

Religious Mayors, Teenage Pregnancy, and Sexual Education in Schools

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Motivation

- Political ideology shapes which public policies governments choose to prioritize, how they are implemented, and whom they serve
- When moral views are salient, executive discretion is especially consequential
- Sex education in schools is visible, contested, and within municipal influence
- Limiting sex-education programs may lead to unintended consequences for teen pregnancy and sexual health.
- Surge of Pentecostals in politics in Brazil provides an opportunity to study this question

This Paper

- **Question:** Causal impact of Pentecostal local political leadership on sexual education and teenage pregnancy rates in Brazil
- **Empirical Strategy:** Close race mayoral election between Pentecostal and non-Pentecostal parties
- **Main Results:**
 - Increase of 10% in teenage pregnancy
 - No effect on older women
 - Municipal schools are 12 p.p. less likely to offer sexual education
 - Increase in cases of STDs among teenagers
 - Conservativeness does not explain results

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Literature Review

- **Economic effects of political parties** Lee, Moretti, and Butler 2004; Ferreira and Gyourko 2009; Pettersson-Lidbom 2008; Akhtari, Moreira, and Trucco 2022
 - Few studies on alternative political divisions such as religion Meyersson 2014; Henderson and Kuncoro 2011; Blaydes 2010
 - Contribution: impact of Pentecostal leadership
- Educational content shaping individuals' beliefs and behaviors Cantoni et al. 2017; Dhar, Jain, and Jayachandran 2022
 - Focus on beliefs and political attitudes
 - Contribution: impact on health outcomes
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 - Mixed results
 - Contribution: evidence from a large natural experiment

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Background

Background: Political Parties

- Brazil has a multiparty system with around 30 political parties
- The *Partido Social Cristão* (PSC)
 - Founded in 1985, clear religious stance
 - Most of the executive members and the president are linked to *Assembleia de Deus*
 - Conservative stance on social issues, opposing abortion and drug legalization
 - Gained visibility in 2014 due to its strong opposition to LGBTQ+ rights.
- The *Partido Republicano Brasileiro* (PRB)
 - Founded in 2003 by pastors from *Universal do Reino de Deus* church
 - No explicit religious references in its name or stated ideology
 - Almost all of its executive members are pastors

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Background: School System

- 61,806 middle schools: 47% municipal, 29.3% state, 23.5% private
- State and municipal departments of education provide guidelines for their respective education systems
- Teachers have a lot of discretion on implementation
- Politicians can influence the schools' curriculum
- 60% of principals in public schools are politically appointed

Background: Sexual Education in Public Schools

- Human Rights Watch: interviewed 56 related to attacks on gender and sexuality education
- Twenty of the teachers harassed for addressing gender and sexuality
- Grasiela P.'s case:
 - Municipal Department of Education opened administrative-disciplinary proceedings for teaching contraceptive methods “in disaccord” with the city’s curriculum, which permits that teaching on this subject be limited to “basic information”
- Mayor suspended her for 30 days without pay without clarifying the facts with Grasiela P.
- Faced death threats

Data

- **Electoral Data (TSE)** ▶ Descriptive
 - 2008, 2012, and 2016 election cycles
 - Close races between PRB or PSC and any other party
 - Exclude races when the non-Evangelical party has a coalition with one of them
- **Health Data** ▶ Descriptive
 - Births (SINASC)
 - Syphilis (SINAN)
- **Sexual Education**
 - 2011, 2013, and 2017 waves of Prova Brasil
 - Headmasters' questionnaire
 - Restrict to schools offering middle school (5-8 grades)

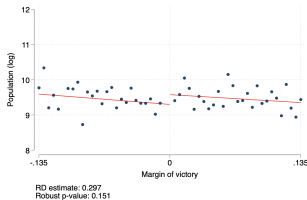
Empirical Strategy

$$Y_{jmt} = \alpha + \tau \cdot MV_{mt} + \beta \cdot T_{mt} + \rho \cdot MV_{mt} \times T_{mt} + X_{jmt} + \varepsilon_{mt}$$

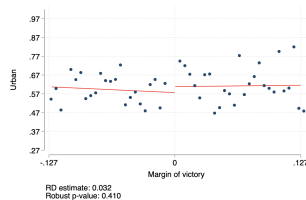
- Y_{jmt} is the outcome variable of interest in municipality m or school jm
- t : election cycle (2008, 2012, and 2016)
- MV : margin of victory
- T : dummy indicating if the Pentecostal party wins
- X_{jmt} : electoral cycle and state fixed effects (Y_{jmt-1})
- ε_{jmt} : clustered at the municipal level

Validity Checks: Municipality Characteristics

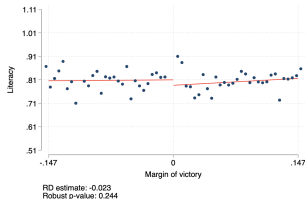
(a) Log Population



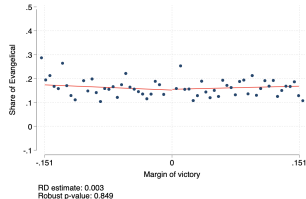
(b) Share Urban Population



(c) Share of Literacy

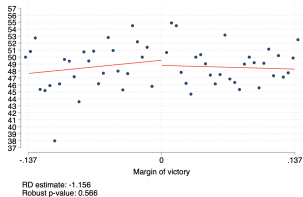


(d) Share of Evangelicals

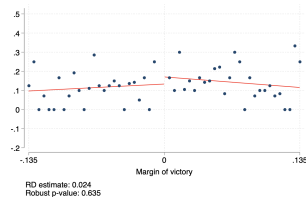


Validity Checks: Candidates Characteristics

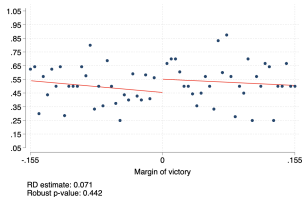
(a) Candidate's age



(b) Candidate's gender



(c) Candidate's education (college degree)



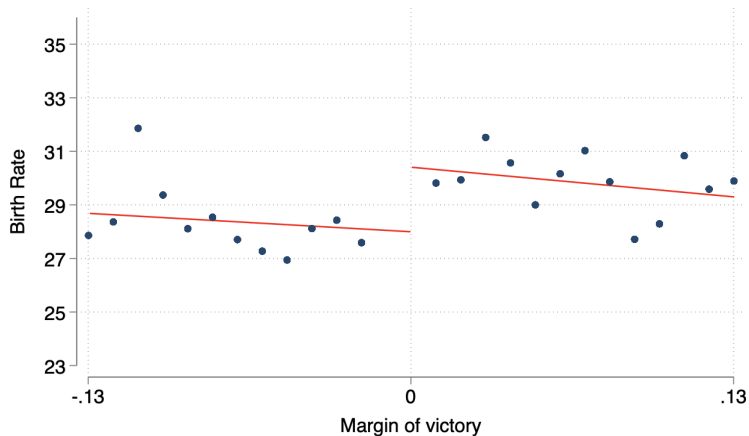
Results

Results: Teenage Pregnancy

- Increase of 10% in teenage pregnancy
- No evidence of pre-trends
- Effect is driven by girls with at least 4 years of education
- No effect for older women
- Timing suggest causal effect of election

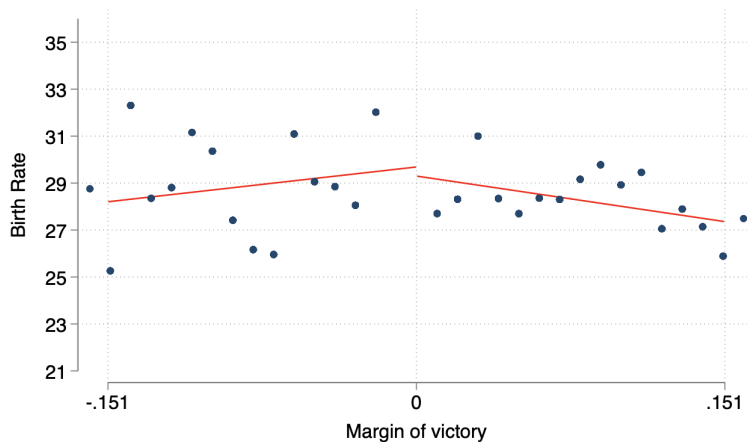
Results: Teenage Pregnancy (13-17 years-old)

► Table



RD estimate: 2.579
Robust p-value: 0.045

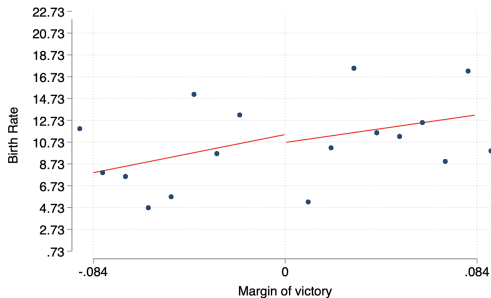
Results: Pre-trend in Teenage Pregnancy (13-17 years-old)



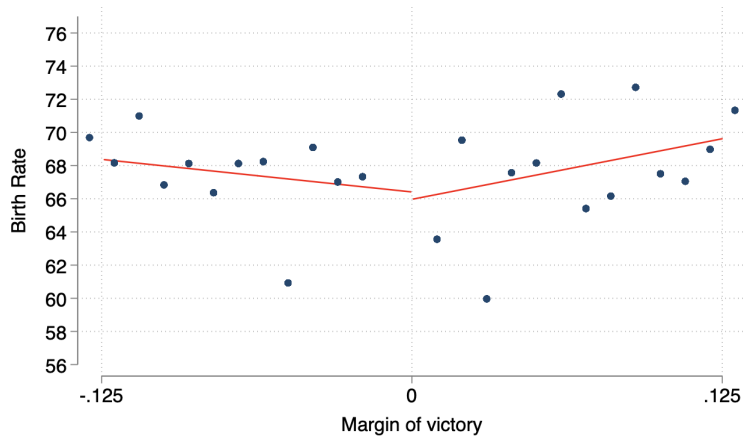
RD estimate: -0.406
Robust p-value: 0.716

Results: Teenage Pregnancy by Education

(a) 3 or less years of education



Results: Older Women



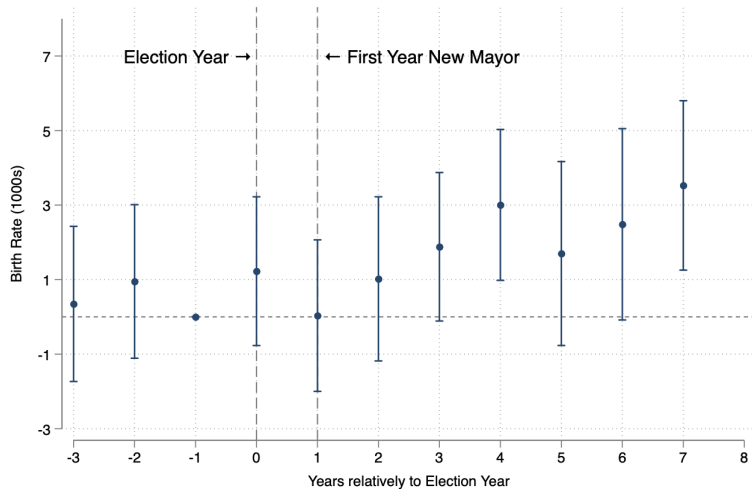
RD estimate: -0.839
Robust p-value: 0.699

Dynamic Effects

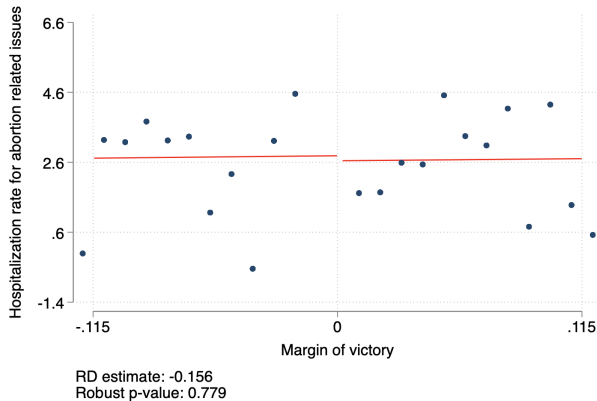
$$Y_{mtk} = \sum_k \alpha_k + \sum_{k, k \neq -1} \beta_k \cdot T_{mt} + \sum_k \tau_k \cdot MV_{mt} + \\ + \sum_k \rho_k \cdot MV_{mt} \cdot T_{mt} + \sum_k \gamma_{s(m)k} + \sum_k \delta_{tk} + \varepsilon_{mtk}$$

- Y_{mtk} : teenage pregnancy in municipality m
- t : election cycle (2008, 2012, and 2016); k : time relative to election year
- MV : margin of victory
- T : dummy indicating if the Evangelical party wins the election
- X_{jmt} : cycle and state fixed effects, baseline teenage pregnancy
- ε_{mtk} : clustered at municipal level

Results: Teenage Pregnancy (13-17 years-old)



Results: Hospitalization for abortion



Potential Mechanism: Sexual Education

- It is challenging to pinpoint the exact policies
- Decrease in sexual education in municipal schools, no effect for state schools
- Mayors can choose headmasters in municipal schools
- No changes in other courses such as racism, inequality, bullying, environment, etc
 - Exception: activities related to drugs
 - Consistent with their approach to limit discussions that they believe could promote behaviors contrary to their moral and religious views

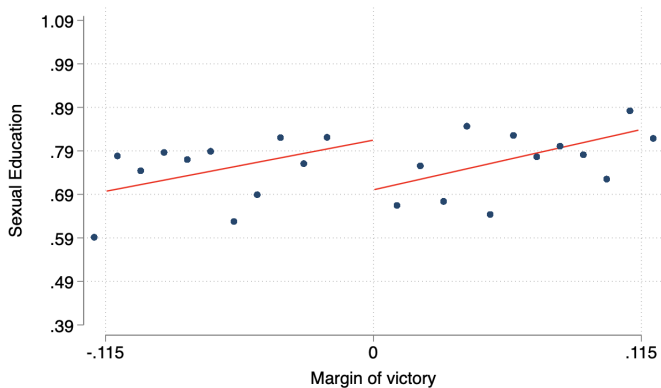
Evidence of the Effect Sexual Education on Teenage Pregnancy

- Comprehensive sexuality education (CSE) lowers risk. meta-analysis of 29 RCTs: pooled pregnancy risk ratio 11% drop.
- Real-world classroom proof. “Safer Choices” cluster RCT (20 US high schools) reported 40% fewer pregnancies 31 months after launch.
- Policy-scale funding works. Counties that won federal Teen Pregnancy Prevention/PREP grants cut teen-birth rates by $> 3\%$ within five years, with larger gains over time.
- Abstinence-only backfires. State-level analysis links stronger abstinence-only emphasis to higher teen pregnancy birth rates, even after socioeconomic controls.

Evidence of the Effect Sexual Education on Teenage Pregnancy

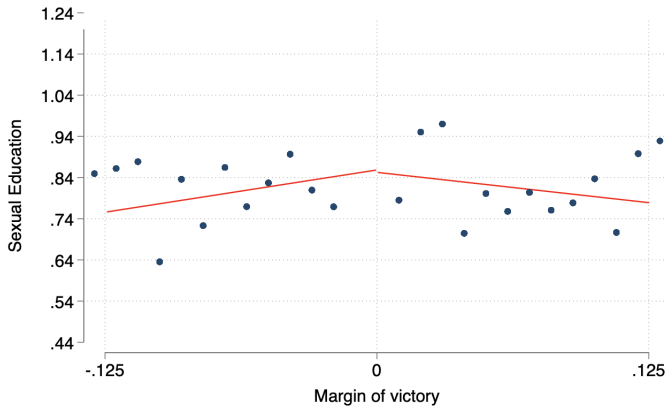
- Ecuador – mandatory CSE in the 2010 national curriculum: 6-8% within three years of rollout (larger in rural cantons). Aguirre, K., Carrión-Yaguana, V. D. (2023)
- Brazil – peer-led network intervention in Salvador public high schools. Cluster-RCT shows a 28% drop in self-reported pregnancies 24 months after the program Baumgartner, E., Breza, E., La Ferrara, E., Orozco Olvera, V., Rosa-Dias, P. (2024)
- Chile – multi-sector strategy plus Law 20.418 (right to sex-ed, 2010). Policy evaluation links the reform package to a 10% reduction in the adolescent fertility rate within five years. Villalobos Dintrans, P., Maddaleno, M., Orellana, C., González, F. (2022)

Results: Sexual Education in Municipal Schools



RD estimate: -0.129
Robust p-value: 0.012

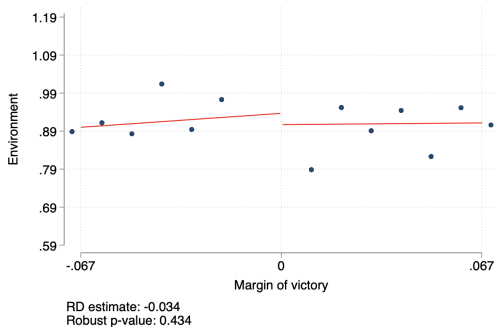
Results: Sexual Education in State Schools



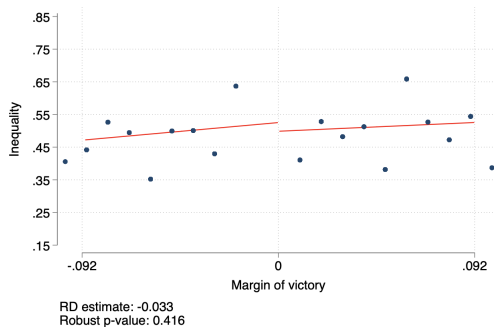
RD estimate: -0.000
Robust p-value: 0.850

Results: Other Courses in Municipal Schools

(a) Environment

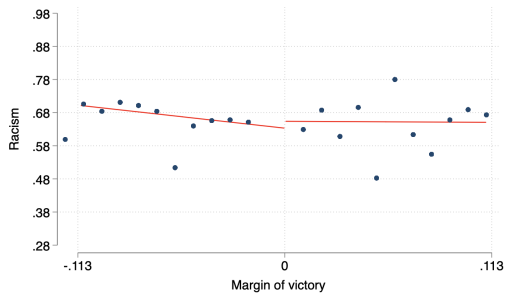


(b) Inequality



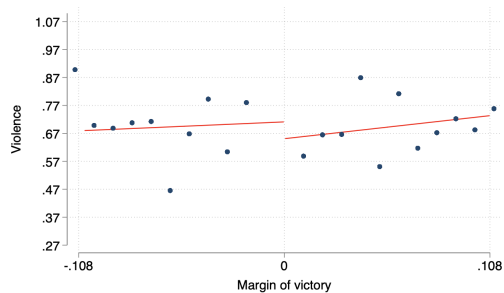
Results: Other Courses in Municipal Schools

(c) Racism



RD estimate: 0.026
Robust p-value: 0.626

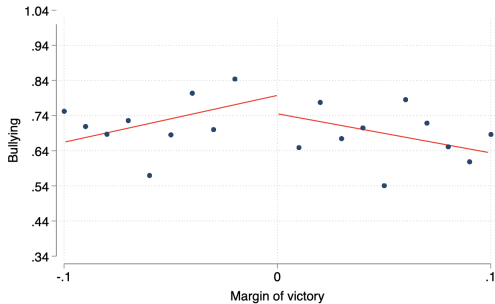
(d) Violence



RD estimate: -0.067
Robust p-value: 0.170

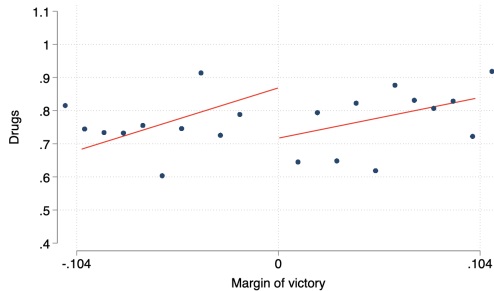
Results: Other Courses in Municipal Schools

(e) Bullying



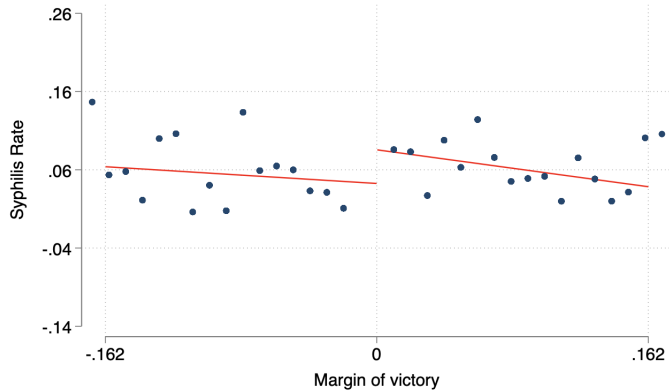
RD estimate: -0.059
Robust p-value: 0.388

(f) Drugs



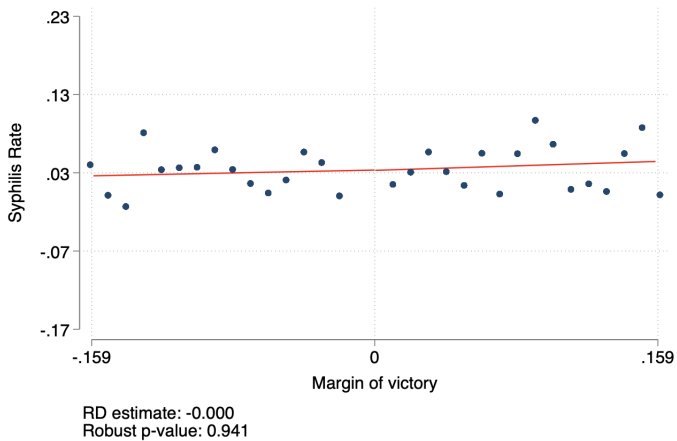
RD estimate: -0.178
Robust p-value: 0.000

Results: STD

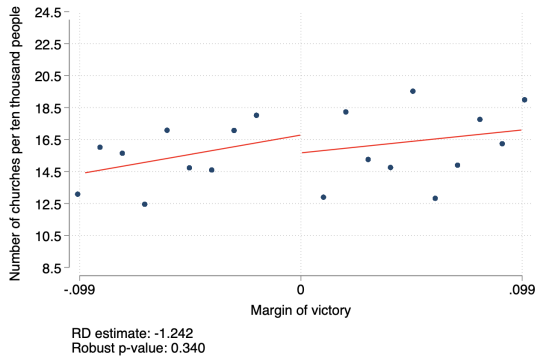


RD estimate: 0.046
Robust p-value: 0.047

Results: Pre-trend STD



Results: Number of churches per ten thousand people



Can effects be explained by conservativeness?

- Can the impact on teenage pregnancy and sexual education be attributable to conservative ideology, rather than the religious component?
- Overlap between the policy agendas of Pentecostal political candidates and conservative parties more broadly
- If the results were simply a function of conservative politics, I would expect to see similar effects when non-Evangelical right-wing parties win the elections.

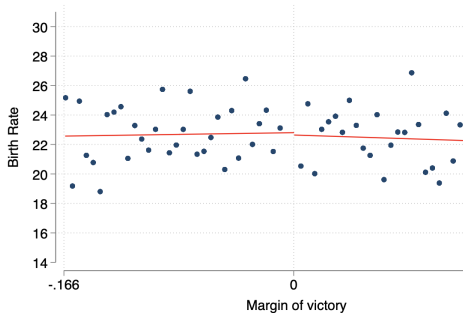
Alternative Explanation

Can effects be explained by conservativeness?

- I examine close races between right-wing parties (excluding the Evangelical ones) and other non-right-wing parties.
- Atlas Político—Mapa do Congresso: party ideology as belonging to the left, center, or right (Akhtari, Moreira, and Trucco 2022)

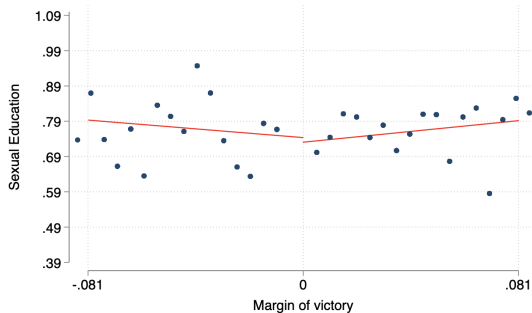
Results: Conservativeness

(a) Teenage Pregnancy



RD estimate: -0.223
Robust p-value: 0.945

(b) Sexual Education



RD estimate: -0.020
Robust p-value: 0.922

Conclusion

Conclusion

- Local Pentecostal politicians have an impact on teenage pregnancy rates and syphilis on teenagers
- Key contributing factor: municipal schools are less likely to provide sexual education; no such effect for state schools
- Heterogeneous impact corroborate the hypothesis
- Conservativeness without the religious component do not explain results

Thank you!

mmello@uandes.cl

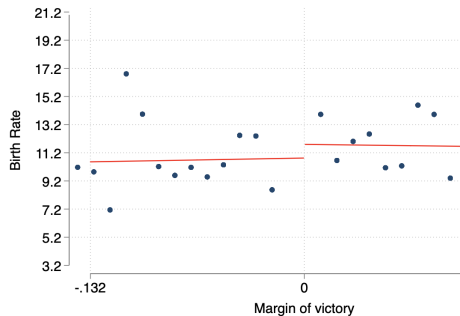
Results: Teenage Pregnancy

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VARIABLES	(1) Birth Rate	(2) Birth Rate	(3) Birth Rate
RD_Estimate	3.46 (1.825)	3.36 (1.480)	2.58 (1.338)
Dep. Var. t-1	Y	Y	Y
Cycle FE	N	Y	Y
State FE	N	N	Y
Mean dep. var.	27.90	27.90	27.90
Effective N. Obs.	312	396	368
Conventional p-value	0.0582	0.0233	0.0540
Robust p-value	0.0464	0.0233	0.0446
Optimal Bandwidth	0.106	0.141	0.130
Order polyn.	1	1	1

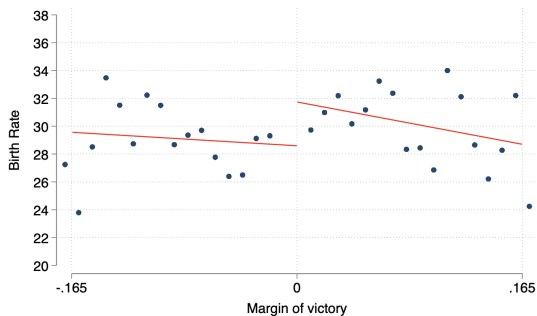
Results: Teenage Pregnancy

(a) White



RD estimate: 1.041
Robust p-value: 0.523

(b) Non-white



RD estimate: 3.362
Robust p-value: 0.045

Close Races

Electoral Cycle	Number of municipalities
2008	186
2012	226
2016	288
Total	700

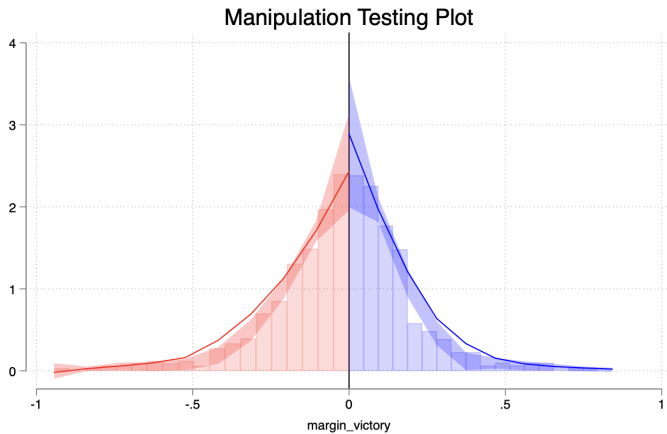
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Teenage Pregnancy (births per 1,000 girls)

Electoral Cycle	Pentecostal Parties		Other Parties	
	Mean	SD	Mean	SD
2008	33.1	11.4	33.4	12.8
2012	30.0	12.6	29.4	12.8
2016	24.2	12.9	21.6	10.8
Total	28.4	12.9	27.4	13.0

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Validity Checks: Manipulation



Ideology	Parties
Right	PMDB, PTB, DEM, PR, PRB, PRP, PP, PSDC, NOVO
Center	PV, PSL, PMN, PTN, PSDB, PHS, PTC
Left	PDT, PPS, PT, PSB, PC do B, PT do B, PSC, PRTB