The Long-Run Effects of Corporal Punishment in Schools

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NBER Culture & Institutions

Background

- Corporal punishment was historically a standard method to enforce discipline in schools around the world.
  - Little to no organized opposition until the 20th century.
- Remains legal in a majority of developing countries and numerous developed countries.
  - Including 19 states in the U.S.
- Advocates claim it serves as a strong deterrent for disruptive behavior.
- Detractors argue it is cruel and unusual – and potentially backfires.

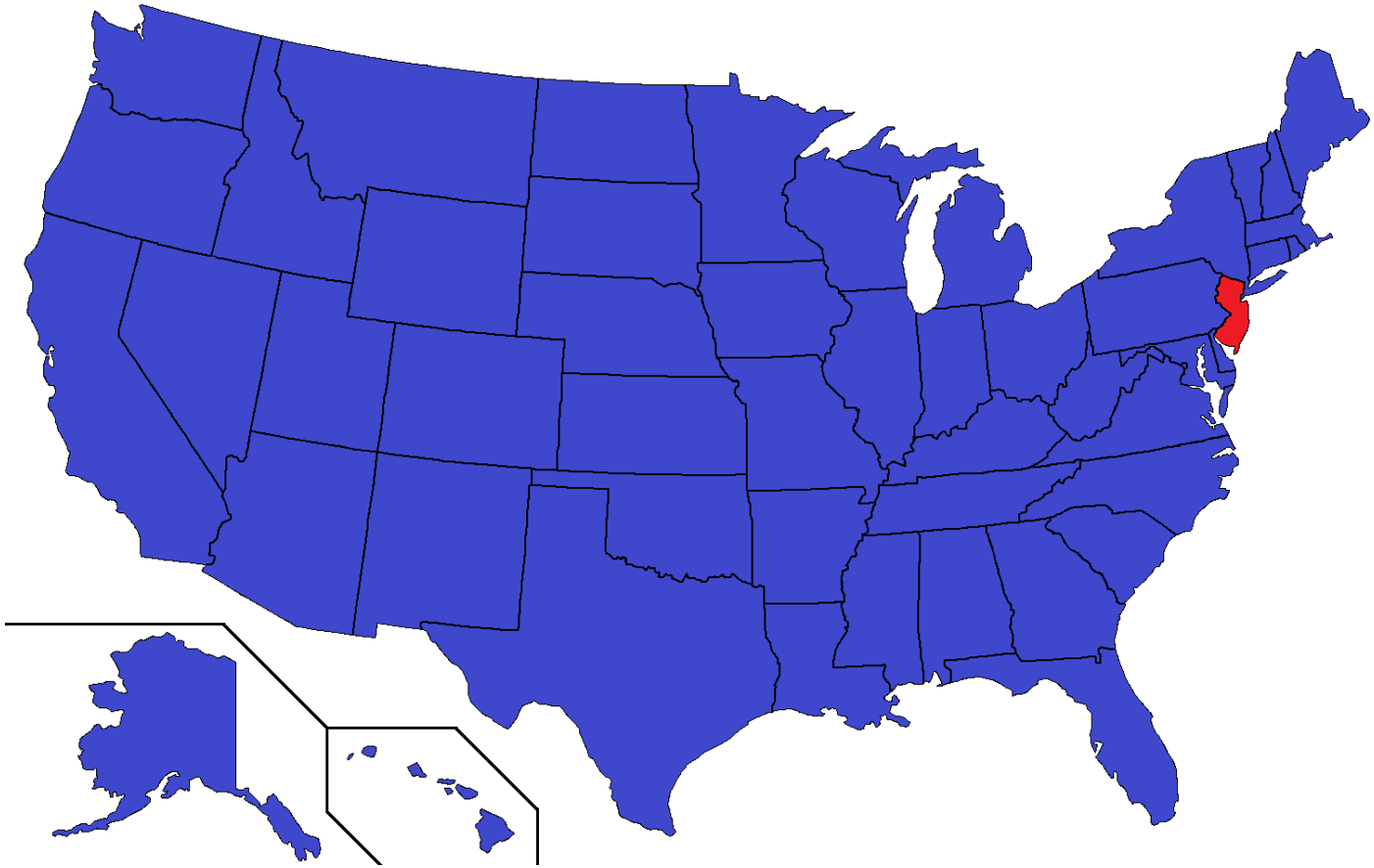
Background: The U.S.

- In 1970, 14-year-old James Ingraham was placed face-down on a table and restrained by the Assistant Principal and staff assistant at his school as the Principal paddled him for disruptive behavior.
- His parents sued, arguing it violated the 8th Amendment – which bans “cruel and unusual” punishment.
- In a close 5-4 decision, the Supreme Court rejected this argument, upholding school corporal punishment.
- In the meantime, states took matters into their own hands, legislating state-level bans on the practice.

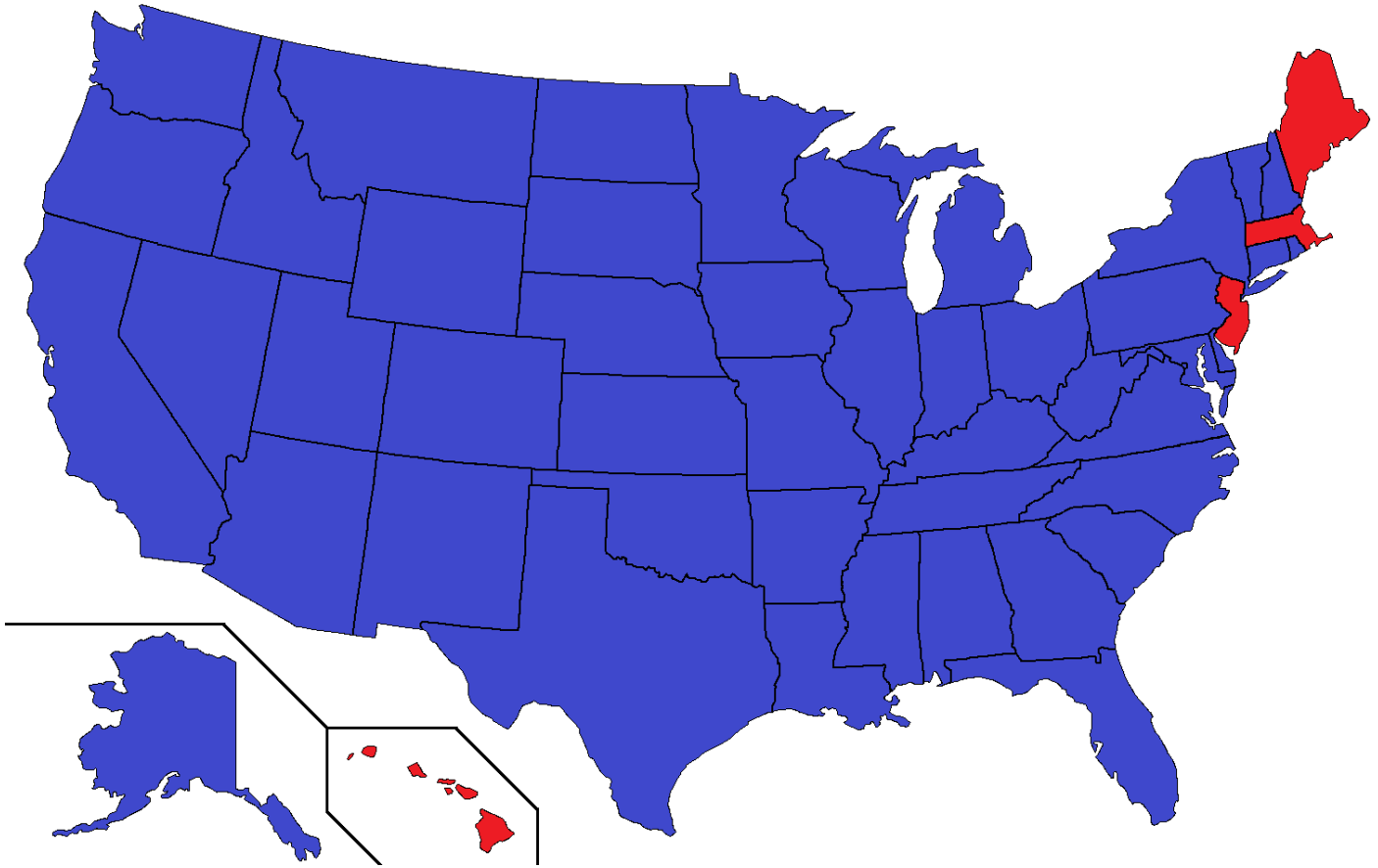
Corporal Punishment in U.S. Schools

- The amount of corporal punishment declined by a factor of 4 between 1978 and 2014 (Gershoff, Purtell, and Holas 2015)
  - Mostly driven by state-level bans on corporal punishment which have been implemented since the 1970s
  - Suggests diff-in-diff strategy with variation by state and cohort in exposure to corporal punishment
- Corporal punishment remains legal in 19 states comprising over one-third of the total U.S. student population.
  - In 2014, a student was hit in a U.S. public school once every 30 seconds.

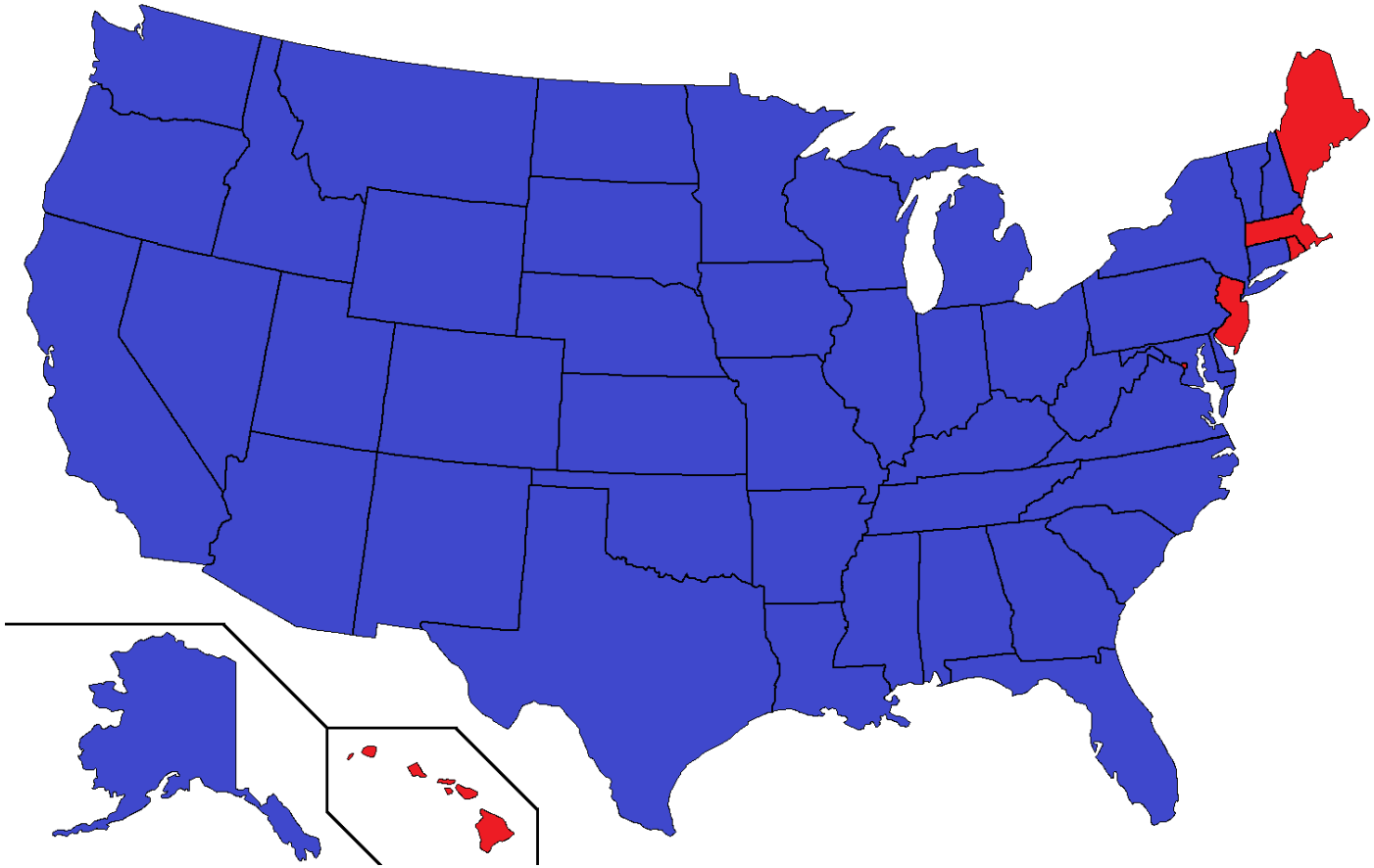
1970



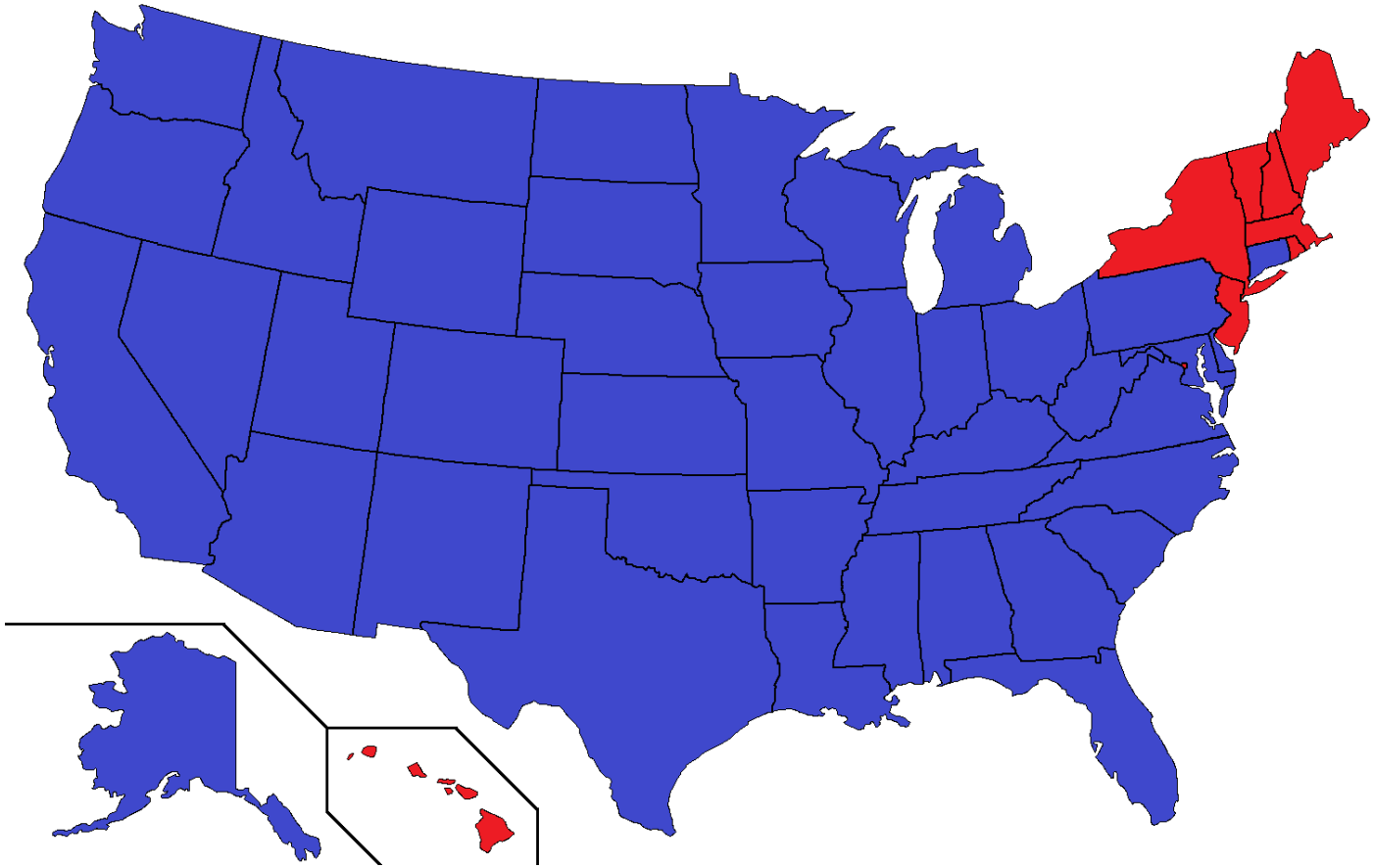
1975



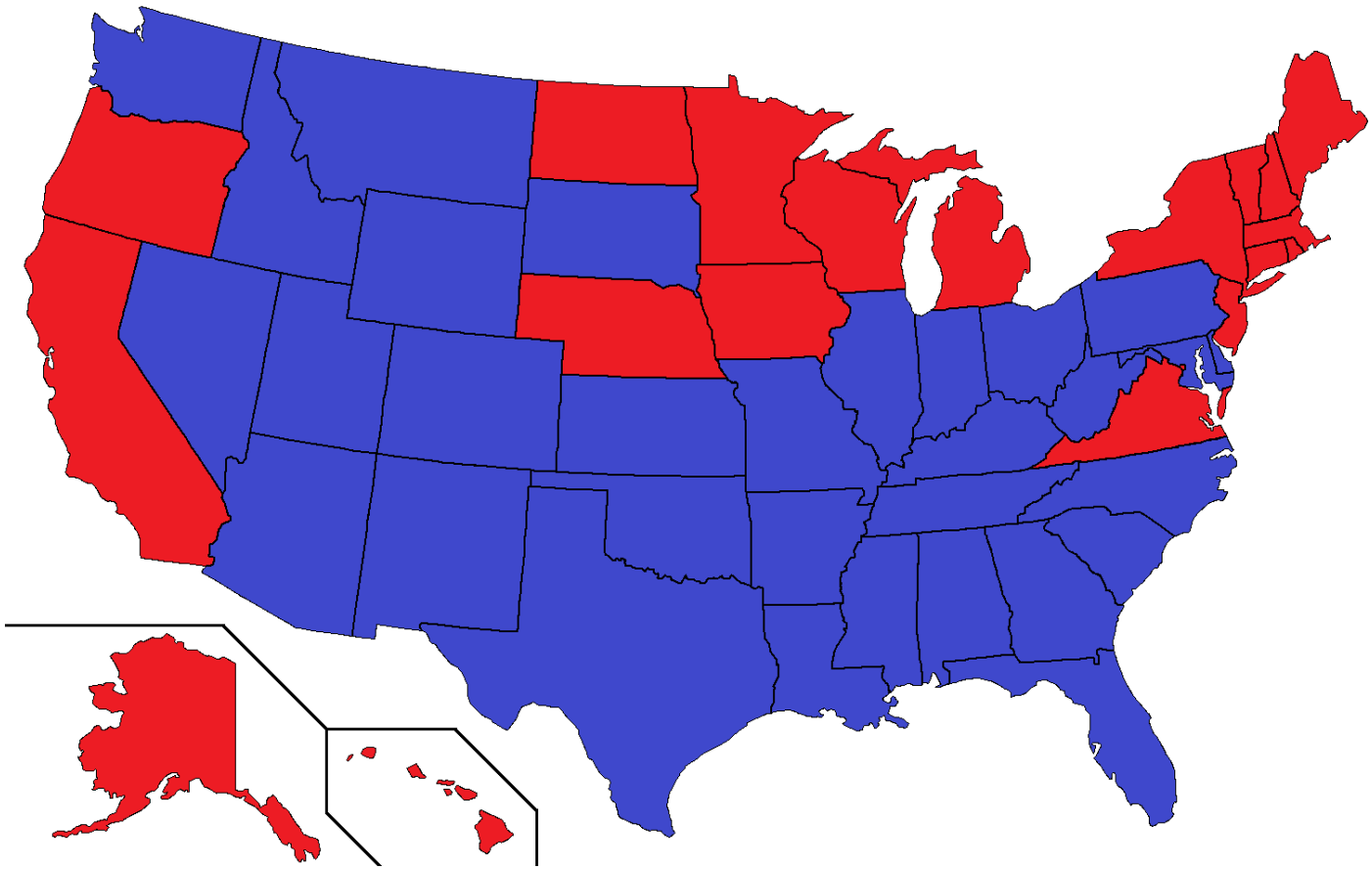
1980



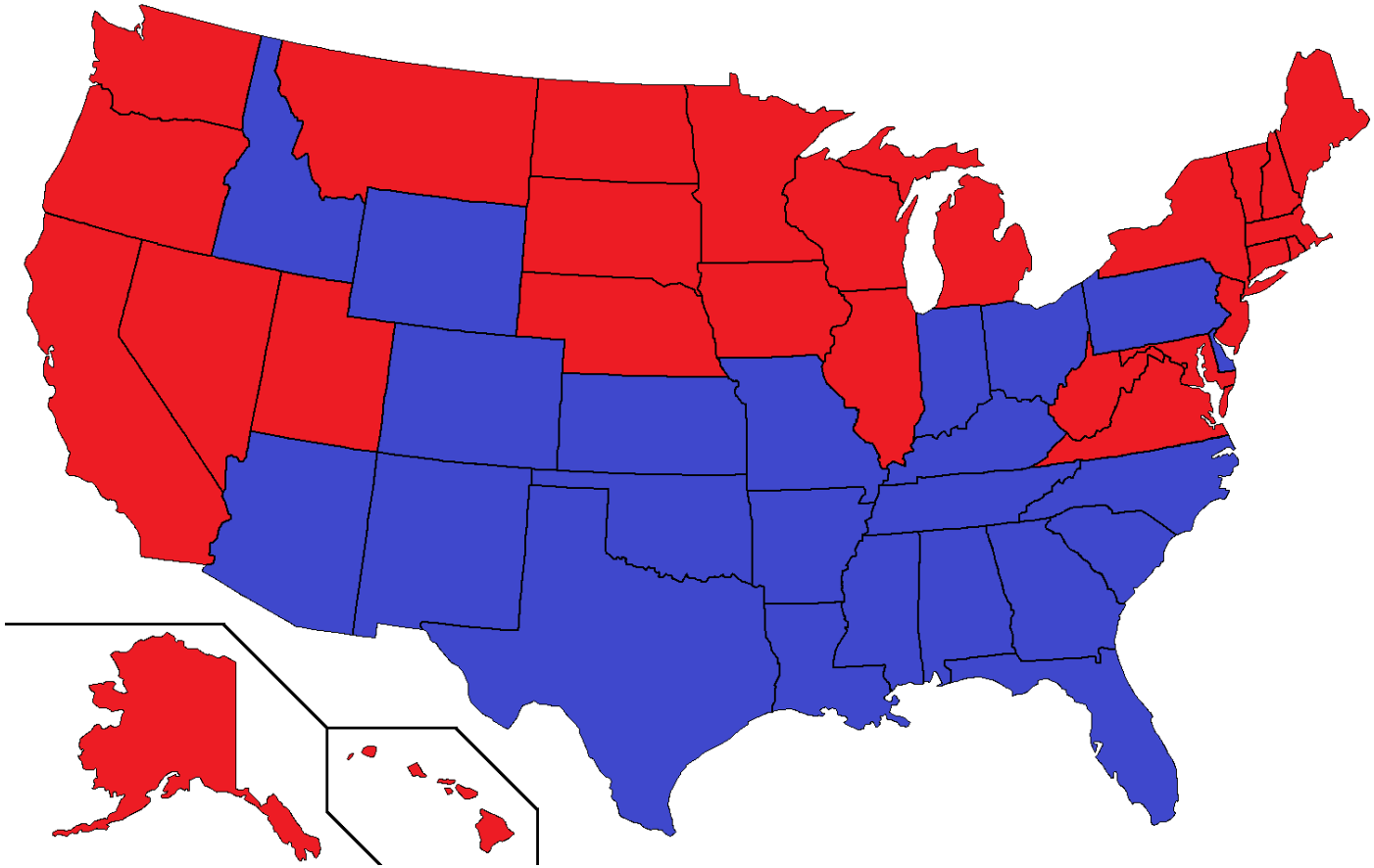
1985



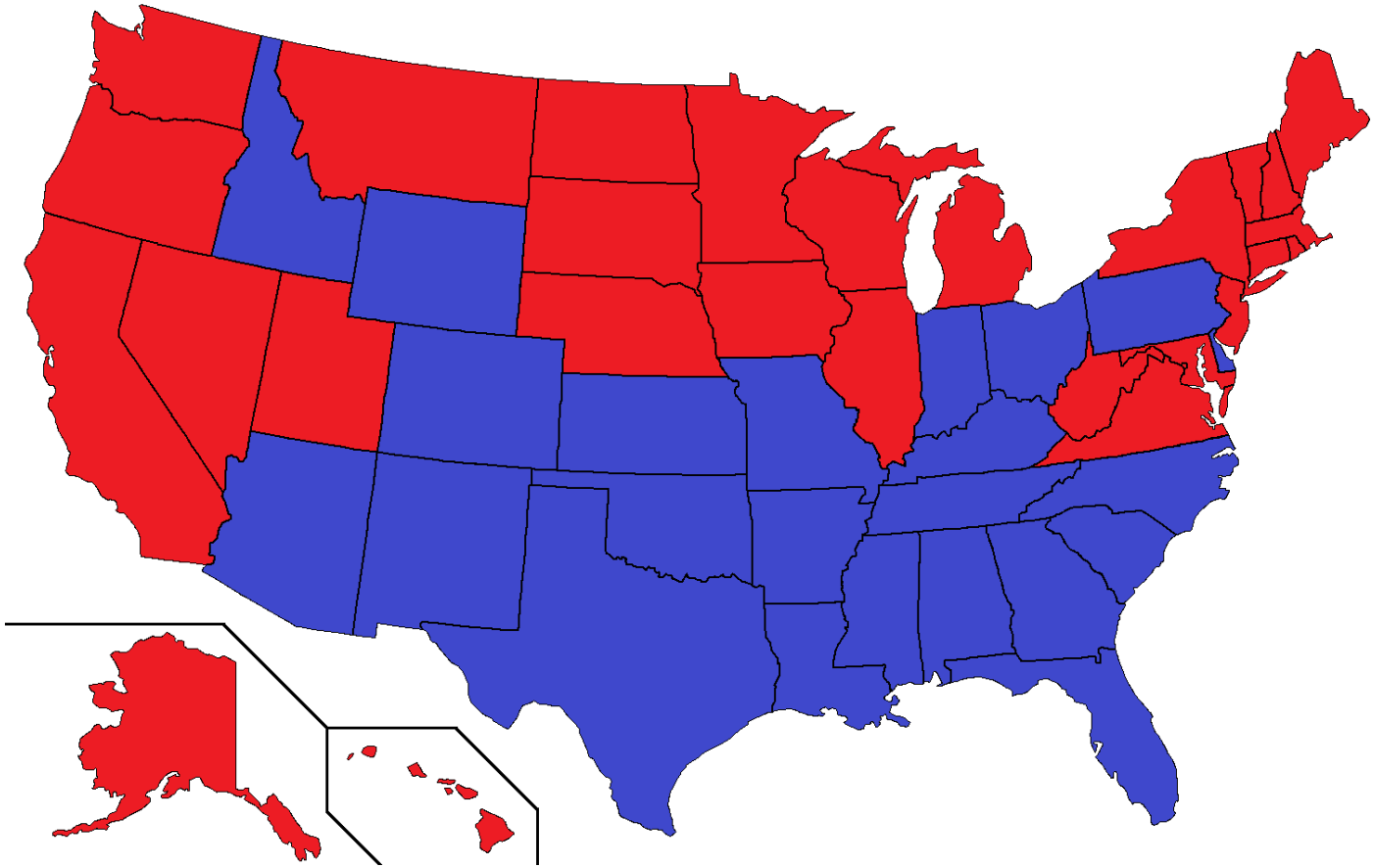
1990



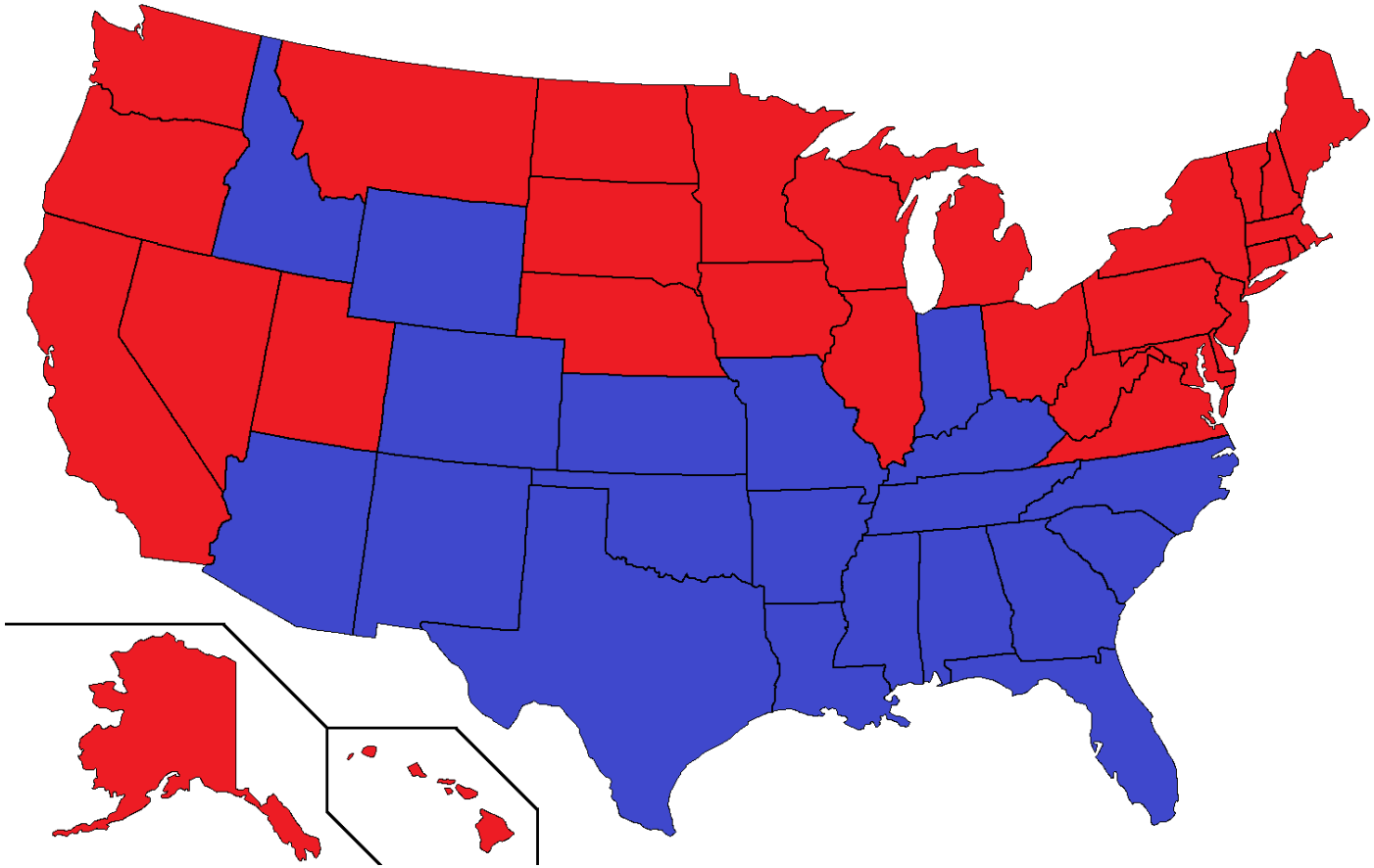
1995



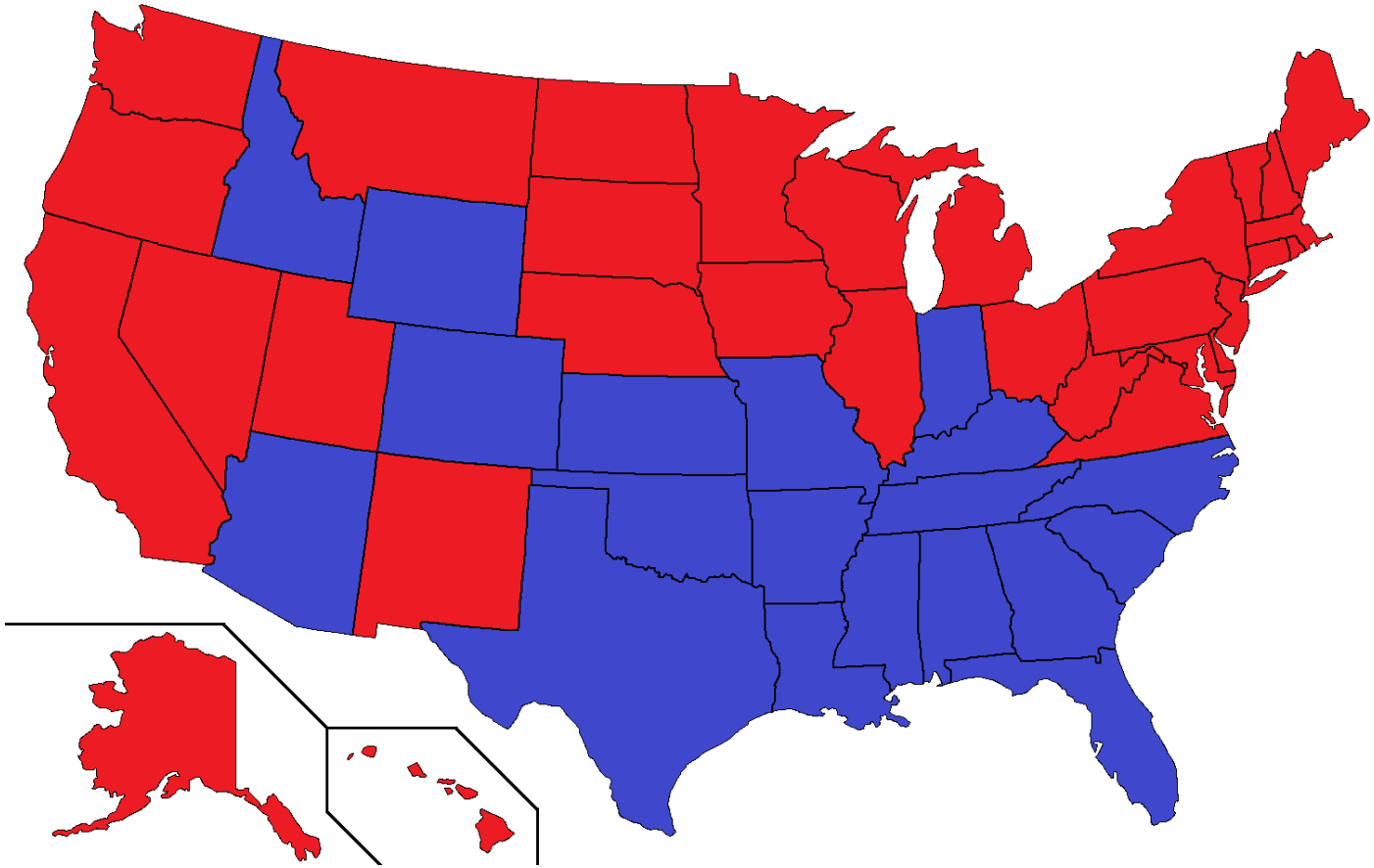
2000



2010



2020



The Role of Education in Society

- The economics of education literature has understandably focused on how schools produce human capital
  - Learning (i.e., test scores)
  - Longer-run private returns (e.g., earnings)

- But school systems also shape citizens
  - Ideology (e.g., Cantoni et al. 2017)
  - Prosociality (e.g., Algan, Cahuc, and Shleifer 2013; Kosse et al. 2018)
  - Criminality (e.g., Lochner and Moretti 2004)
  - Female empowerment (e.g., Friedman et al. 2016)
  - Political participation (e.g., Sondheimer and Green 2010)

Research Question

- We are interested in the effects of school discipline on a variety of socio-political outcomes.

- We will study effects on
  - Educational attainment (↑)
  - Social capital (↑)
  - Authoritarian attitudes (↓)
  - Crime (↓)

- We also provide some evidence on the mechanism of these effects.
  - Direct effects vs. spillovers
  - Effects of corporal punishment itself vs. the replacement disciplinary policies

Outline

1. Introduction
2. **Data & Identification**
3. Main Results
4. Robustness
5. Mechanism
6. Conclusion

Data

- American Community Survey (ACS)
  - Random sample of American households, 2000-Present.
  - Asks various demographic questions.
  - Contains data on the state in which each respondent grew up.
- General Social Survey (GSS)
  - Random sample of American adults, 1972-Present.
  - Asks various social questions (trust, parenting attitudes, etc.).
  - Also contains data on the state in which each respondent grew up.
- Moral Foundations Questionnaire (MFQ)
  - Online survey (opt-in) of Americans.
  - Studies moral foundations – universal vs. communal.

Data

- National Incident-Based Reporting System (NIBRS)
  - Data on crime and characteristics of offender/victim/incident, 1991-Present.
  - We group crimes into the broad categories of violent crime, property crime, and crimes against society.
  - A panel of the number of crimes of each type for each (Police Department, Birth Cohort, Year) can be constructed.

- Construct a variable indicating the extent to which each respondent was exposed to corporal punishment in school.
  - Don’t directly observe whether a given individual experienced corporal punishment.

Identification

- We estimate the following static specification:

$$Y_{ichst} = \alpha + \beta \cdot \mathbf{1}[CP\ \ Exposure_{ch}] + \gamma_c + \tau_t + \omega_{t-c} + \varphi_h + \eta_s + \varepsilon_{ichst}$$

where

- Y_{ichst} denotes the outcome of individual *i* born in cohort *c* in home-state *h* currently residing in state *s* in year *t*
- γ_c are cohort FEs
- τ_t are year FEs
- $\omega_{t\text{-}c}$ are age FEs
- φ_h are home-state FEs
- η_s are current-state FEs

Identification

- We also estimate the following event-study specification

$$Y_{ichst} = \alpha + \sum_{m=A}^{B} \beta_m \cdot I_{hc}^{m} + \beta_{(B,\infty)} \cdot I_{hc}^{(B,\infty)} + \gamma_c + \varphi_h + \tau_t + \eta_s + \varepsilon_{ichst}$$

where

- I_{hc}^{m} is an indicator denoting whether cohort *c* was in the m^{th} or $(m+1)^{th}$ cohort in state *h* unexposed to corporal punishment
- Other variables are as before

- We additionally run a closely-related event study specification restricted to states that ban corporal punishment.
  - And additional specifications using the approach of Chaisemartin-D'Haultfoeuille and Abraham-Sun.

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Outcomes We Study

1. Educational attainment
2. Social trust and trust in institutions
3. Attitudes towards children (obedience, free thought, etc.)
   - Often used as a measure of authoritarian preferences
4. Support for freedom of expression of various groups
5. Moral Values (from the Moral Foundations Questionnaire)
6. Crime

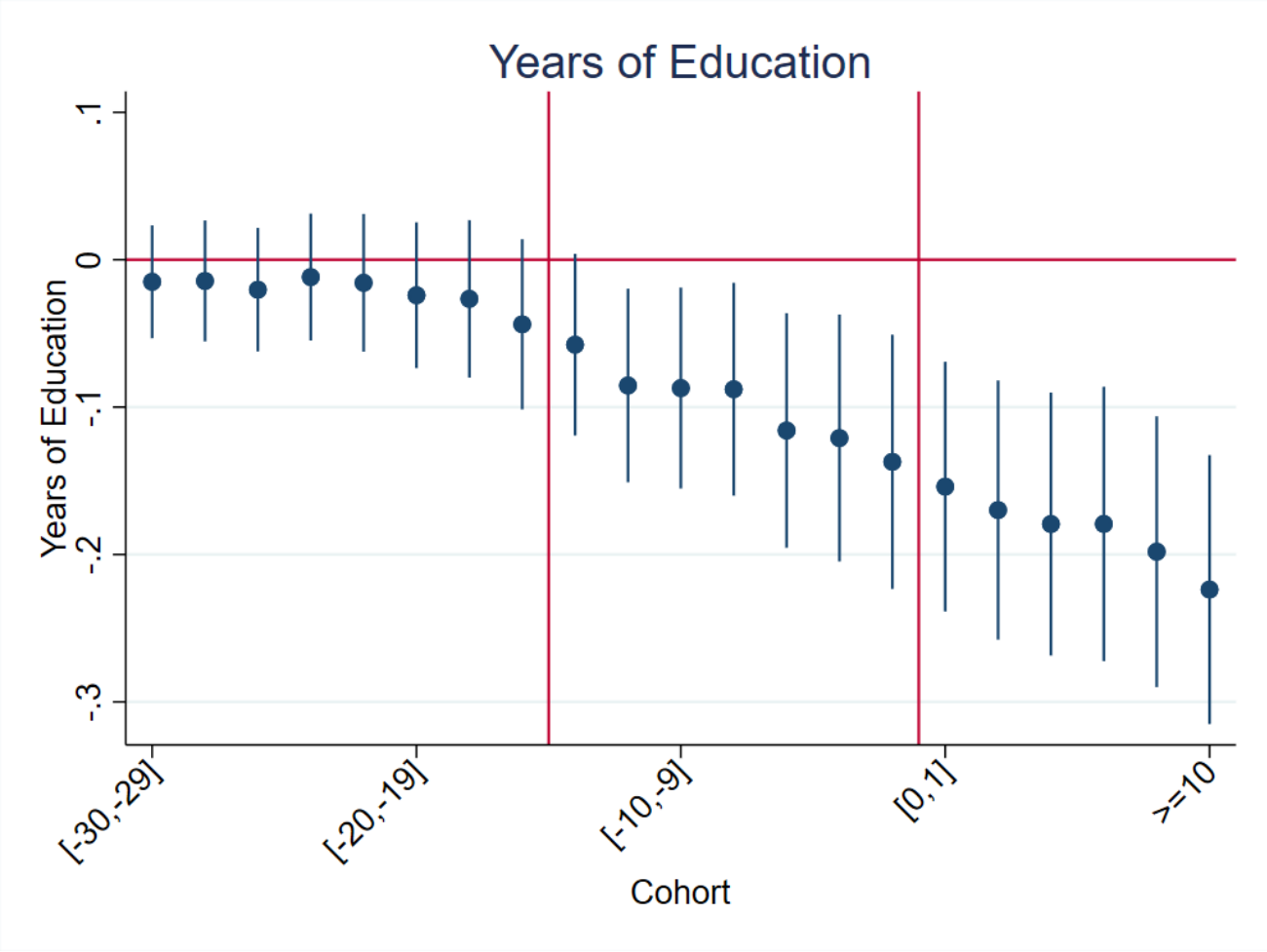
Effects on Educational Attainment

- Exposure to corporal punishment increases education by 0.102 years.
- Also increases likelihood of attaining an H.S. diploma or Bachelor's degree.
- Evidence of an improved educational environment?

	(1)	(2)	(3)
	Years of Education	H.S. Diploma Attainment	Bachelor's Degree Attainment
Outcome Type:	Linear	Indicator	Indicator
CP Indicator	0.102***	0.007†	0.011**
	(0.020)	(0.004)	(0.004)
Year FEs	Yes	Yes	Yes
Cohort FEs	Yes	Yes	Yes
Age FEs	Yes	Yes	Yes
Current-State FEs	Yes	Yes	Yes
Home-State FEs	Yes	Yes	Yes
Years of Data	All	All	All
Clustering	State	State	State
Observations	19,323,547	19,323,547	19,323,547

† Denotes significance at 10% level; * Denotes significance at 5% level;
** Denotes significance at 2.5% level; *** Denotes significance at 1% level

Effects on Educational Attainment



Social Trust and Trust in Institutions

- If corporal punishment in schools is seen as a highly-visible mechanism to enforce norms and punish bad behavior, it might increase aggregate trust.
- Alternatively, if it is perceived as capricious and cruel, may reduce trust.

GSS Questions

- Social trust
  - “Generally speaking, would you say that most people can be trusted or that you can’t be too careful in dealing with people?”
- Confidence in institutions
  - “I am going to name some institutions in this country … Would you say you have a great deal of confidence, only some confidence, or hardly any confidence in them at all?”
  - We construct an index from all such questions

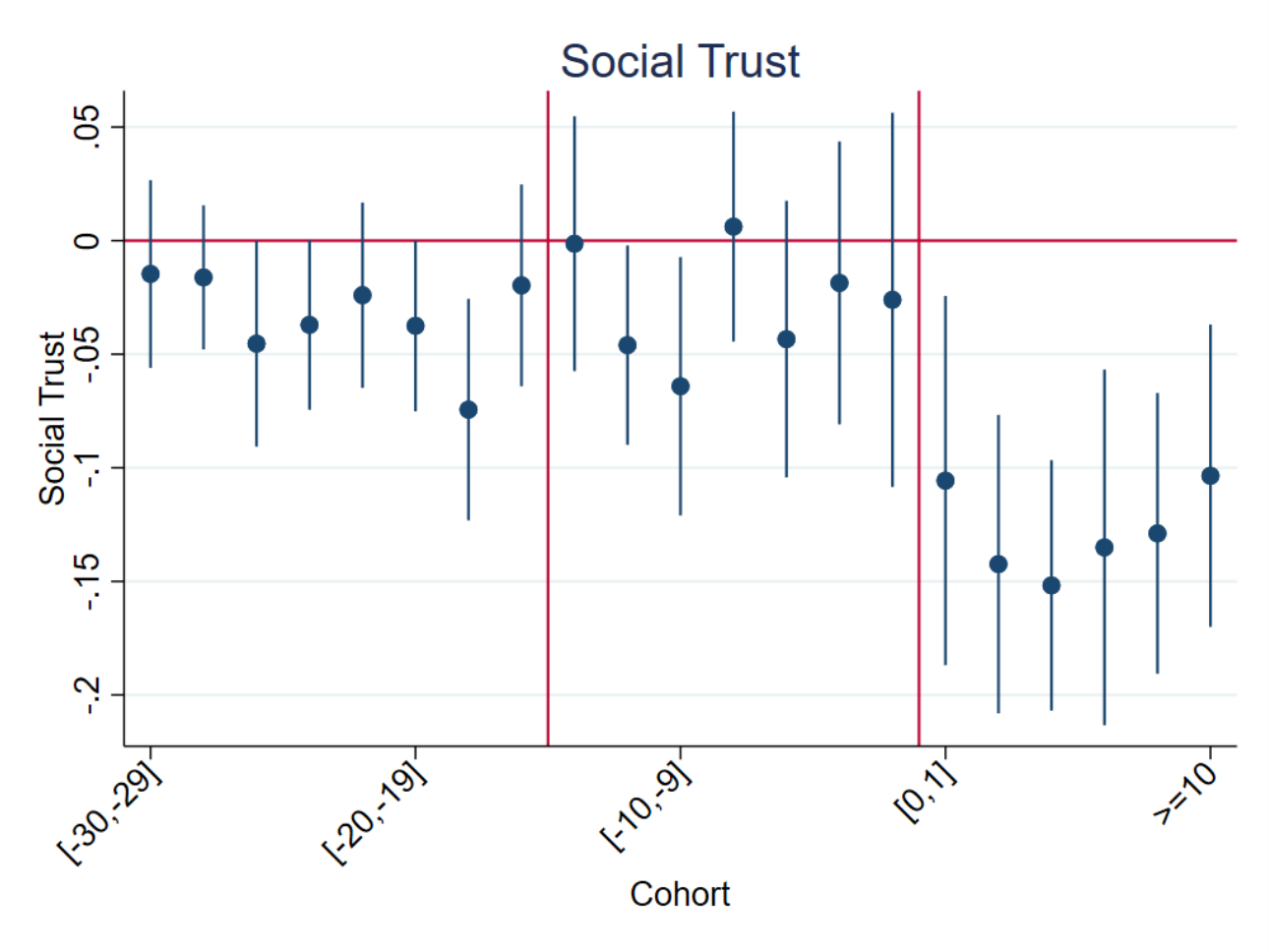
Social Trust and Trust in Institutions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Social Trust	Community Org. Member	Confidence in Fed. Govt	Confidence in Courts	Confidence in Banks & Finance	Confidence in Business & Corps	Confidence in Press/ Media	Confidence in Science/ Research	Institutional Confidence Index
Outcome Type:	Indicator	Indicator	Indicator	Indicator	Indicator	Indicator	Indicator	Indicator	Z-Score
CP Indicator	0.096***	0.151*	0.044***	0.049†	0.047**	0.018	0.033***	0.058***	0.147***
	(0.020)	(0.075)	(0.013)	(0.026)	(0.018)	(0.015)	(0.011)	(0.021)	(0.035)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current-State FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Home-State FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Years of Data	All	All	All	All	All	All	All	All	All
Clustering	State	State	State	State	State	State	State	State	State
Observations	17,526	6400	17,595	17,598	17,607	17,605	17,606	17,595	17,446

† Denotes significance at 10% level; * Denotes significance at 5% level;

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Social Trust and Trust in Institutions



Authoritarian Values/Attitudes Toward Children

- Corporal punishment in schools is encountering an authoritarian state in a personal way
- Attitudes towards obedience, respect vs. curiosity, independence in children is a classic measure of authoritarian values (Feldman)
- GSS has closely related questions
  - "If you had to choose, which thing on this list would you pick as the most important for a child to learn to prepare him or her for life? Which comes next in importance? …"

Authoritarian Values/Attitudes Toward Children

	(1)	(2)	(3)	(4)	(5)
	Obedience in Children Importance	FreeThght in Children Importance	Popularity in Children Importance	WorkHard in Children Importance	HelpOthrs in Children Importance
Outcome Type:	Z-Score	Z-Score	Z-Score	Z-Score	Z-Score
CP Indicator	-0.110***	0.160***	-0.066	0.026	-0.036
	(0.040)	(0.058)	(0.050)	(0.051)	(0.060)
Year FEs	Yes	Yes	Yes	Yes	Yes
Cohort FEs	Yes	Yes	Yes	Yes	Yes
Age FEs	Yes	Yes	Yes	Yes	Yes
Current-State FEs	Yes	Yes	Yes	Yes	Yes
Home-State FEs	Yes	Yes	Yes	Yes	Yes
Years of Data	All	All	All	All	All
Clustering	State	State	State	State	State
Observations	14,474	14,474	14,474	14,474	14,474

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Free Speech Outcomes

- The GSS contains questions about the freedom of expression of various groups.
  - LGBT activists, communists, fascists, racists, Muslim extremists, and anti-religionists
- “Should <an individual from this group> be permitted to give a public speech?”
  - …have a book in a library?
  - …teach as a college professor?
- Can create z-score index variables across groups indicating favorability/unfavorability toward these forms of free speech.

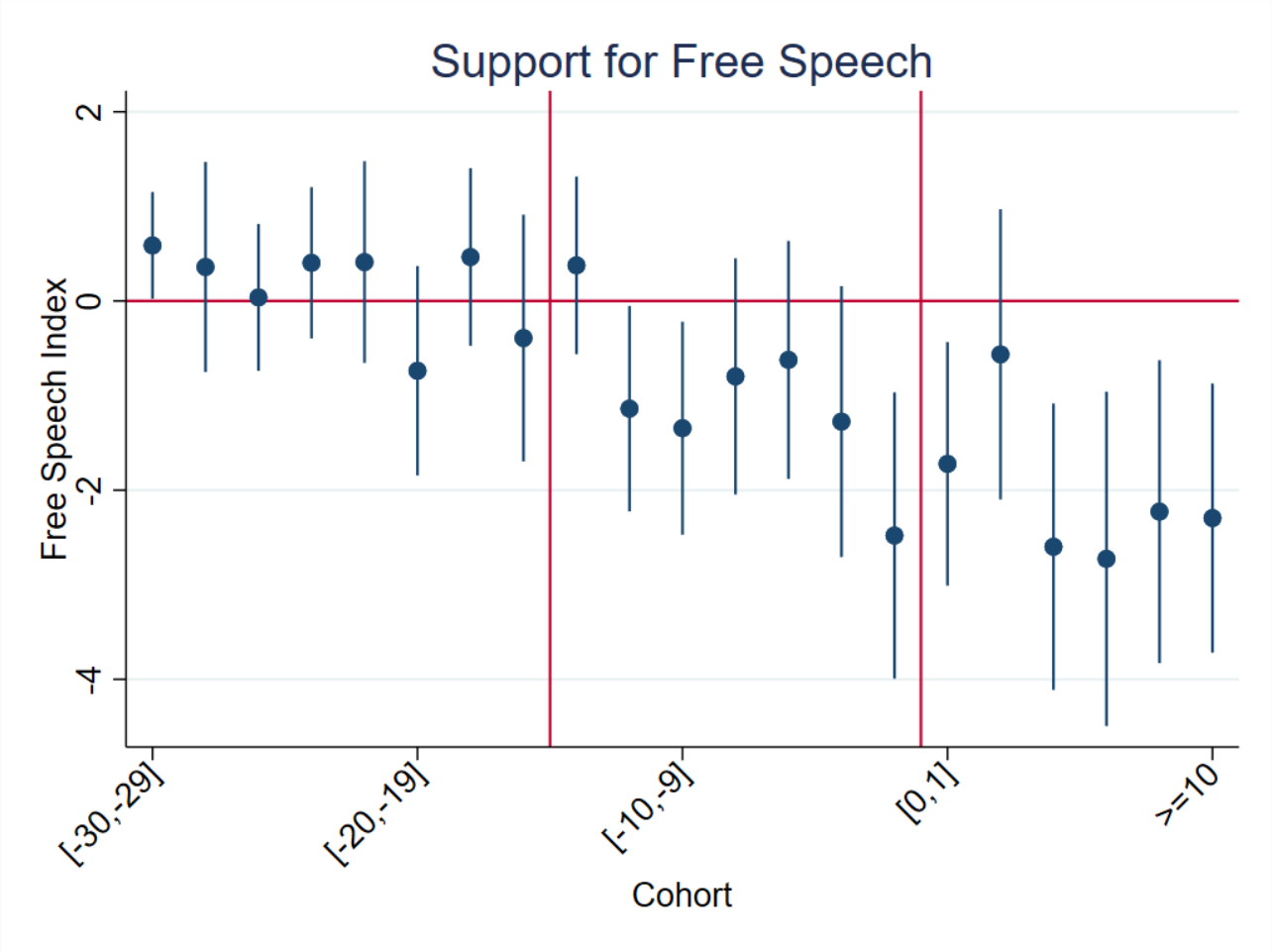
Free Speech Outcomes

	(1)	(2)	(3)	(4)
	Public Speech Index	Library Book Index	Teach in College Index	Joint Free Speech Index
Outcome Type:	Z-Score	Z-Score	Z-Score	Z-Score
CP Indicator	0.107***	0.099***	0.095***	0.128***
	(0.035)	(0.035)	(0.033)	(0.035)
Year FEs	Yes	Yes	Yes	Yes
Cohort FEs	Yes	Yes	Yes	Yes
Age FEs	Yes	Yes	Yes	Yes
Current-State FEs	Yes	Yes	Yes	Yes
Home-State FEs	Yes	Yes	Yes	Yes
Years of Data	All	All	All	All
Clustering	State	State	State	State
Observations	17,004	16,769	16,160	15,462

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Free Speech Outcomes



Moral Foundations Theory

- Moral Foundations Theory proposes that people's moral concerns can be partitioned into five "foundations".

- The Moral Foundations Questionnaire attempts to measure these
  1. Harm/care: Extent of care for the weak and prevention of harm against others
  2. Fairness/reciprocity: Importance of ideas relating to equality, justice, autonomy
  3. In-group/loyalty: Extent of emphasis on in-group loyalty (family, country, etc.)
  4. Authority/respect: Importance of respect for authority, tradition, and order
  5. Purity/sanctity: Importance of ideas related to social notions of purity/disgust

- Note: The Moral Foundations Questionnaire is an opt-in online survey.

Moral Foundations Theory

- An index of moral universalism (versus moral communalism) is typically constructed from the five foundations:

$$MFI_i = \frac{Care_i + Fairness_i}{2} - \frac{Loyalty_i + Authority_i + Purity_i}{3}$$

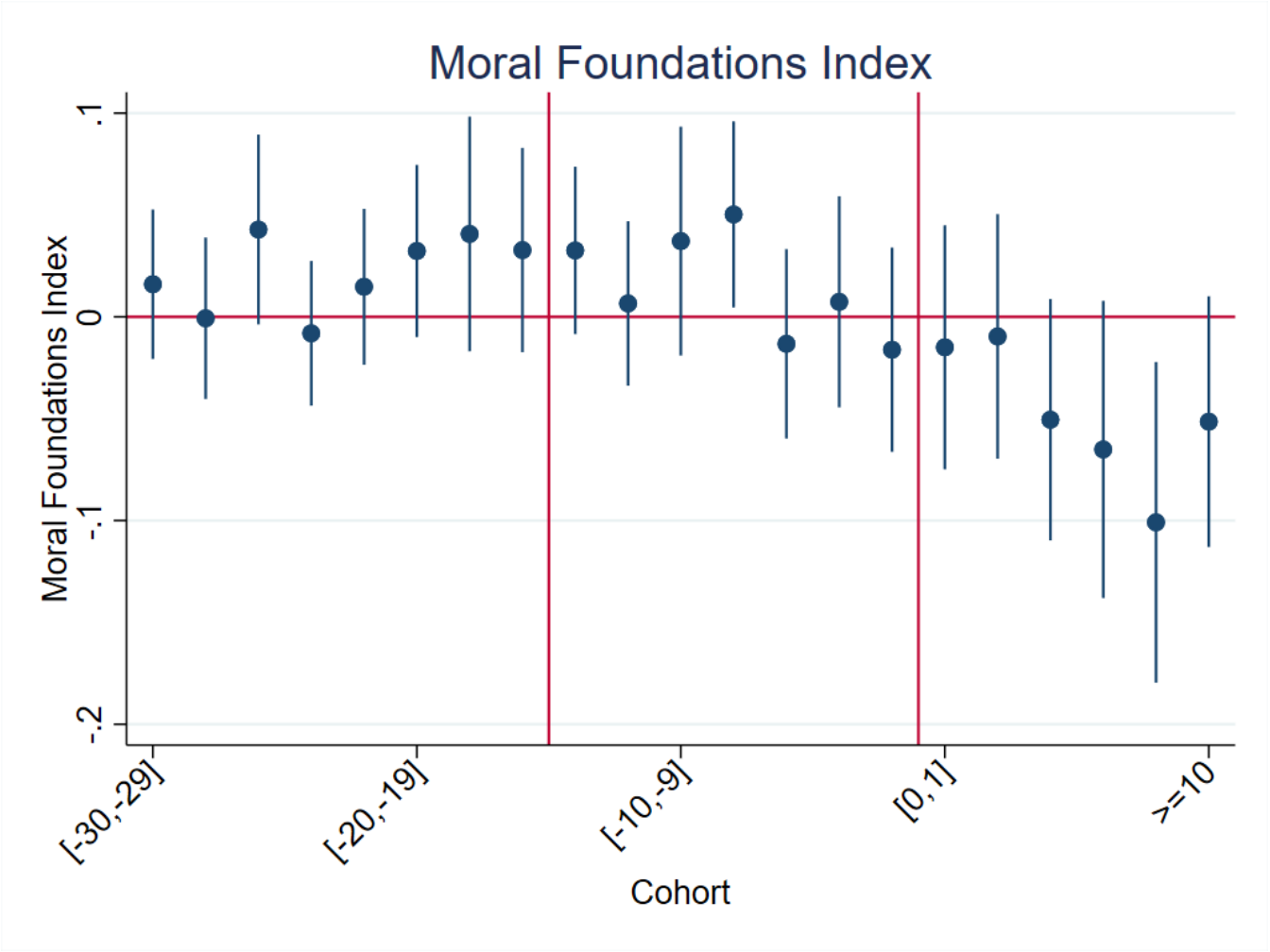
Moral Foundations

	(1)	(2)	(3)	(4)	(5)	(6)
	Harm/Care	Fairness/ Reciprocity	Ingroup/ Loyalty	Authority/ Respect	Purity/ Sanctity	Index (HF minus IAP)
Outcome Type:	Z-Score	Z-Score	Z-Score	Z-Score	Z-Score	Z-Score
CP Indicator	0.010	0.035*	-0.027	-0.035	-0.050†	0.048**
	(0.018)	(0.016)	(0.022)	(0.024)	(0.030)	(0.021)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Cohort FEs	Yes	Yes	Yes	Yes	Yes	Yes
Age FEs	Yes	Yes	Yes	Yes	Yes	Yes
Current-State FEs	Yes	Yes	Yes	Yes	Yes	Yes
Home-State FEs	No	No	No	No	No	No
Years of Data	All	All	All	All	All	All
Clustering	State	State	State	State	State	State
Observations	261,485	261,485	261,485	261,485	261,485	261,485

† Denotes significance at 10% level; * Denotes significance at 5% level;

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Moral Foundations



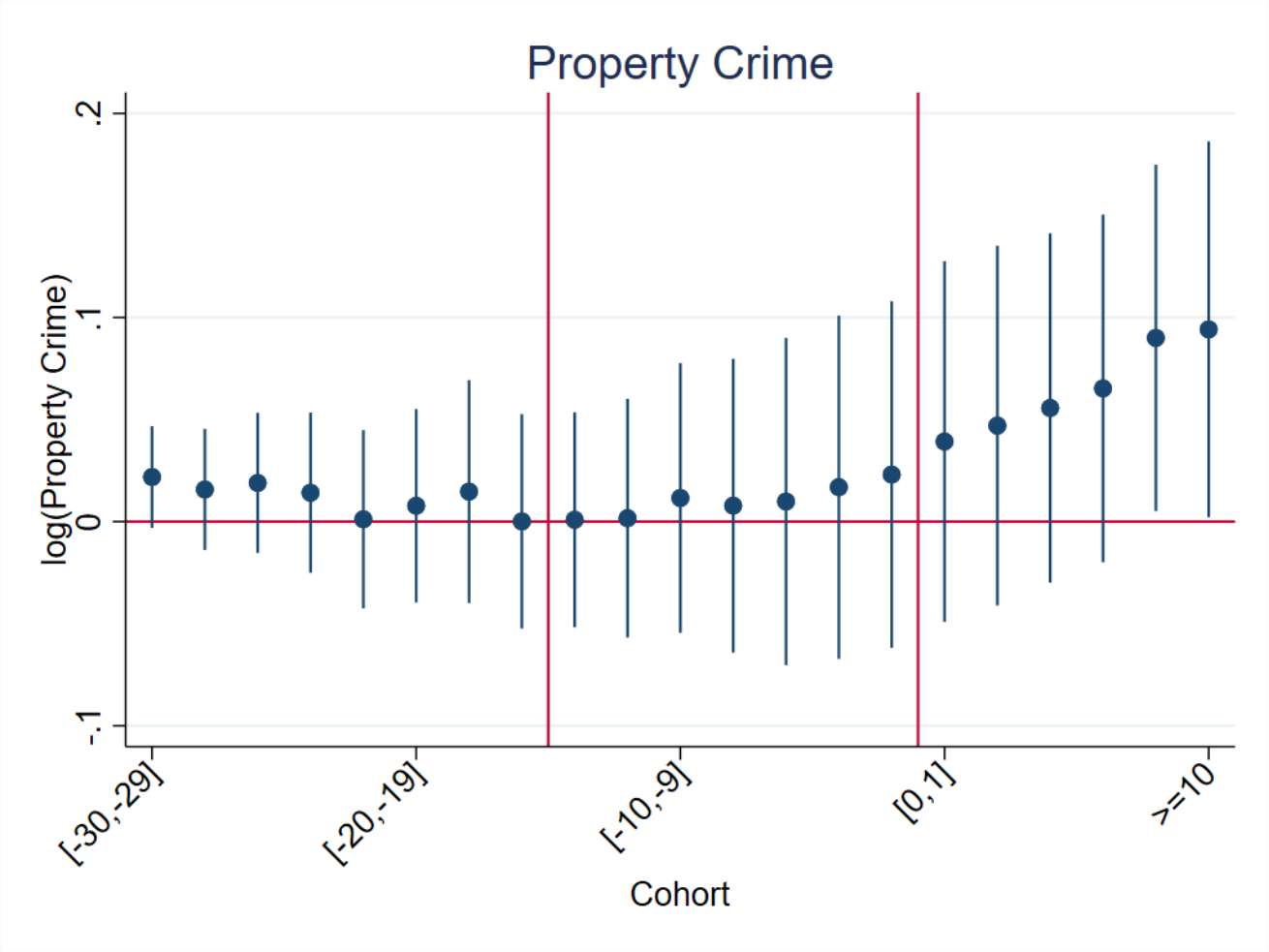
Crime

- Strongly significant effects are found on property crime.
- Significant effects are found on crimes against society.
  - Drug crime, gambling, prostitution
- No effects on violent crime
- What about the dynamics?

	(1)	(2)	(3)
	Violent Crime	Property Crime	Crime Against Society
Outcome Type:	ln(Crime)	ln(Crime)	ln(Crime)
CP Indicator	-0.024	-0.056***	-0.060*
	(0.020)	(0.020)	(0.029)
Year FEs	Yes	Yes	Yes
Cohort FEs	Yes	Yes	Yes
Age FEs	Yes	Yes	Yes
Current-State FEs	Yes	Yes	Yes
Home-State FEs	No	No	No
Years of Data	All	All	All
Clustering	State	State	State
Observations	2,936,917	2,936,917	2,936,917

† Denotes significance at 10% level; * Denotes significance at 5% level; ** Denotes significance at 2.5% level; *** Denotes significance at 1% level.

Crime


Property Crime
log(Property Crime)
.2
.1
0
-.1
[-30,-29]
[-20,-19]
[-10,-9]
[0,1]
>=10
Cohort

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1. Introduction
2. Data & Identification
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Years of Exposure as RHS Variable

- It is possible to compute years of exposure to legal corporal punishment and use that as the main RHS variable.
  - Instead of an indicator variable.
- This yields similar effects across all outcomes.

Years of Exposure as RHS Variable

	(1)	(2)	(3)	(4)	(5)
	Years of Education	Social Trust	Institutional Confidence Index	Moral Foundations (Universal)	Property Crime
Outcome Type:	Linear	Indicator	Z-Score	Z-Score	ln(Crime)
Years of CP Exposure	0.0113***	0.0049***	0.0069*	0.0044*	-0.0043
	(0.0028)	(0.0016)	(0.0033)	(0.0021)	(0.0029)
Year FEs	Yes	Yes	Yes	Yes	Yes
Cohort FEs	Yes	Yes	Yes	Yes	Yes
Age FEs	Yes	Yes	Yes	Yes	Yes
Current-State FEs	Yes	Yes	Yes	No	No
Home-State FEs	Yes	Yes	Yes	Yes	Yes
Years of Data	All	All	All	All	All
Clustering	State	State	State	State	State
Observations	19,323,547	17,526	17,446	261,485	2,936,917

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State-Specific Linear Cohort Trends

- State-by-cohort FEs cannot be included in our regressions, as treatment is defined at that level.
- However, it is possible to include state-specific cohort trends.
  - Would capture whether the effect is being driven by persistent long-run trends.

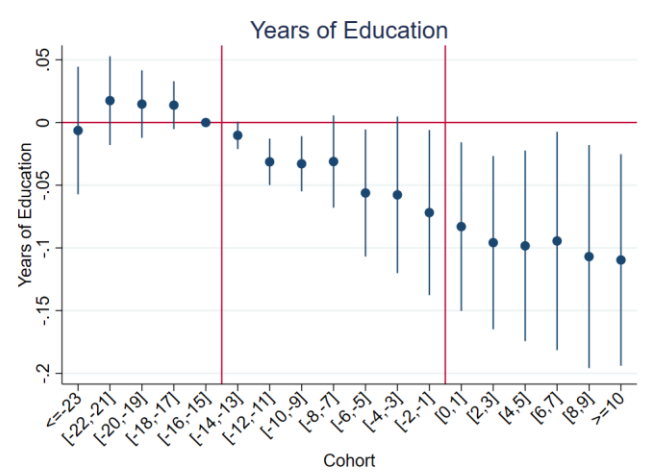
State-Specific Linear Cohort Trends

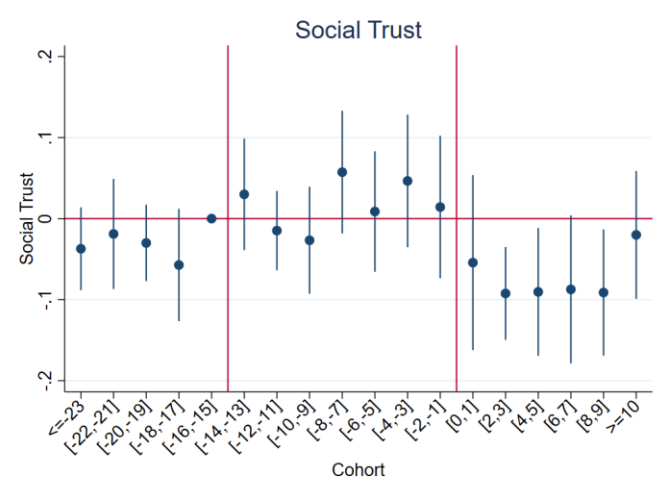
	(1) Years of Education	(2) Social Trust	(3) Institutional Confidence Index	(4) Moral Foundations (Universal)	(5) Property Crime	(6) Crime Against Society
Outcome Type:	Indicator	Indicator	Z-Score	Z-Score	ln(Crime)	ln(Crime)
CP Indicator	0.080***	0.101***	0.108**	0.029	-0.056***	-0.043
	(0.030)	(0.026)	(0.041)	(0.023)	(0.021)	(0.032)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Cohort FEs	Yes	Yes	Yes	Yes	Yes	Yes
Age FEs	Yes	Yes	Yes	Yes	Yes	Yes
Current-State FEs	Yes	Yes	Yes	Yes	Yes	Yes
Home-State FEs	Yes	Yes	Yes	No	No	No
Years of Data	All	All	All	All	All	All
Clustering	State	State	State	State	State	State
Observations	19,323,547	17,526	17,446	261,485	2,936,917	2,936,917

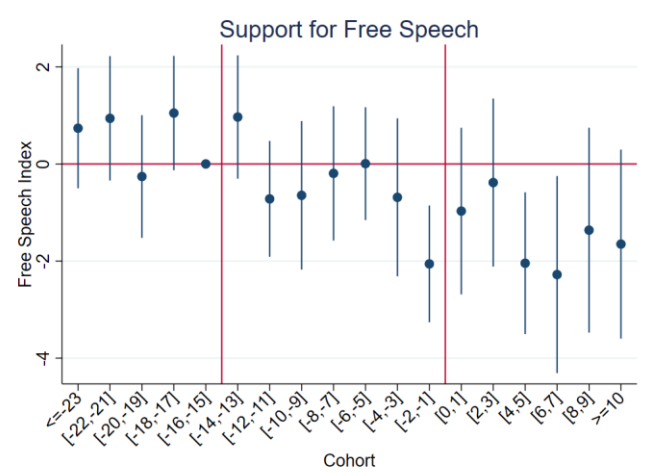
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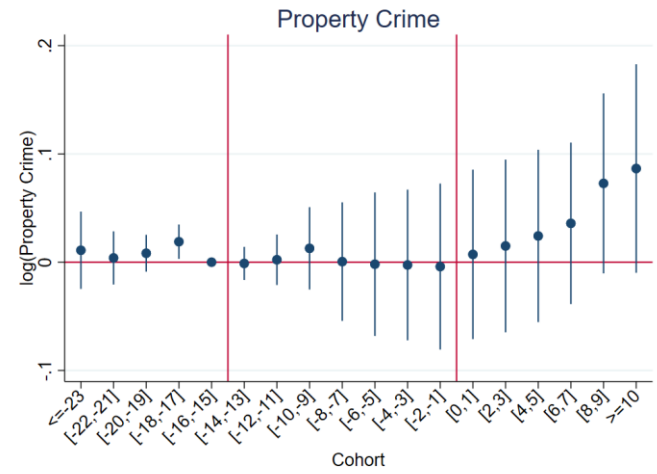
** Denotes significance at 2.5% level; *** Denotes significance at 1% level

Alternative Control Group (Abolishers-Only)







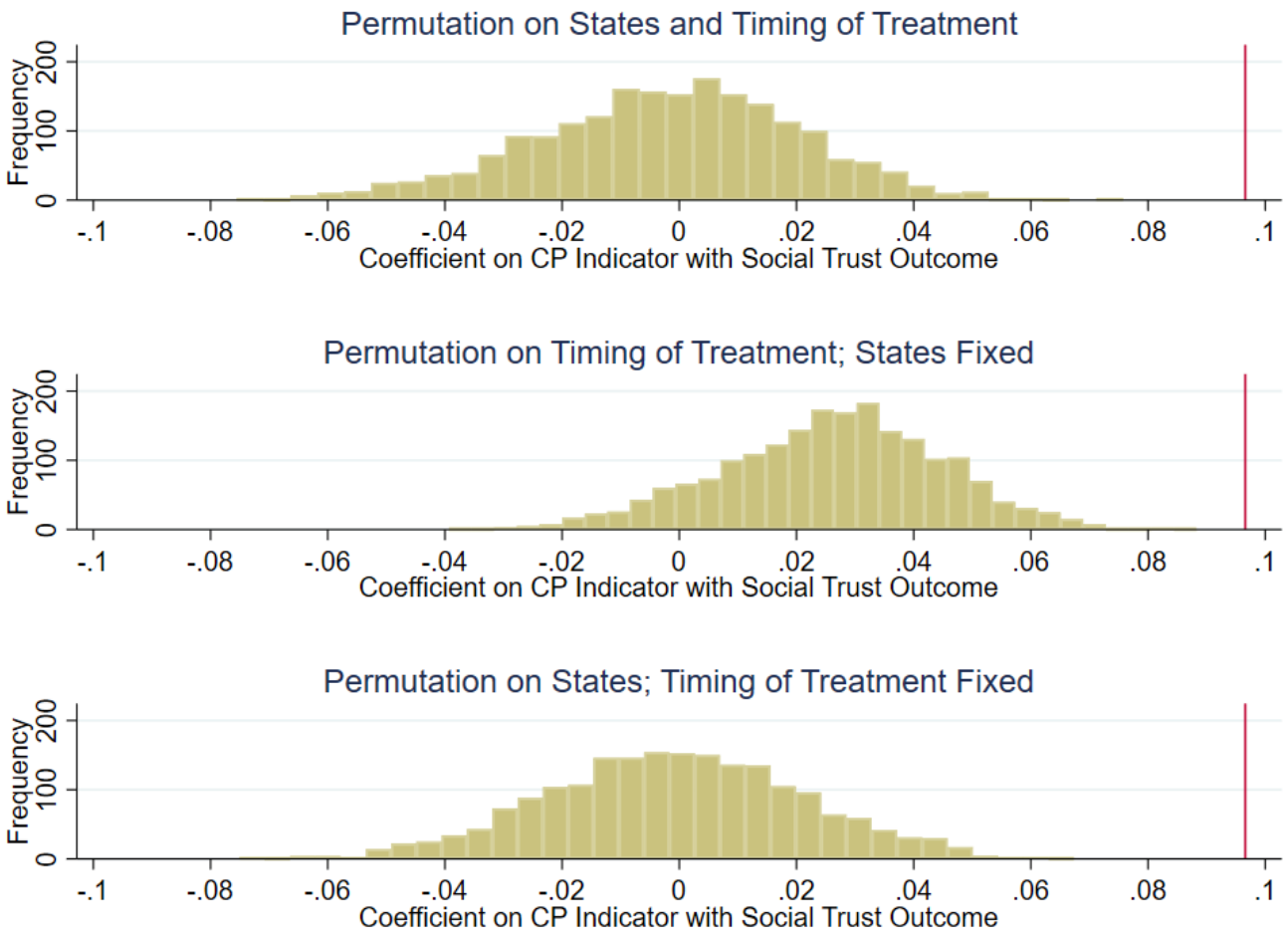


Permutation Tests

- To be maximally confident that our estimates are not the result of mere chance, we can run permutation tests.
  - This is an alternative way of determining the likelihood that the effect we find is simply random noise.

- **Test 1**: Randomize the 32 treated states and randomize the timing of treatment.
- **Test 2**: Hold treated states fixed; randomize the timing of treatment.
- **Test 3**: Hold timing of treatment fixed; randomize the treated states

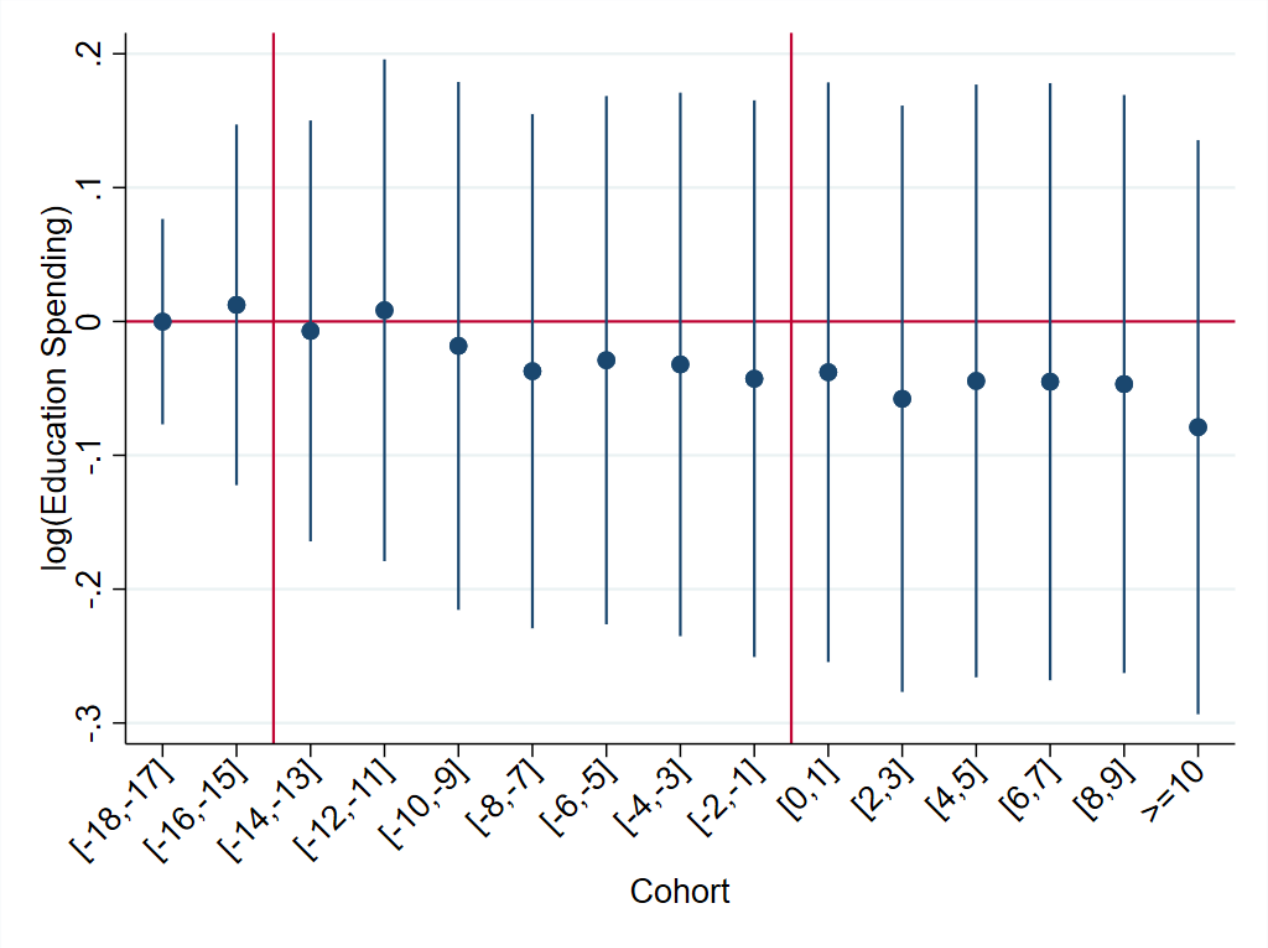
Permutation Tests



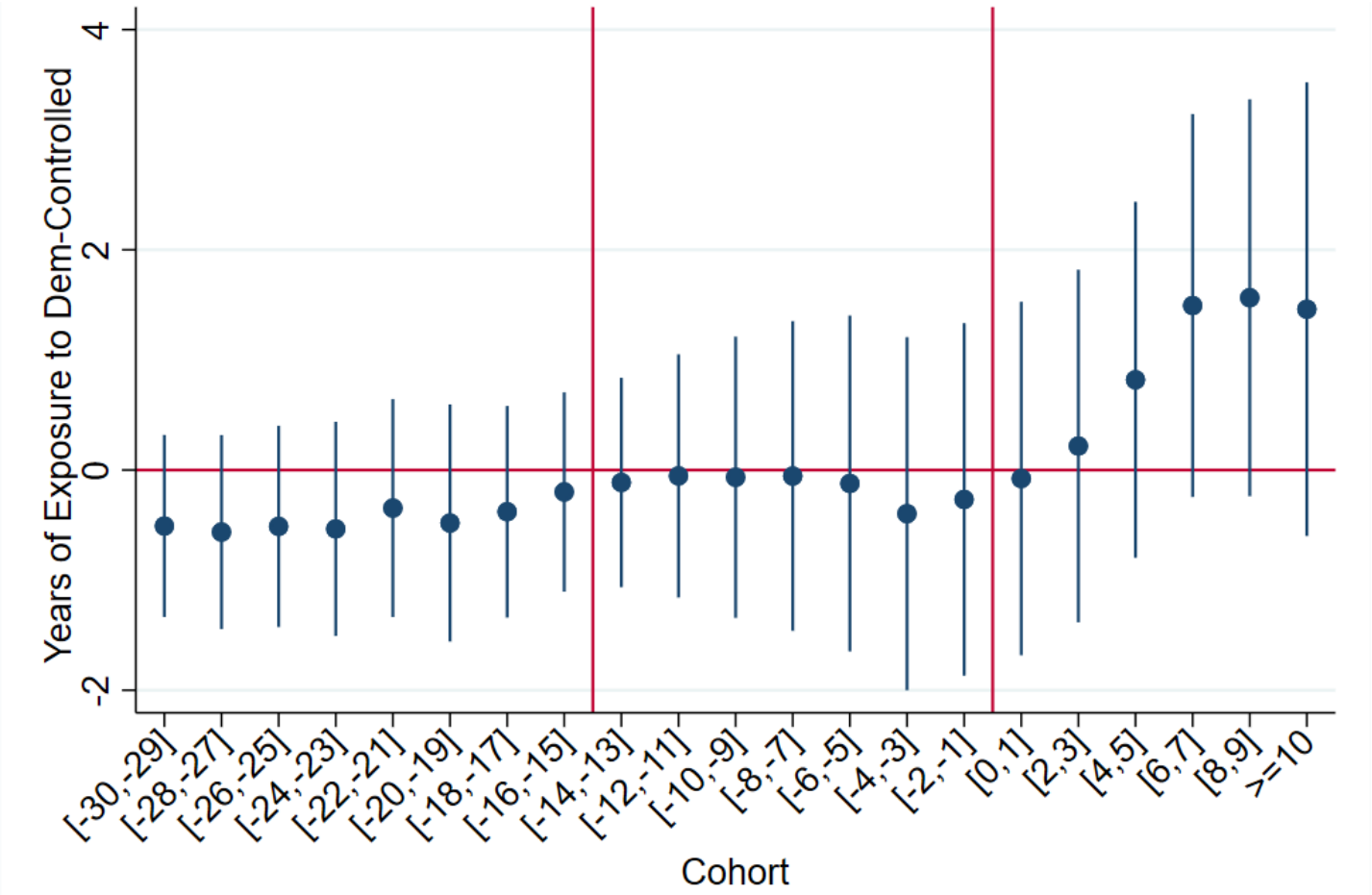
Alternative Explanations

- Could effects be driven by some highly-correlated law/development?
  - School spending
  - State partisan control
- We investigate whether corporal punishment bans are correlated with these other developments of key importance.
- We find no significant correlation between abolition of corporal punishment and trends in education spending or in exposure to state partisan control.

Education Spending



Years of Exposure to Democratic State Control



Heterogeneity by Party Control

- So, while states where corporal punishment was repealed are somewhat more likely to have Democratic governors/congress, there is no difference between the coefficients in the cohorts just preceding and following corporal punishment repeal.

- That said, states where corporal punishment was repealed are systematically more likely to have Democratic leadership at any time
  - So we decompose the effects into cases where the repeal was passed under Democratic leadership vs. under Republican leadership
  - The effects endure in both cases.

Heterogeneity by Party Control

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Social Trust (Dem Gov)	Social Trust (Rep Gov)	Social Trust (Dem Legis)	Social Trust (Rep Legis)	Institutional Confidence (Dem Gov)	Institutional Confidence (Rep Gov)	Institutional Confidence (Dem Legis)	Institutional Confidence (Rep Legis)
Outcome Type:	Indicator	Indicator	Indicator	Indicator	Z-Score	Z-Score	Z-Score	Z-Score
CP Indicator	0.085***	0.099***	0.078***	0.125**	0.204***	0.116***	0.078***	0.125**
	(0.021)	(0.023)	(0.019)	(0.049)	(0.041)	(0.037)	(0.019)	(0.049)
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Current-State FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Home-State FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Years of Data	All	All	All	All	All	All	All	All
Clustering	State	State	State	State	State	State	State	State
Observations	14,823	12,399	13,900	9,270	14,693	12,317	13,823	9,149

† Denotes significance at 10% level; * Denotes significance at 5% level;

** Denotes significance at 2.5% level; *** Denotes significance at 1% level

Outline

1. Introduction
2. Data & Identification
3. Main Results
4. Robustness
5. **Mechanism**
6. Conclusion

Suggestive Survey Evidence

- We ran a survey wherein we asked respondents their own experience with corporal punishment – and other types of punishment.
  - Survey company Pure Profile
- This allows us to test whether it is own experience of corporal punishment – or others experiencing corporal punishment – that is actually associated with our findings.
  - Admittedly in a much less causal manner than preceding results.
- Also allows us to test whether corporal punishment bans were associated with substitution to other types of punishment.
  - Detention, Suspension, Expulsion

Survey Results: Direct vs. Spillovers

	(1)	(2)	(3)	(4)
	Years of Education	Social Trust	Free Thought in Children Importance	Free Speech Index
Outcome Type:	Linear	Indicator	Z-Score	Z-Score Index
CP Indicator (You)	-0.180***	0.058***	-0.170***	-0.607***
	(0.062)	(0.011)	(0.036)	(0.156)
CP Indicator (Others)	0.139**	0.039***	0.111***	0.488***
	(0.058)	(0.011)	(0.034)	(0.147)
Cohort FEs	Yes	Yes	Yes	Yes
Home-State FEs	Yes	Yes	Yes	Yes
Standard Errors	Robust	Robust	Robust	Robust
Observations	10,325	10,125	6,353	10,315

† Denotes significance at 10% level; * Denotes significance at 5% level;

** Denotes significance at 2.5% level; *** Denotes significance at 1% level

Policy Substitution

	(1)	(2)	(3)	(4)	(5)	(6)
	Schoolmates: Any Expulsion Experience	Schoolmates: Any Suspension Experience	Schoolmates: Any Detention Experience	Any Classroom Disruptions at School	Any Bullying at School	Any Fights at School
Outcome Type:	Indicator	Indicator	Indicator	Indicator	Indicator	Indicator
Corporal Punishment	-0.038*	-0.030**	-0.015	-0.036***	-0.000	-0.028**
	(0.018)	(0.013)	(0.014)	(0.009)	(0.015)	(0.011)
Cohort FEs	Yes	Yes	Yes	Yes	Yes	Yes
Home-State FEs	Yes	Yes	Yes	Yes	Yes	Yes
Clustering	State	State	State	State	State	State
Observations	10,240	10,240	10,240	10,226	10,234	10,234

† Denotes significance at 10% level; * Denotes significance at 5% level;

** Denotes significance at 2.5% level; *** Denotes significance at 1% level

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Conclusion

- We study the effects of school discipline on a variety of outcomes of interest.
  - Specifically, we look at state-level bans of corporal punishment.
- We find that exposure to corporal punishment leads to higher levels of educational attainment, social trust, confidence in institutions, and anti-authoritarian attitudes – and lower levels of crime.
  - Robust to event-study and numerous alternative specifications.
- [Didn't show here] No effects on attitudes toward policing/capital punishment, racial attitudes, gender attitudes, or (self-reported) mental or physical health.