Where Do My Tax Dollars Go?

Tax Morale Effects of Perceived Government Spending

Matias Giaccobasso

VATT Institute for Economic Research

and FIT

Brad Nathan

Rutgers University

Ricardo Perez-Truglia

University of California, Los Angeles

Alejandro Zentner

The University of Texas at Dallas

December 2024

Introduction

- Why do individuals pay their taxes?

Introduction

- Why do individuals pay their taxes?
- Two schools of thought:
  - Institutions (e.g., third-party reporting, broad tax bases, enforcement technology).

Introduction

- Why do individuals pay their taxes?
- Two schools of thought:
  - Institutions (e.g., third-party reporting, broad tax bases, enforcement technology).
  - Tax Morale (e.g., social norms, social preferences).

Introduction

- Why do individuals pay their taxes?
- Two schools of thought:
  - Institutions (e.g., third-party reporting, broad tax bases, enforcement technology).
  - Tax Morale (e.g., social norms, social preferences).
- Compelling evidence that institutions matter, but no compelling evidence on tax morale.
  - Our goal: fill that gap.

Introduction

- Lots of potential mechanisms under the umbrella of tax morale.

Introduction

- Lots of potential mechanisms under the umbrella of tax morale.
- We focus on benefit-based taxation.
  - Taxpayers are more willing to pay taxes if they **perceive** that they benefit from government services.

Introduction

- Lots of potential mechanisms under the umbrella of tax morale.
- We focus on benefit-based taxation.
  - Taxpayers are more willing to pay taxes if they **perceive** that they benefit from government services.
- Popular among early tax scholars (Seligman, 1908; Musgrave, 1959), but largely ignored by modern public finance (Weinzierl, 2018).

Introduction

- Anecdotally, **perceptions** about government spending are often cited as a reason for paying taxes.

Introduction

- Anecdotally, **perceptions** about government spending are often cited as a reason for paying taxes.
  - "My taxes pay for my children's education."

Introduction

- Anecdotally, **perceptions** about government spending are often cited as a reason for paying taxes.
  - "My taxes pay for my children's education."
  - "My taxes pay for the police and firefighters."

Introduction

- Anecdotally, **perceptions** about government spending are often cited as a reason for paying taxes.
  - "My taxes pay for my children's education."
  - "My taxes pay for the police and firefighters."
- Also used as an excuse for *not* paying taxes.

Introduction

- Anecdotally, **perceptions** about government spending are often cited as a reason for paying taxes.
  - "My taxes pay for my children's education."
  - "My taxes pay for the police and firefighters."
- Also used as an excuse for *not* paying taxes.
  - "My taxes are stolen by politicians."

Introduction

- Anecdotally, **perceptions** about government spending are often cited as a reason for paying taxes.
  - "My taxes pay for my children's education."
  - "My taxes pay for the police and firefighters."
- Also used as an excuse for *not* paying taxes.
  - "My taxes are stolen by politicians."
  - "My taxes pay for an unjust war."

Introduction

- Anecdotally, **perceptions** about government spending are often cited as a reason for paying taxes.
  - "My taxes pay for my children's education."
  - "My taxes pay for the police and firefighters."
- Also used as an excuse for *not* paying taxes.
  - "My taxes are stolen by politicians."
  - "My taxes pay for an unjust war."
- Research Question: Do *perceptions* about destination of tax dollars affect the taxpayers' willingness to pay taxes?

Introduction

- We leverage the context of property taxes in the United States.

Introduction

- We leverage the context of property taxes in the United States.
- Two key advantages:
  1. Can use **tax appeals** to measure willingness to pay taxes via revealed preferences.

Introduction

- We leverage the context of property taxes in the United States.
- Two key advantages:
  1. Can use **tax appeals** to measure willingness to pay taxes via revealed preferences.
  2. Clear distinction between who benefits directly from government spending.
     - Households *with* children enrolled in public schools benefit from spending in public schools.
     - Households *without* children enrolled in public schools do not benefit from spending in public schools.

Research Design

- We conducted a pre-registered field experiment with 2,110 households in Dallas, Texas. ▸ More

Research Design

- We conducted a pre-registered field experiment with 2,110 households in Dallas, Texas. ▸ More
- Using survey data, we measure their *perceptions* of where their tax dollars go.

Research Design

- We conducted a pre-registered field experiment with 2,110 households in Dallas, Texas. ▸ More
- Using survey data, we measure their *perceptions* of where their tax dollars go.
- Use information-provision experiment to induce exogenous shocks to perceptions.

Research Design

- We conducted a pre-registered field experiment with 2,110 households in Dallas, Texas. ▸ More
- Using survey data, we measure their *perceptions* of where their tax dollars go.
- Use information-provision experiment to induce exogenous shocks to perceptions.
- Measure causal effects of perceived government spending on willingness to pay taxes, via tax appeal choices.

Preview of Findings

- Despite government transparency efforts, there are large misperceptions about where the tax dollars go.

Preview of Findings

- Despite government transparency efforts, there are large misperceptions about where the tax dollars go.
- Perceptions about the share of tax dollars going to public schools have a significant causal effect on willingness to pay taxes.
  - Effects highly heterogeneous between households with vs. without children in public schools.
  - Consistent with the predictions of benefit-based taxation model.

Contribution to Literature

- Existing causal evidence on tax morale largely based on "moral nudges."
  - Randomize messages such as "it is important to pay your taxes."
  - For example: Blumenthal et al., 2001; Castro and Scartascini, 2015; Bott et al., 2020; Bergolo et al., 2021.

Contribution to Literature

- Existing causal evidence on tax morale largely based on "moral nudges."
  - Randomize messages such as "it is important to pay your taxes."
  - For example: Blumenthal et al., 2001; Castro and Scartascini, 2015; Bott et al., 2020; Bergolo et al., 2021.
- Unlike messages on tax enforcement, messages on moral suasion are largely ineffective.
  - Based on this evidence, preferred interpretation was that tax morale is not important.

Contribution to Literature

- Our Contribution: we show that tax morale is significant, but literature kept looking under the streetlight.

Contribution to Literature

- Our Contribution: we show that tax morale is significant, but literature kept looking under the streetlight.
- Three key ingredients in our research design:
  1. Changing preferences via nudges is probably impossible, but beliefs can be shaped with information.

Contribution to Literature

- Our Contribution: we show that tax morale is significant, but literature kept looking under the streetlight.
- Three key ingredients in our research design:
  1. Changing preferences via nudges is probably impossible, but beliefs can be shaped with information.
  2. When providing information, it is very important to measure prior beliefs.

Contribution to Literature

- Our Contribution: we show that tax morale is significant, but literature kept looking under the streetlight.
- Three key ingredients in our research design:
  1. Changing preferences via nudges is probably impossible, but beliefs can be shaped with information.
  2. When providing information, it is very important to measure prior beliefs.
  3. It is important to measure heterogeneity in preferences too (e.g., with vs. without children in public schools).

Institutional Context

Institutional Context

- Property taxes are important source of tax revenues ($577 billion in 2019). ▸ More
  - Average household in our sample pays $6,370 in property taxes (implied tax rate of around 1.94%).

Institutional Context

- Property taxes are important source of tax revenues ($577 billion in 2019). ▸ More
  - Average household in our sample pays $6,370 in property taxes (implied tax rate of around 1.94%).
- They are used to fund various public services and have several components.
  - School tax, city tax, hospital taxes, county taxes, college taxes, special district taxes.
  - In our sample, school taxes comprise the largest component (49.78%, on average).

Institutional Context

- April 16th: appraisal office (DCAD) notifies a "proposed value" for each property.
  - Property taxes based on this proposed value.

Institutional Context

- April 16th: appraisal office (DCAD) notifies a "proposed value" for each property.
  - Property taxes based on this proposed value.
- Households have 30 days to file a protest.
  - Form can be filed by mail or online, and there are no fees.
  - Typically half of the protests succeed, and on average they "save" households $600 per year.

Institutional Context

- April 16th: appraisal office (DCAD) notifies a "proposed value" for each property.
  - Property taxes based on this proposed value.
- Households have 30 days to file a protest.
  - Form can be filed by mail or online, and there are no fees.
  - Typically half of the protests succeed, and on average they "save" households $600 per year.
- Protesters typically argue that the proposed value is above market value.
  - Unless property was just bought, nobody really knows what it is worth.

Research Design

Research Design

- We study two perceptions about government spending:

Research Design

- We study two perceptions about government spending:
  - School Share: share of a household's property taxes that go to public schools (a.k.a. school taxes). ▸ More

Research Design

- We study two perceptions about government spending:
  - School Share: share of a household's property taxes that go to public schools (a.k.a. school taxes). ▸ More
  - Recapture Share: share of a household's property taxes that are redistributed to/from other districts.

Research Design

- We study two perceptions about government spending:
  - School Share: share of a household's property taxes that go to public schools (a.k.a. school taxes). ▸ More
  - Recapture Share: share of a household's property taxes that are redistributed to/from other districts.
- This short presentation focuses on school share.
  - See paper for results about recapture.

Hypotheses

- Our simple model makes some straightforward predictions.
  - See paper for details.

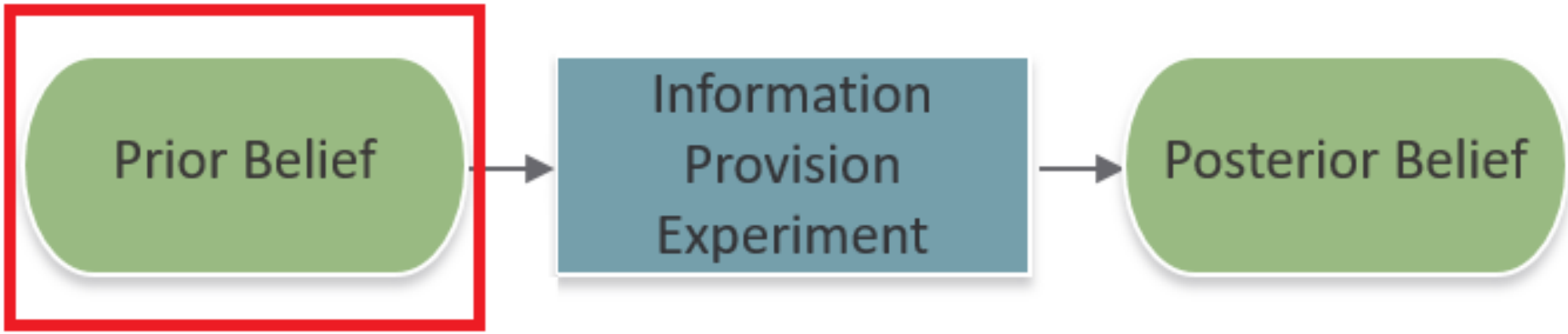
Hypotheses

- Our simple model makes some straightforward predictions.
  - See paper for details.
- An increase in *perceived* spending share in schools should...
  - Reduce the probability of protesting for households with children.
  - Increase the probability of protesting for households without children.

Hypotheses

- Our simple model makes some straightforward predictions.
  - See paper for details.
- An increase in *perceived* spending share in schools should...
  - Reduce the probability of protesting for households with children.
  - Increase the probability of protesting for households without children.
- Moreover, key benefit-based parameter is identified by the *difference* in effects between households with vs. without children.

Survey Design



- We estimate that you paid $6,245 in property taxes in 2020 for your property at 924 Pavillion St (Dallas, TX).
- What percentage of your total property taxes in 2020 do you believe corresponded to school taxes?

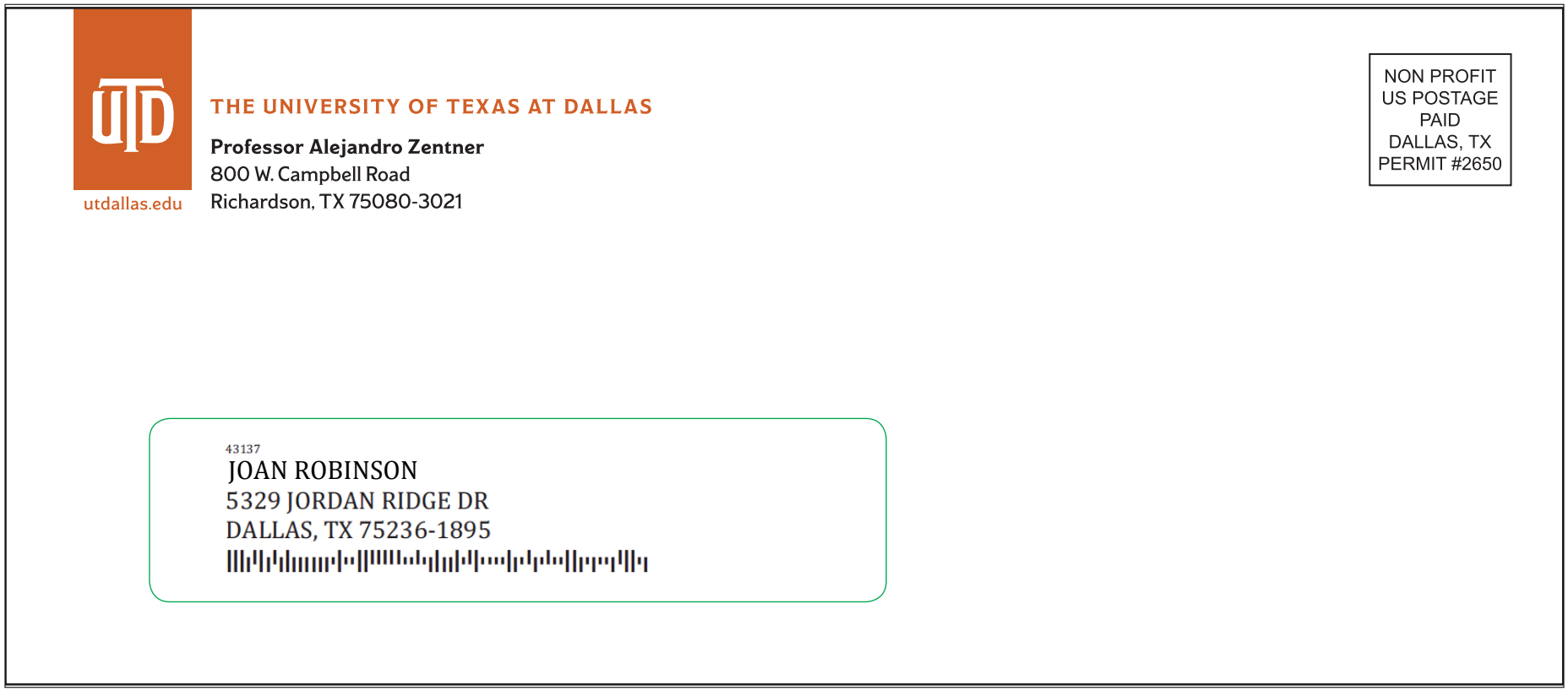
Survey Design

- For every subject, we calculated the "correct" answer to the previous question.
- Subjects randomly assigned to receive this information or not.
  - Randomization made explicit.

Survey Design

- As of today, our best estimate is that you will pay $6,352 in property taxes in 2021.
- What percentage of the property taxes in 2021 do you believe will correspond to school taxes?

Subject Recruitment



THE UNIVERSITY OF TEXAS AT DALLAS

Professor Alejandro Zentner
800 W. Campbell Road
Richardson, TX 75080-3021

utdallas.edu

NON PROFIT
US POSTAGE
PAID
DALLAS, TX
PERMIT #2650

43137
JOAN ROBINSON
5329 JORDAN RIDGE DR
DALLAS, TX 75236-1895

Subject Recruitment

THE UNIVERSITY OF TEXAS AT DALLAS
Naveen Jindal School of Management

April 19th, 2021

Dear Joan Robinson,

We are researchers at The University of Texas at Dallas and we are reaching out to you as part of a research study. **You can lower your tax burden by protesting the taxable value assessment of your property**. We want to share information that we hope will be useful.

Some people may choose to protest because they feel they are paying more than their fair share. Find below some information about the estimated 2021 property taxes for your home at 123 Fake Street in Dallas County:

	YOUR HOME
Proposed Value	*$592,040*
Estimated Tax Amount	*$14,859*

Source: *Data provided by Dallas Central Appraisal District (CAD). Proposed Value is Dallas CAD's estimate of your home's market value as of January 1st, 2021. Estimated Tax Amount is our estimate of taxes due this year using the latest tax rates available (some exemptions might not be included).*

The deadline to protest is May 17th, 2021. If you would like to help us with our study, we kindly ask you to fill out the following short survey:

Visit http://www.utdallas.edu/taxsurvey/ and enter validation code **FF11FF**

Note: Please respond to our survey before you decide whether to file a protest or not.

At the end of our survey, we provide step-by-step instructions on how to file a protest online or by mail, if you wish to do so. It takes only a few minutes to respond to the survey, and your responses will be confidential. As a token of appreciation, everyone who responds to the survey will be entered into a raffle for 20 prizes of $100 each[1].

800 W Campbell Rd. Office 3206
Richardson, TX 75080

Please recycle

Subject Recruitment

THE UNIVERSITY OF TEXAS AT DALLAS
Naveen Jindal School of Management

April 19th, 2021

Dear Joan Robinson,

We are researchers at The University of Texas at Dallas and we are reaching out to you as part of a research study. **You can lower your tax burden by protesting the taxable value assessment of your property**. We want to share information that we hope will be useful.

Visit http://www.utdallas.edu/taxsurvey/ and enter validation code **FF11FF**

Note: Please respond to our survey before you decide whether to file a protest or not.

The deadline to protest is May 17th, 2021. If you would like to help us with our study, we kindly ask you to fill out the following short survey:

Visit http://www.utdallas.edu/taxsurvey/ and enter validation code **FF11FF**

Note: Please respond to our survey before you decide whether to file a protest or not.

At the end of our survey, we provide step-by-step instructions on how to file a protest online or by mail, if you wish to do so. It takes only a few minutes to respond to the survey, and your responses will be confidential. As a token of appreciation, everyone who responds to the survey will be entered into a raffle for 20 prizes of $100 each[1].

800 W Campbell Rd, Office 3206
Richardson, TX 75080

Please recycle

Subject Pool

- We sent letters to a sample of 78,128 households from Dallas County right before they faced the opportunity to file a tax appeal.
  - Survey response rate: 3.6%.
  - Similar to other studies using this same recruitment method (Sinclair et al., 2012).
- Final sample of 2,110 households.
  - Followed exclusion criteria stated in pre-registration.
  - E.g., excluded respondents who protested before responding to the survey.

Outcomes of Interest

- **Primary outcome:** dummy variable indicating whether the household protested their property taxes on their own.
  - Protest rate in the control group: 30.1%.

Outcomes of Interest

- **Primary outcome:** dummy variable indicating whether the household protested their property taxes on their own.
  - Protest rate in the control group: 30.1%.
- **Secondary outcome:** intention to protest, as measured at the end of the survey.
  - May pick up "transitory" effects of information.

Outcomes of Interest

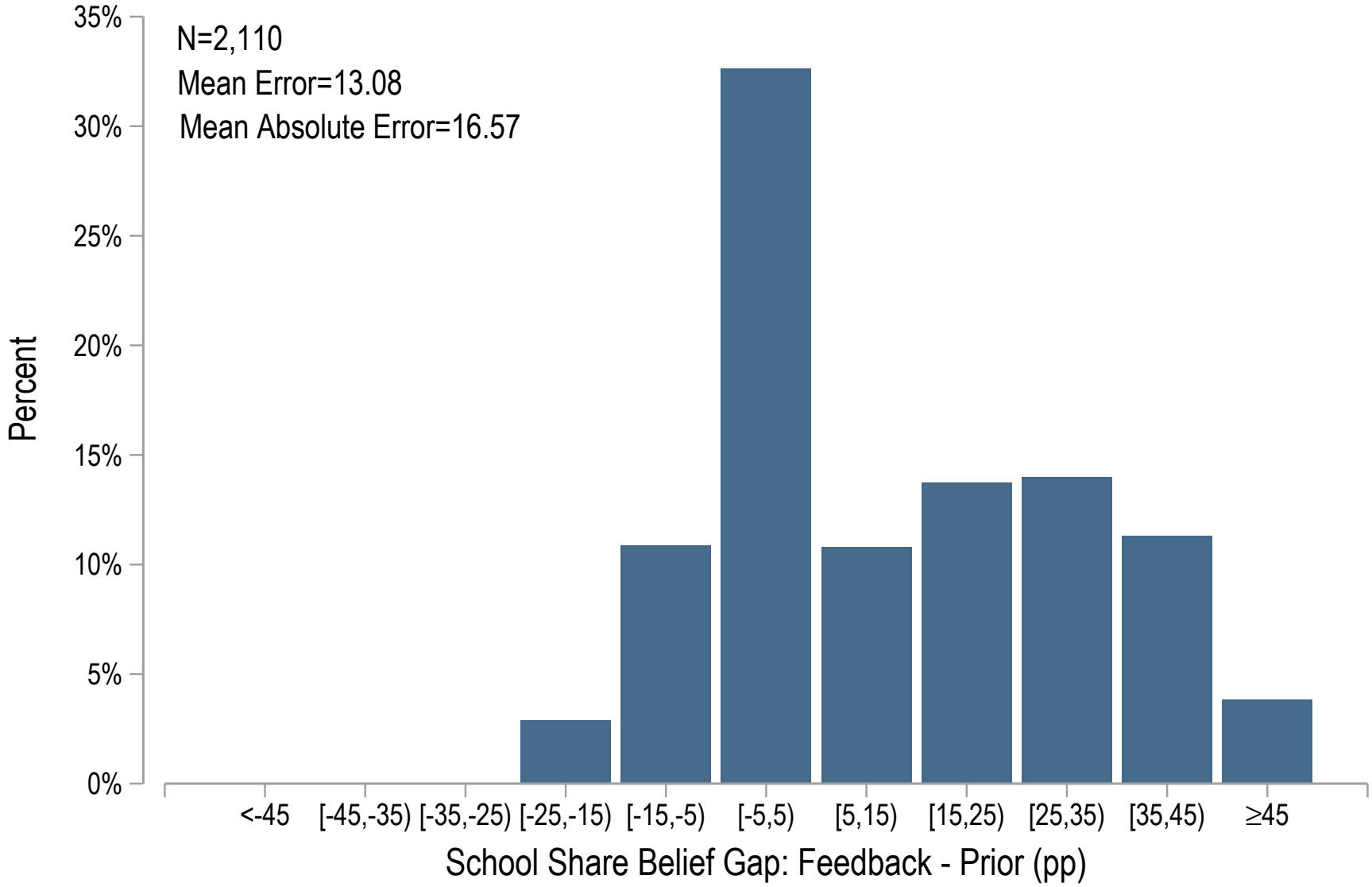
- **Primary outcome:** dummy variable indicating whether the household protested their property taxes on their own.
  - Protest rate in the control group: 30.1%.
- **Secondary outcome:** intention to protest, as measured at the end of the survey.
  - May pick up "transitory" effects of information.
- **Falsification outcomes:** protests through agents, and protests in previous years.

Results

Results

- Most households have misperceptions about where their tax dollars go.

Misperceptions of School Share



... Despite Government Transparency

DALLAS CENTRAL APPRAISAL DISTRICT
NOTICE OF APPRAISED VALUE - RESIDENTIAL
Tax Year 2021
www.dallascad.org

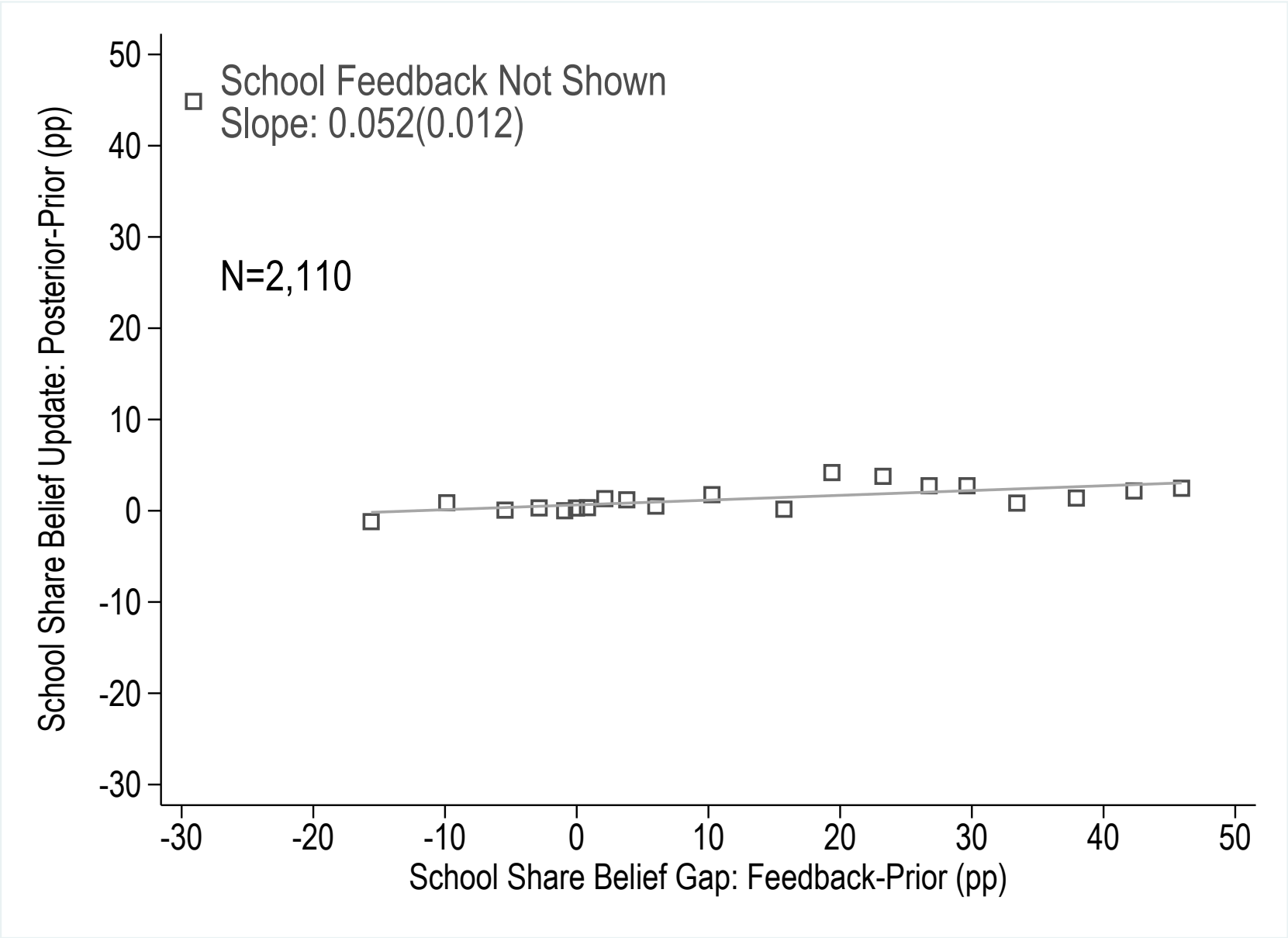
Owner Name: JOAN ROBINSON
Account Number: 325577000F0260000
Property Address: 123 FAKE STREET

CURRENT YEAR 2021	County and School Equalization	City	School	Hospital	College	Special District	Canceled/ Reduced Exemption
Jurisdictions	Dallas County	City of Irving	Irving ISD	Parkland Hospital	Dallas Co Community College		
Market Value - Land	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000		
Market Value - Structure(s)	$ 274,800	$ 274,800	$ 274,800	$ 274,800	$ 274,800		
Market Value	$ 354,800	$ 354,800	$ 354,800	$ 354,800	$ 354,800		
Less Deductions							
Homestead Capped Limitation							
Ag-use Value							
Absolute Exemption							
Appraised Value	$ 354,800	$ 354,800	$ 354,800	$ 354,800	$ 354,800		
Less Exemption Amount							
Homestead							YES
Exemption Amount Subtotal							
Estimated Taxable Value	$ 354,800	$ 354,800	$ 354,800	$ 354,800	$ 354,800		Total
Last Year's Tax Rate	0.249740	0.594100	1.275100	0.266100	0.124000		2.509040
Estimated Taxes Due*	$ 886	$ 2,108	$ 4,524	$ 944	$ 440		$ 8,902

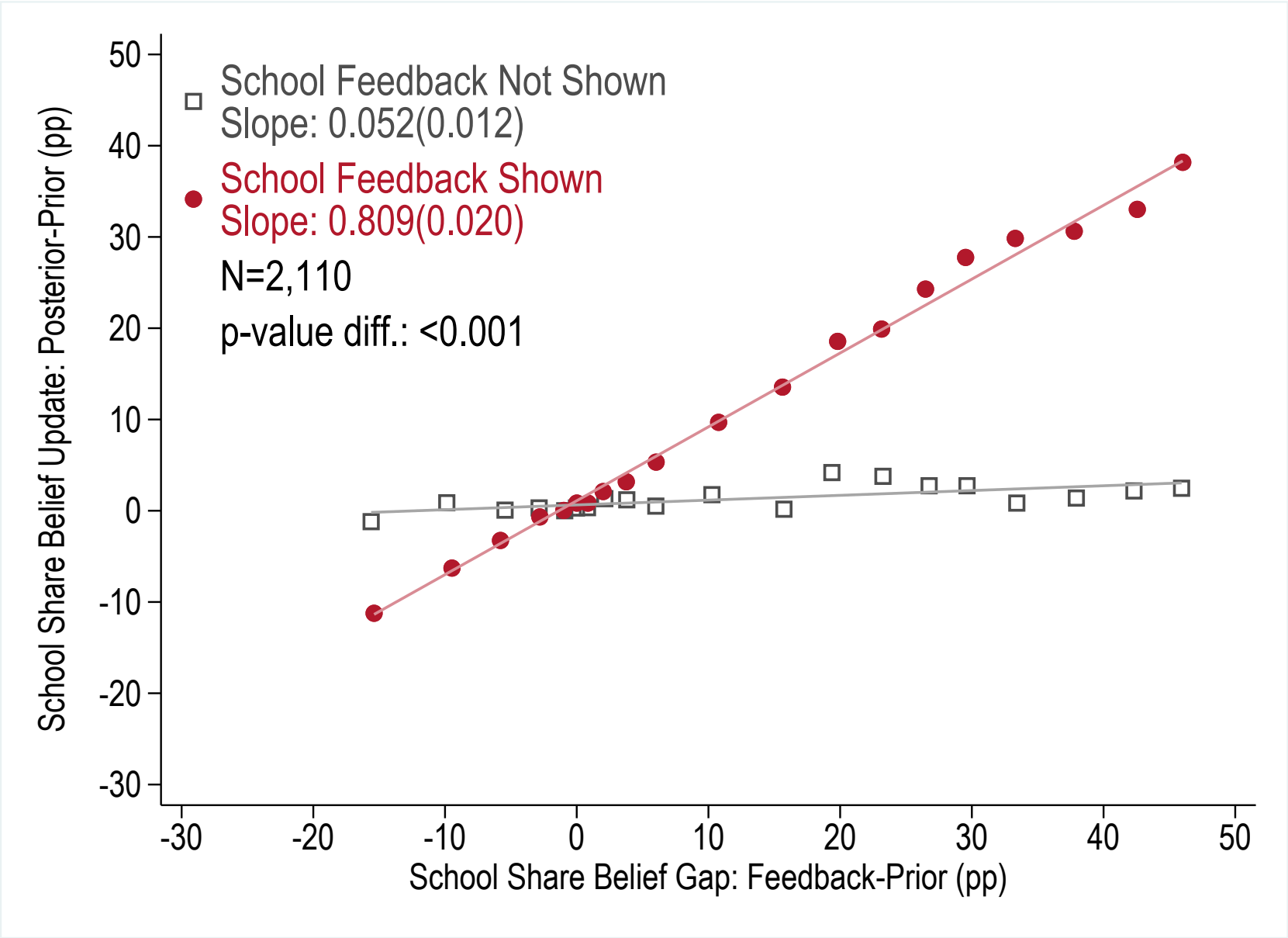
Results

- Most households have misperceptions about where their tax dollars go.
- When provided with factual information, households update their beliefs strongly.

Belief Updating



Belief Updating



Results

- Most households have misperceptions about where their tax dollars go.
- When provided with factual information, households update their beliefs strongly.
- Upon learning that their *school share* is higher...

Results

- Most households have misperceptions about where their tax dollars go.
- When provided with factual information, households update their beliefs strongly.
- Upon learning that their *school share* is higher...
  - Households *with* children become *less* likely to protest.

Results

- Most households have misperceptions about where their tax dollars go.
- When provided with factual information, households update their beliefs strongly.
- Upon learning that their *school share* is higher...
  - Households *with* children become *less* likely to protest.
  - Households *without* children become *more* likely to protest.

Causal Effects of Beliefs

$$P_i^{2021} = \beta_0 + \beta_C^S \cdot C_i \cdot s_i^{post} + \beta_{NC}^S \cdot (1 - C_i) \cdot s_i^{post} + \\ + \beta_1 \cdot C_i + \epsilon_i$$

- P_i^{2021}: tax protest dummy.
- C_i: school children dummy.
- s_i^{post}: posterior belief about school share.
- Predictions: $\beta_C^S < 0$ & $\beta_{NC}^S > 0$.
- 2SLS model to exploit exogenous shocks to s_i^{post} from information experiment.

2SLS Estimates

More

			Falsification Tests	
	P_D^{2021}	I^{2021}	P_A^{2021}	P_D^{2020}
	(1)	(2)	(3)	(4)
Effects of School Share:				
With Children	-0.409*			
	(0.219)			
Without Children	0.278**			
	(0.129)			
Difference (Children - No Children)	-0.687***			
	(0.255)			
Cragg-Donald F-Statistic	30.10			
Mean Outcome (Baseline):				
With Children	33.86			
Without Children	28.83			
Observations	2,110			

2SLS Estimates

▸ More

			Falsification Tests	
	P_D^{2021}	I^{2021}	P_A^{2021}	P_D^{2020}
	(1)	(2)	(3)	(4)
Effects of School Share:				
With Children	-0.409*	-0.408*		
	(0.219)	(0.234)		
Without Children	0.278**	0.269*		
	(0.129)	(0.144)		
Difference (Children - No Children)	-0.687***	-0.678**		
	(0.255)	(0.275)		
Cragg-Donald F-Statistic	30.10	30.22		
Mean Outcome (Baseline):				
With Children	33.86	47.20		
Without Children	28.83	44.87		
Observations	2,110	2,090		

2SLS Estimates

▸ More

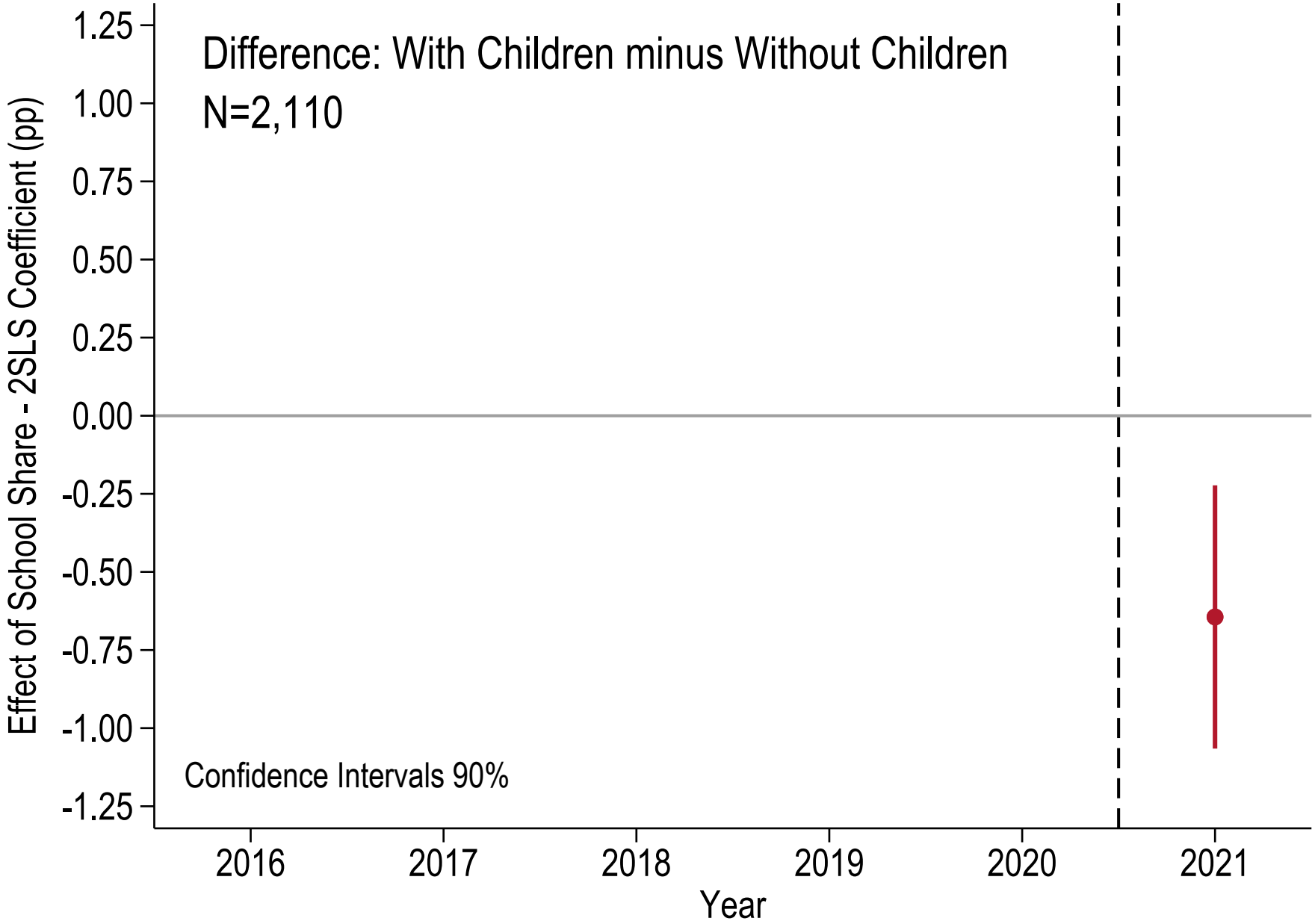
			Falsification Tests	
	P_D^{2021} (1)	I^{2021} (2)	P_A^{2021} (3)	P_D^{2020} (4)
Effects of School Share:				
With Children	-0.409*	-0.408*	-0.015	
	(0.219)	(0.234)	(0.123)	
Without Children	0.278**	0.269*	-0.030	
	(0.129)	(0.144)	(0.051)	
Difference (Children - No Children)	-0.687***	-0.678**	0.044	
	(0.255)	(0.275)	(0.134)	
Cragg-Donald F-Statistic	30.10	30.22	30.10	
Mean Outcome (Baseline):				
With Children	33.86	47.20	7.09	
Without Children	28.83	44.87	4.08	
Observations	2,110	2,090	2,110	

2SLS Estimates

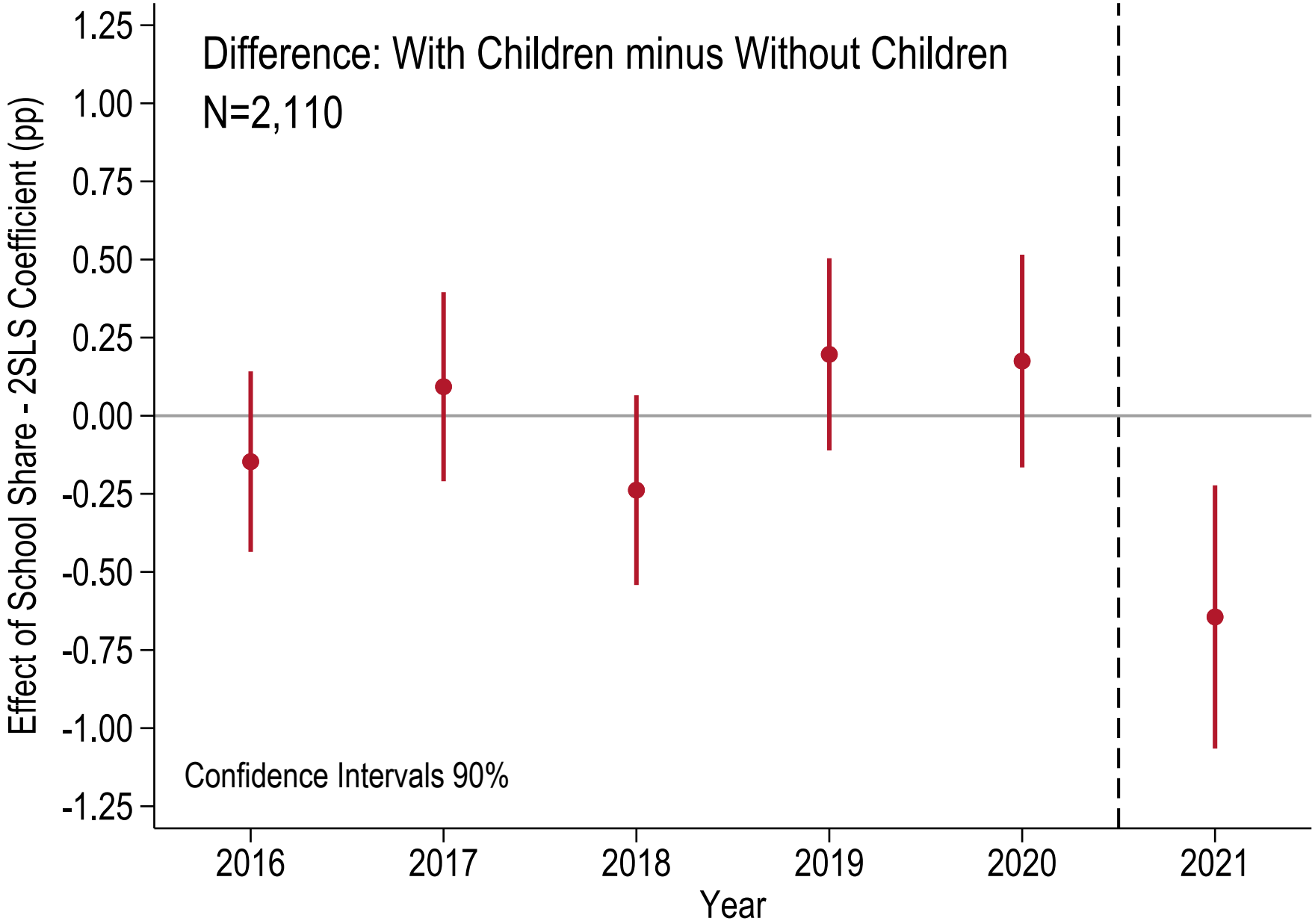
▸ More

			Falsification Tests	
	P_D^{2021}	I^{2021}	P_A^{2021}	P_D^{2020}
	(1)	(2)	(3)	(4)
Effects of School Share:				
With Children	-0.409*	-0.408*	-0.015	0.110
	(0.219)	(0.234)	(0.123)	(0.181)
Without Children	0.278**	0.269*	-0.030	-0.065
	(0.129)	(0.144)	(0.051)	(0.097)
Difference (Children - No Children)	-0.687***	-0.678**	0.044	0.175
	(0.255)	(0.275)	(0.134)	(0.207)
Cragg-Donald F-Statistic	30.10	30.22	30.10	30.02
Mean Outcome (Baseline):				
With Children	33.86	47.20	7.09	25.98
Without Children	28.83	44.87	4.08	22.19
Observations	2,110	2,090	2,110	2,110

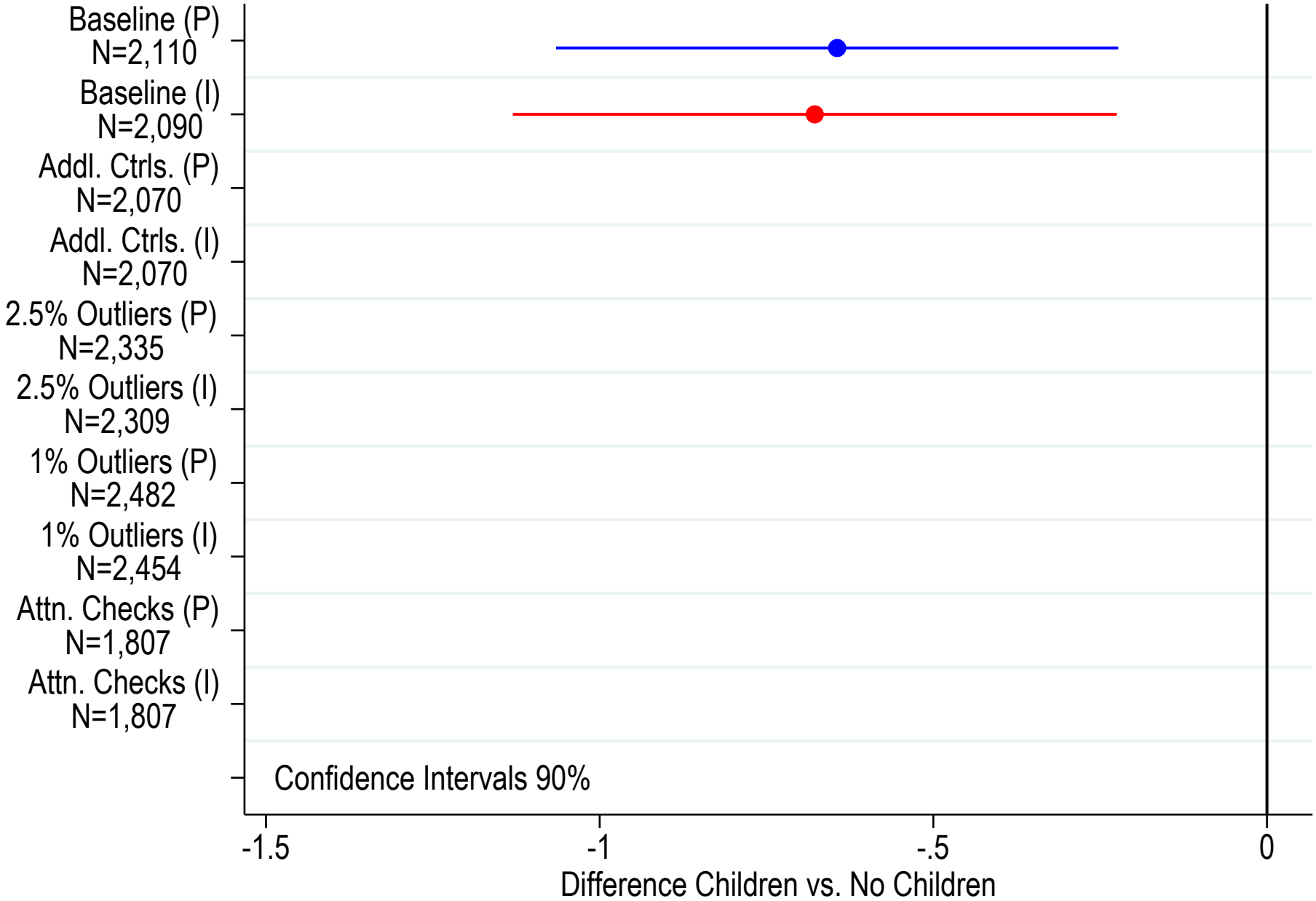
Event-Study Analysis



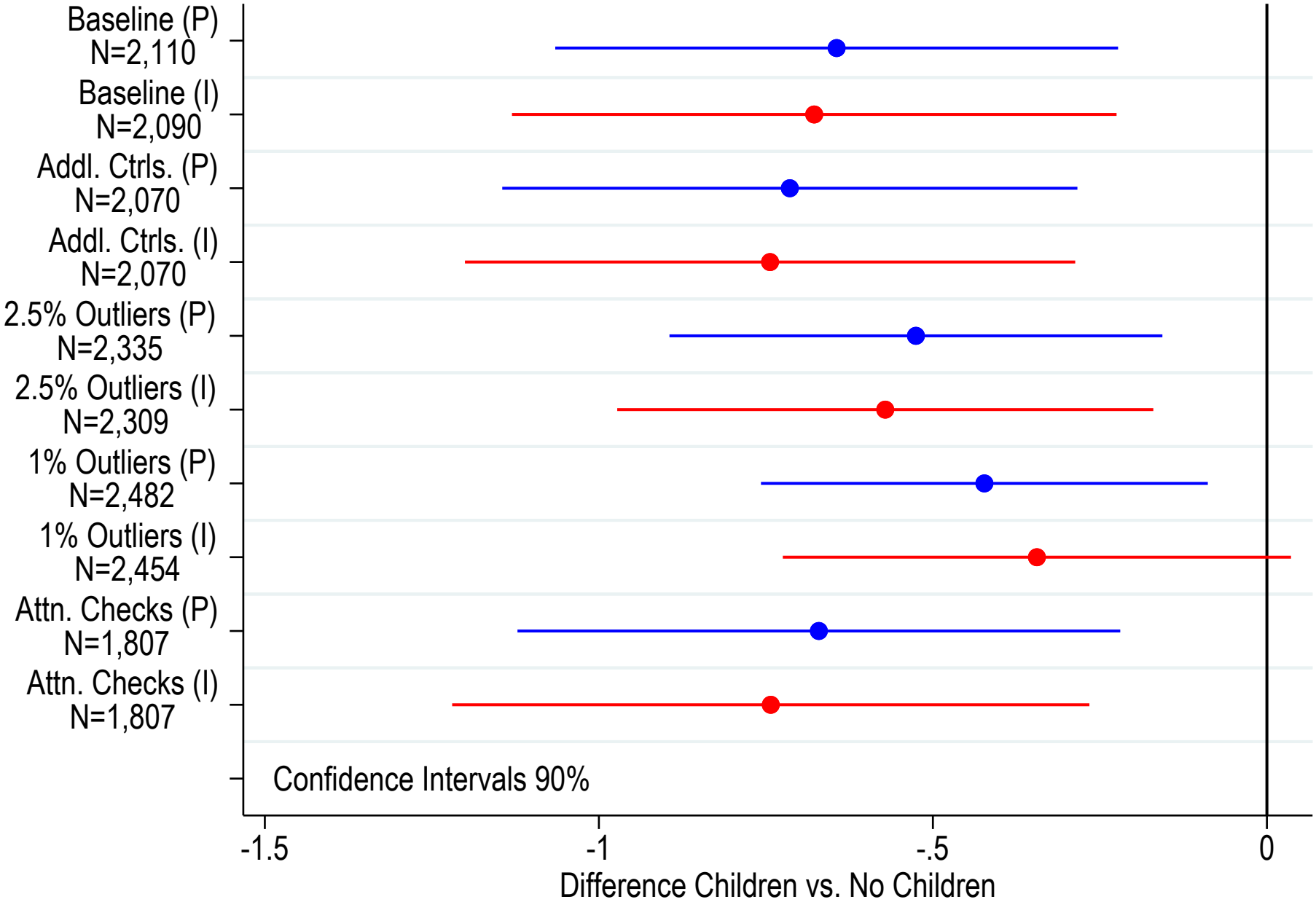
Event-Study Analysis



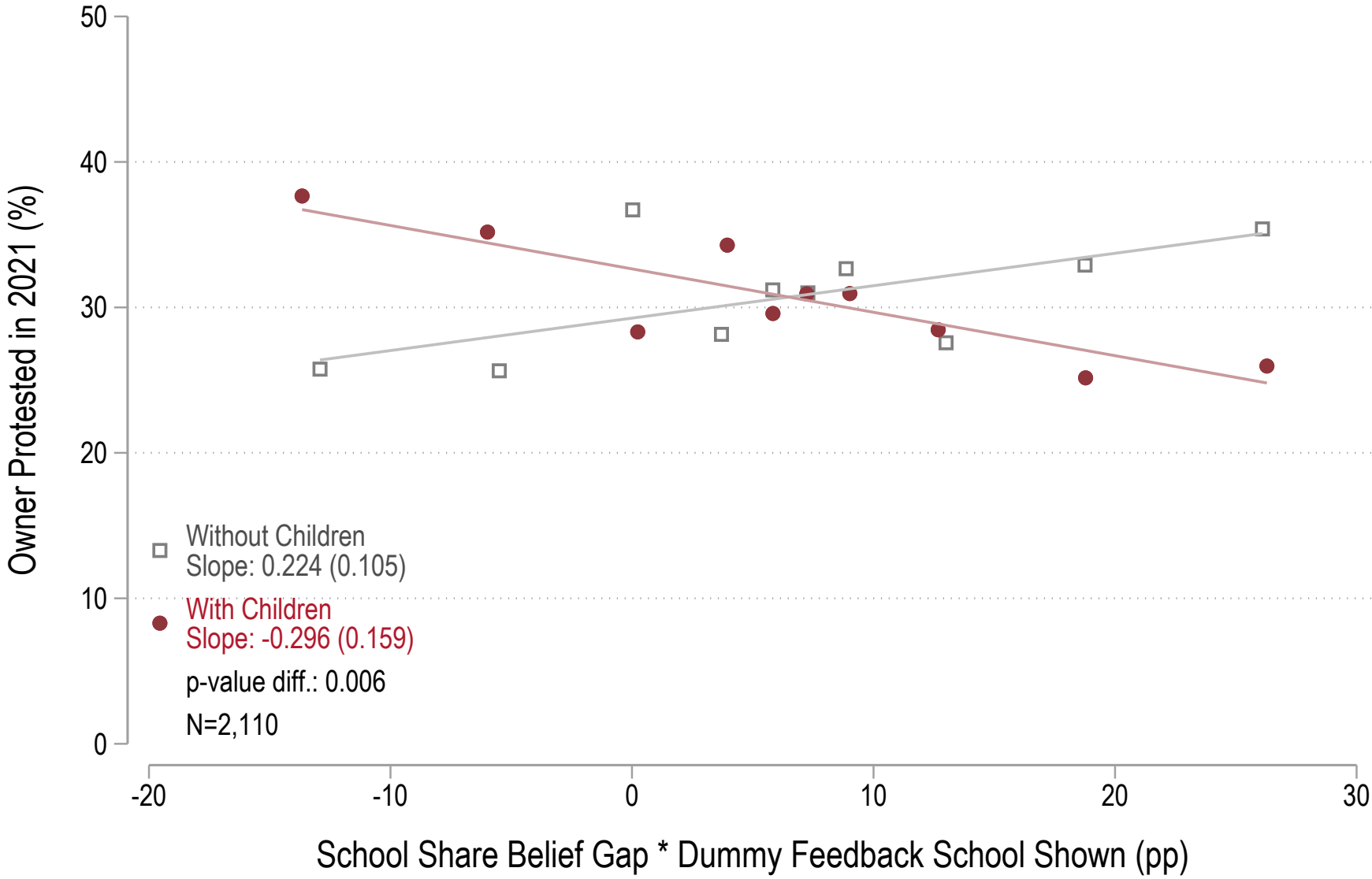
Robustness


Baseline (P)
N=2,110
Baseline (I)
N=2,090
Addl. Ctrls. (P)
N=2,070
Addl. Ctrls. (I)
N=2,070
2.5% Outliers (P)
N=2,335
2.5% Outliers (I)
N=2,309
1% Outliers (P)
N=2,482
1% Outliers (I)
N=2,454
Attn. Checks (P)
N=1,807
Attn. Checks (I)
N=1,807
Confidence Intervals 90%
-1.5
-1
-.5
0
Difference Children vs. No Children

Robustness


Baseline (P)
N=2,110
Baseline (I)
N=2,090
Addl. Ctrls. (P)
N=2,070
Addl. Ctrls. (I)
N=2,070
2.5% Outliers (P)
N=2,335
2.5% Outliers (I)
N=2,309
1% Outliers (P)
N=2,482
1% Outliers (I)
N=2,454
Attn. Checks (P)
N=1,807
Attn. Checks (I)
N=1,807
Confidence Intervals 90%
-1.5
-1
-.5
0
Difference Children vs. No Children

Binned Scatterplot (Reduced Form)



Expert Prediction Survey

▸ More

- We conducted a forecast survey with a sample of 56 experts on these topics.
- Experts were provided a brief explanation of the experiment and were then asked to forecast the experimental findings.
- Most experts predicted null effects.
  - Probably due to widespread evidence on ineffective "moral nudges."
- Only a small minority of experts came close to the experimental findings.

Conclusions

Conclusions

- Provide (so far elusive) causal evidence that tax morale matters.

Conclusions

- Provide (so far elusive) causal evidence that tax morale matters.
- Pushing the methodological frontier for studying tax morale:

Conclusions

- Provide (so far elusive) causal evidence that tax morale matters.
- Pushing the methodological frontier for studying tax morale:
  1. Experimental variation.

Conclusions

- Provide (so far elusive) causal evidence that tax morale matters.
- Pushing the methodological frontier for studying tax morale:
  1. Experimental variation.
  2. In a natural context.

Conclusions

- Provide (so far elusive) causal evidence that tax morale matters.
- Pushing the methodological frontier for studying tax morale:
  1. Experimental variation.
  2. In a natural context.
  3. Via revealed-preferences.

Conclusions

- Provide (so far elusive) causal evidence that tax morale matters.
- Pushing the methodological frontier for studying tax morale:
  1. Experimental variation.
  2. In a natural context.
  3. Via revealed-preferences.
  4. With high-stakes.

Conclusions

- Provide (so far elusive) causal evidence that tax morale matters.
- Pushing the methodological frontier for studying tax morale:
  1. Experimental variation.
  2. In a natural context.
  3. Via revealed-preferences.
  4. With high-stakes.
  5. Combining administrative and survey data.

Conclusions

- Provide (so far elusive) causal evidence that tax morale matters.
- Pushing the methodological frontier for studying tax morale:
  1. Experimental variation.
  2. In a natural context.
  3. Via revealed-preferences.
  4. With high-stakes.
  5. Combining administrative and survey data.
- Avenues for future research: e.g., quality of government services, corruption.

Thank you!

Dallas County

Back

- We focus on Dallas County, Texas.
  - Population over 2.6 million.
  - Close to 50-50 Democrat/Republican split.
  - In 2021, average household paid $6,370 in property taxes (tax rate of 1.94%).
- Results expected to be similar in other counties.
  - Experimental and quasi-experimental designs could be directly replicated in other counties.

Property Taxes

Back

- Property tax revenues: $577 billion in 2019.
- Property taxes are used to fund various public services and have several components.
  - School tax, city tax, hospital taxes, county taxes, college taxes, special district taxes.
- The school tax share represents on average 49.78% of the total property tax bill.

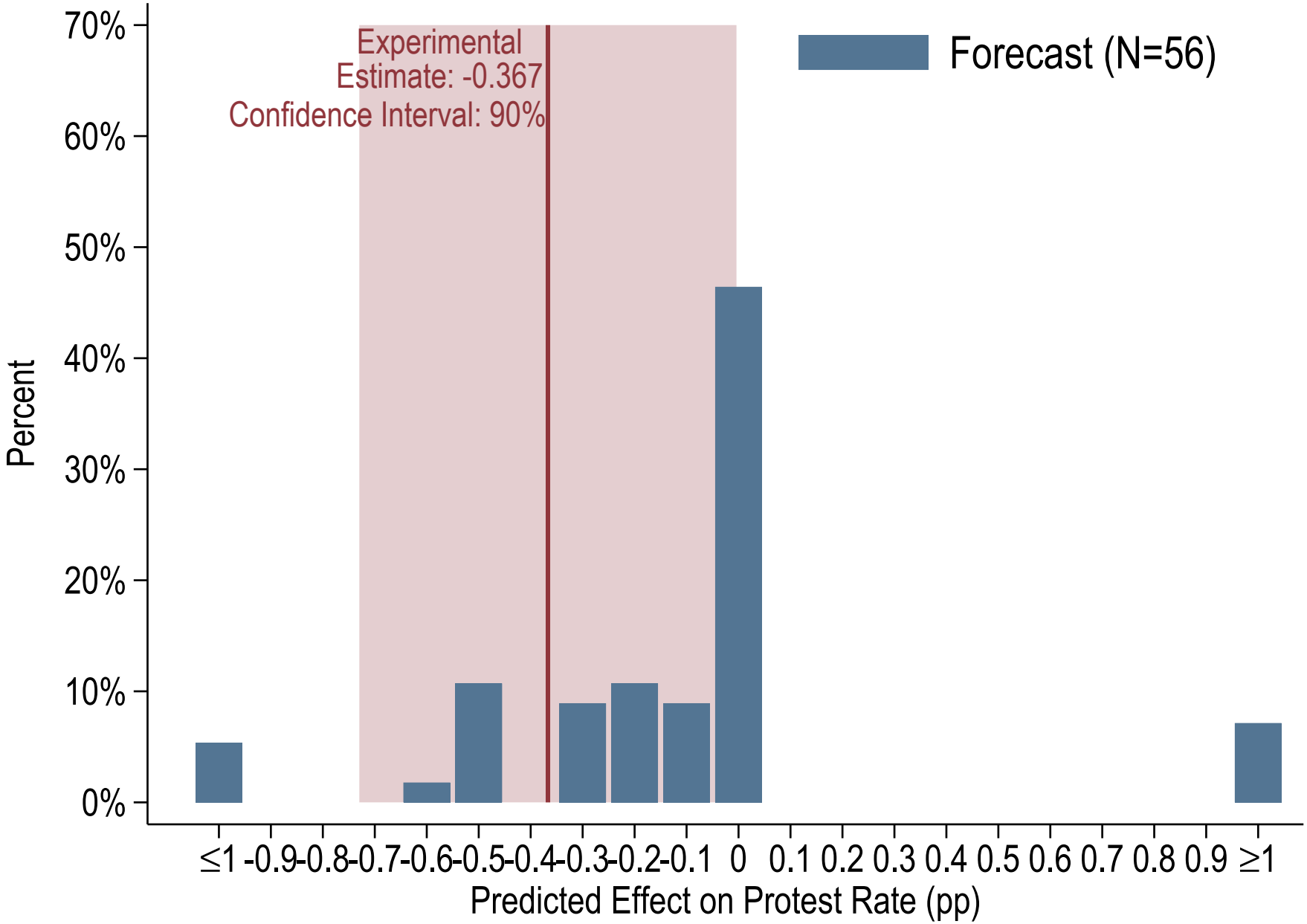
Public Schools

Back

- Dallas County has 16 main Independent School Districts (ISDs).
- Households have the right to send their children to their assigned K-12 public school(s) within their ISD.
  - Alternatively, they can send them to private schools, home-school, charter schools.
  - In 2020, public schools account 89% of the enrollment for Kindergarten and 92.5% for grades 1–12.
- All households must pay school taxes, subject to the tax rate of their ISD.

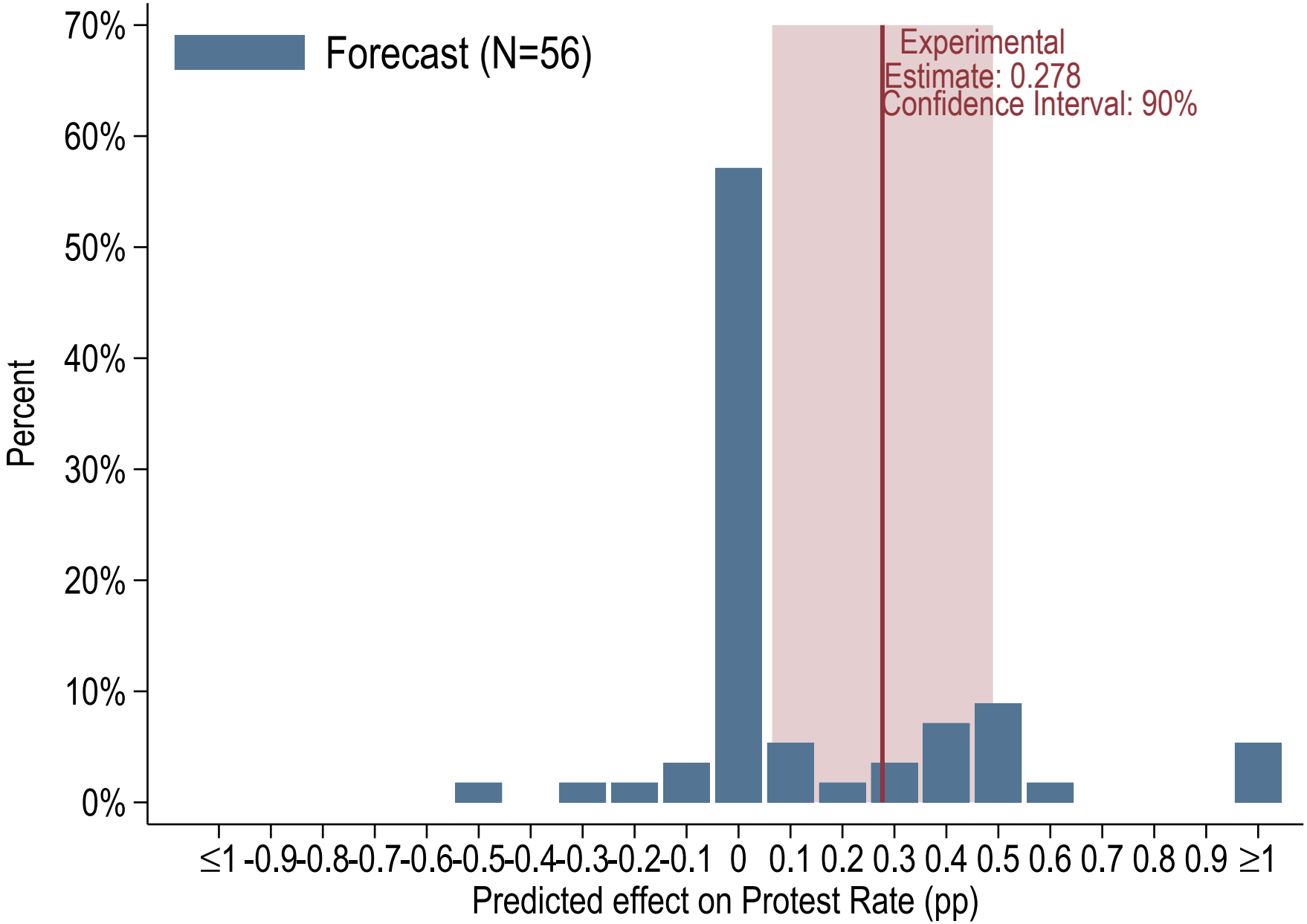
Expert Forecasts (I)

▸ Back



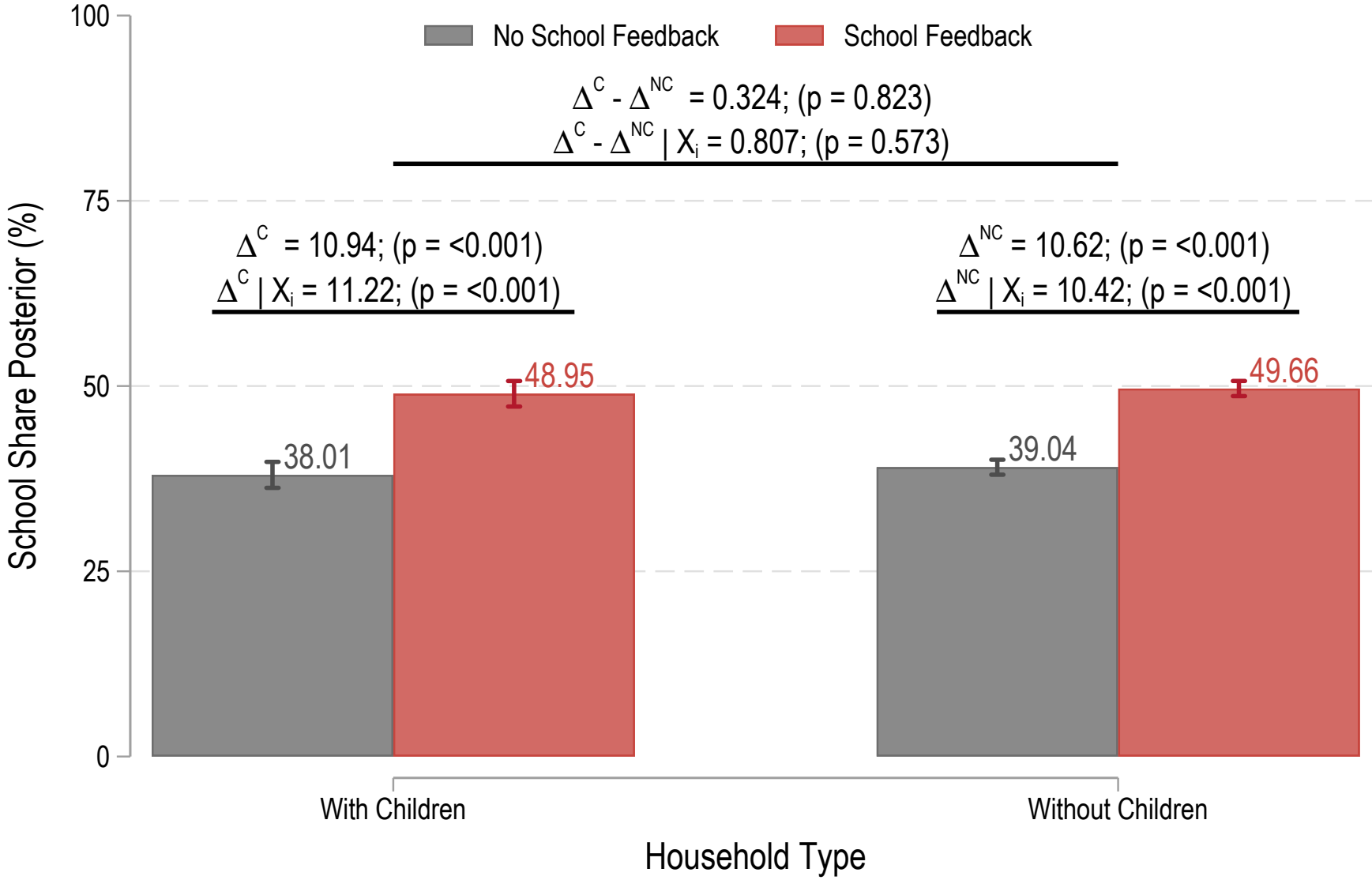
Expert Forecasts (II)

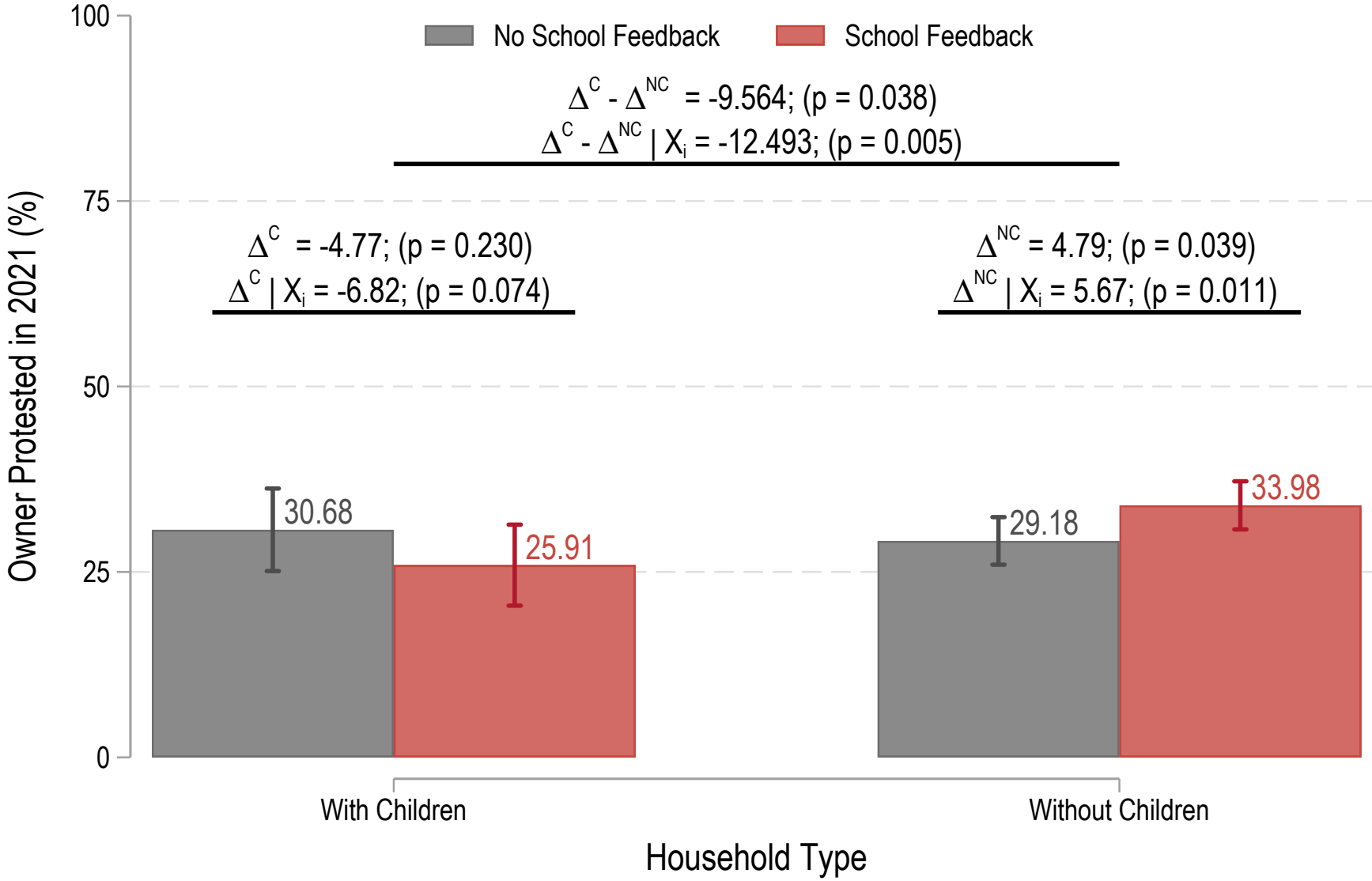
▸ Back



(Average) Effects on Beliefs

Back



(Average) Effects on Protests

Back