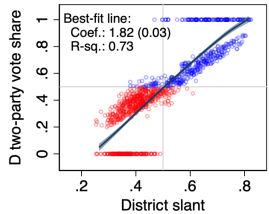
→ Party index is a strong predictor of vote shares... and better than using party registration alone

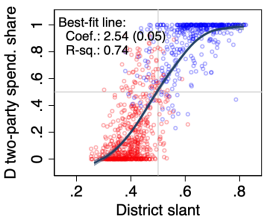
Back

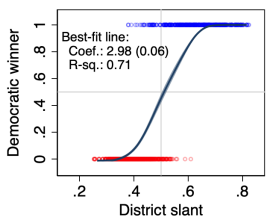
Predicting attributes of legislative races using district slant

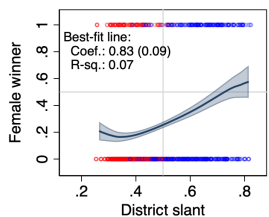






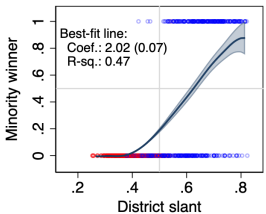


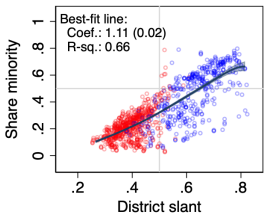


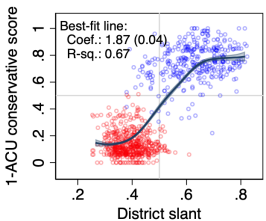


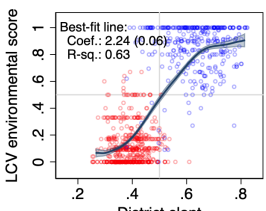
Back

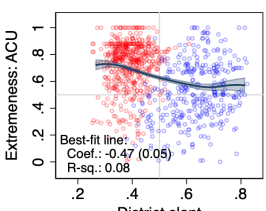
Predicting attributes of legislative races using district slant

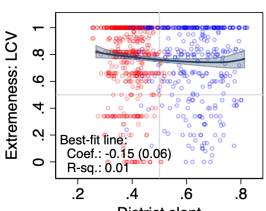






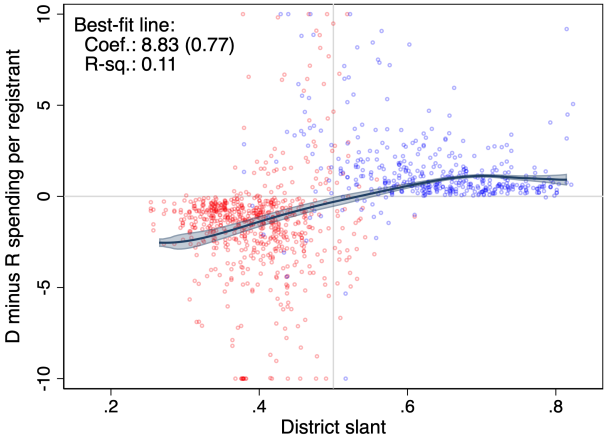






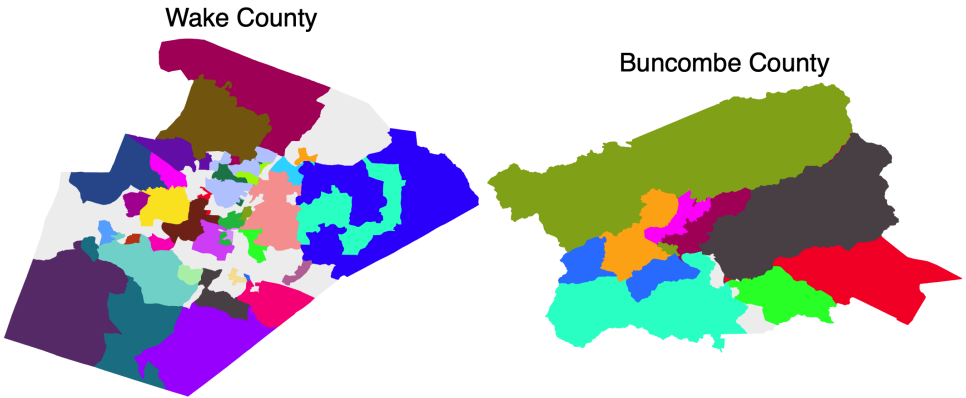
Back

Predicting attributes of legislative races using district slant



Back

Example regions: 2010s decennial redistricting episode for the NC House

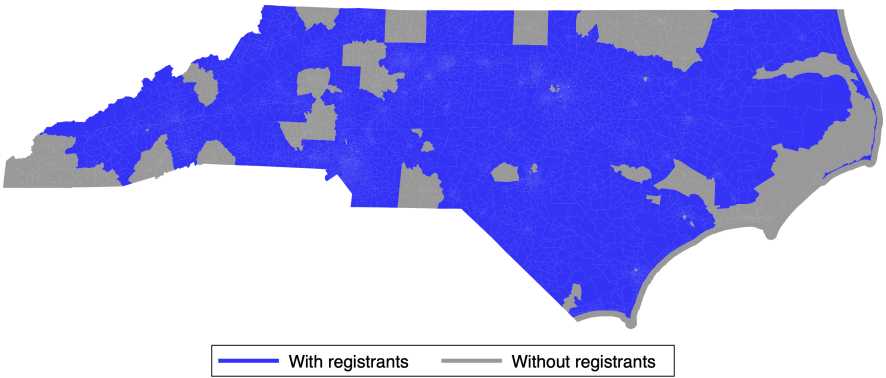


- $\sim 1,500$ regions per episode (similar to a census tract) Back

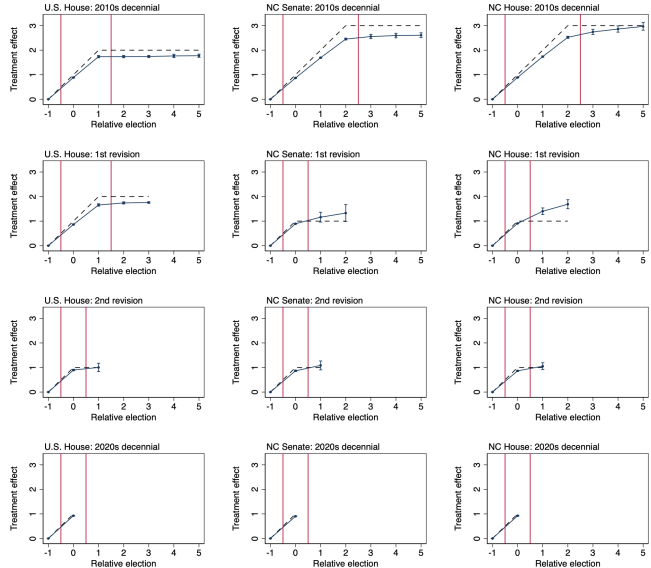
The size of the estimation sample

Episode	Registrants	Regions	Registr. per region		Match-groups	Registr. per m.-g.	
			Mean	Std. dev.		Mean	Std. dev.
2010s decennial redistricting							
U.S. House	1,347,456	195	6,910	8,158	66,991	20.1	47.3
NC Senate	1,380,660	263	5,250	7,637	70,675	19.5	47.8
NC House	3,382,672	349	9,692	12,782	149,372	22.6	58.2
1st court-ordered revision							
U.S. House	582,043	72	8,084	8,696	35,896	16.2	41.0
NC Senate	355,720	79	4,503	5,313	27,846	12.8	30.7
NC House	1,218,942	193	6,316	7,676	95,322	12.8	32.7
2nd court-ordered revision							
U.S. House	282,085	34	8,297	10,518	21,725	13.0	37.2
NC Senate	281,291	44	6,393	5,974	26,261	10.7	26.6
NC House	812,867	109	7,457	10,060	65,194	12.5	33.4
2020s decennial redistricting							
U.S. House	149,282	40	3,732	5,550	14,548	10.3	30.8
NC Senate	293,873	45	6,531	7,310	24,853	11.8	33.3
NC House	1,088,241	140	7,773	9,714	92,923	11.7	31.7
All episodes	11,175,132	1,563	7,150	9,511	691,606	16.2	43.0

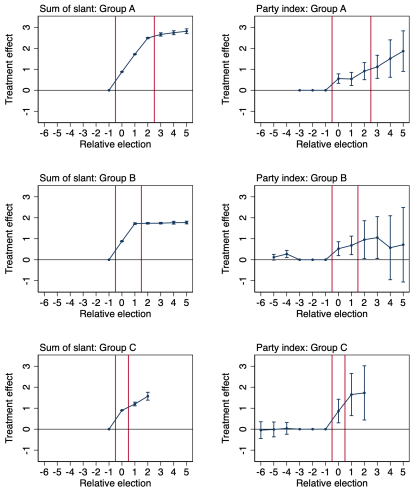
Block-groups with registrants in the estimation sample



Details on the first stage: the effect of s_{a_i} on $S_{i\tau}$ by episode



Event studies by treatment-group



Allowing differences in assigned districts for multiple chambers

	(1)	(2)
Sum of slant since redistricting: all chambers	0.493***	
	(0.095)	
Sum of slant since redistricting: U.S. House		0.456**
		(0.200)
Sum of slant since redistricting: state chambers		0.504***
		(0.112)
Test of joint signif. of interactions		
F-statistic	0.81	0.85
p-value	0.516	0.494
Mean: party index	55.7	55.7
Clusters	644	644
Registrants	6,513,867	6,513,867
Registrant-episode-elections	40,242,521	40,242,521

Back

Effects by whether the registrant voted in the baseline primary

	All	Voted in baseline primary	
		Yes	No
Sum of slant since redistricting, $S_{i\tau}$	0.502*** (0.111)	0.846*** (0.243)	0.428*** (0.102)
Turnout percentage: all primaries	25.4	65.1	18.6
Turnout percentage: midterm primaries	14.8	50.9	8.4
Turnout percentage: presidential primaries	32.0	74.5	25.0
Mean: party index	56.1	54.0	56.6
Clusters	439	437	438
Registrants	6,137,099	1,339,072	5,378,937
Registrant-episode-elections	48,000,768	7,503,297	40,122,465

Back

Effects by election type

	All	Election type	
		Midterm	Presidential
Sum of slant since redistricting, S_{iT}	0.502*** (0.111)	0.518*** (0.110)	0.495*** (0.112)
Mean: party index	56.1	55.8	56.5
Clusters	439	439	334
Registrants	6,137,099	6,137,099	5,531,156
Registrant-episode-elections	48,000,768	25,553,413	22,447,355

Back

Effects on components of the party index

	Party index	Component				
		Dem.	Unaffil.-Dem.	Unaffil.	Unaffil.-Rep.	Rep.
Panel A: Democratic registrants						
Sum of slant since redistricting, $S_{i\tau}$	0.441***	0.602***	-0.092*	-0.032	-0.307***	-0.171*
	(0.142)	(0.167)	(0.048)	(0.060)	(0.074)	(0.102)
Mean of outcome	94.8	91.9	2.4	1.8	1.0	2.9
Clusters	437	437	437	437	437	437
Registrants	2,668,253	2,668,253	2,668,253	2,668,253	2,668,253	2,668,253
Registrant-episode-elections	22,334,556	22,334,556	22,334,556	22,334,556	22,334,556	22,334,556
Panel B: Unaffiliated registrants						
Sum of slant since redistricting, $S_{i\tau}$	0.848***	0.570***	0.597**	0.312	-1.30***	-0.175
	(0.155)	(0.138)	(0.260)	(0.241)	(0.210)	(0.128)
Mean of outcome	50.7	4.1	16.0	62.3	13.8	3.8
Clusters	432	432	432	432	432	432
Registrants	1,652,488	1,652,488	1,652,488	1,652,488	1,652,488	1,652,488
Registrant-episode-elections	10,293,686	10,293,686	10,293,686	10,293,686	10,293,686	10,293,686
Panel C: Republican registrants						
Sum of slant since redistricting, $S_{i\tau}$	0.372***	0.173***	0.153***	0.130**	0.078	-0.534***
	(0.096)	(0.053)	(0.056)	(0.058)	(0.094)	(0.168)
Mean of outcome	3.6	1.2	0.8	2.2	2.8	93.0
Clusters	436	436	436	436	436	436
Registrants	1,955,377	1,955,377	1,955,377	1,955,377	1,955,377	1,955,377
Registrant-episode-elections	15,372,526	15,372,526	15,372,526	15,372,526	15,372,526	15,372,526

Back

Impacts of the 2010s districts on the party index

The change in the party index under actual v. counterfactual districts: $p_{it} - p_{it}^{cfac}$

Election	Mean	Percentile		
		10	50	90
2012	-0.04	-0.24	-0.04	0.13
2014	-0.09	-0.48	-0.09	0.25
2016	-0.13	-0.69	-0.12	0.35
2018	-0.16	-0.90	-0.15	0.46
2020	-0.19	-1.09	-0.17	0.56

- The 2010s districts did not advantage either party Back

Impacts of the 2010s districts on polarization

The 2020 variance of the party index under actual and counterfactual districts

	Std. deviation		**Variance**		**Change in var.**	
	Actual	Counterf.	Actual	Counterf.	Level	Percent
All registrants	43.4	43.2	1,879	1,868	11	0.6
Census tracts	15.4	14.9	237	223	15	6.6
Counties	10.7	10.2	114	104	10	9.7

- The 2010s districts ↑'d the variance, particularly on a geographic dimension Back