

Do Perceptions of Public Good Quality Affect Support? Evidence from Higher Education Appropriations *Preadalysis Plan*

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Abstract

We conduct a survey experiment to understand how beliefs regarding local public good quality affect support for public spending, using US state spending on higher education as a concrete example. Participants will be randomized into three groups. The first treatment group receives information about the graduation rate at public colleges in their state, a measure of the output quality. The second treatment group receives this same information as well as the state's graduation rate rank. The control group receives no information. We will measure the extent to which this information changes preferences for spending and other higher education policies. We will also examine how effect heterogeneity by political partisanship, attachment to the higher education system, and errors in beliefs.

1. Overview

We conduct a randomized survey experiment to understand how beliefs about local public good quality affect support for state spending. We use state public higher education as a specific example. Specifically, we aim to answer the question: “How does information about higher education quality affect preferences for state spending?”

To answer this question, we randomize participants into one of three groups: (C) a control group, (T1) a treatment group that receives information about the graduation rate at public colleges in their own state (a measure of the absolute quality), and (T2) a treatment group that receives information about the state's graduation rate rank (a measure of relative quality), in addition to the rate itself.

These treatments give information about the public good production function, that is, how states use their resources to produce college graduates. The graduation rate provides information about both the level of the public good and the return on investment for public higher education. If taxpayers learn the graduation rate is lower than they previously believed, this new information may therefore either increase or decrease demand for expenditure. On one hand, it signals that the government does not provide the public good well: for every dollar spent, the return on spending is lower than previously believed, reducing demand. On the other hand, individuals may interpret the information as evidence that the public good is under-provided. In that case, they would want spending to increase to improve public good quality. The effect of information on demand is ambiguous and potentially varies with taxpayer characteristics like their attachment to the public college system and political beliefs.

Additional information about the state’s rank allows taxpayers to also learn about relative public good quality. Participants may have incorrect beliefs about both provision in their own state and across the country. Learning about the relative position, in addition to the absolute quality, will affect the extent to which taxpayers believe the public good is over or under provided, and the return on investment for higher education.

2. Survey and Sample

This experiment involves revealing information about the absolute and relative quality of a local public good and then measuring how this information affects preferences for public spending. The context will be state funding for four-year public colleges and universities.

Survey respondents will be a representative sample of US adults (balanced on gender, education, and political affiliation) recruited through Qualtrics Research. We will recruit about 3700 individuals in April and May 2021. Upon beginning the survey, each participant will be randomized independently into one of three groups:

1. Control: No information
2. T1- Own State’s Graduation Rate: Gives the six-year graduation rate for public four-year colleges and universities in the respondent’s state.
3. T2- Own State’s Graduation Rate and Rank: Gives the six-year graduation rate for public four-year colleges and universities in the respondent’s state and the rank among all states.

We first elicit subjects’ priors regarding the levels and ranks (relative to other US states) of the following variables: six-year graduation rate at public four-year colleges and universi-

ties in the US (rate only); six-year graduation rate at public four-year colleges and universities in their state (rate and rank); and the average number of tax dollars spent per student to fund public four-year colleges and universities in their state. After eliciting these priors, participants in the treatment conditions (T1 and T2) receive their respective information treatments.

The next section of the survey includes questions measuring key outcomes and mechanisms. Specifically, respondents answer the following questions:

- **Main Outcome 1: Constrained Spending Level.** Acknowledging the potential effects of the COVID-19 pandemic on [subject's state] state budget, how much do you think [subject's state] should spend per student each year at public four-year colleges in \$1000s?
- **Main Outcome 2: Ideal Spending Level.** After the COVID-19 pandemic has passed, how much do you think [subject's state] should spend per student each year at public four-year colleges (in \$1000s)?
- **Mechanism 1: Beliefs about Marginal Spending.**

Imagine [subject's state] state spent an additional \$100 per student per year at public colleges. As a result of this additional spending...

- how much would you expect enrollment at public four-year colleges to increase (in percent)? A negative number indicates fewer students would enroll.
- how much would you expect the graduation rate for four-year colleges to increase (in percent)? A negative number indicates a lower proportion of students would graduate.

- **Mechanism 2: Beliefs about Marginal Costs to Taxpayers.**

Now instead imagine [subject's state] collected an additional \$1 in tax revenue each year from every resident in the state to spend on public four-year colleges in [subject's state]. To what extent do you agree with the following statements regarding this change? (5 point Likert scale)

- The average person in [subject's state] would be better off
- I personally would be better off
- New graduates from public four-year colleges would have better careers

- **Supplemental Outcomes:** 5 point Likert scale

- I trust that public four year colleges in [subject’s state] use taxpayer dollars well
- Subject’s state should shift the cost of public higher education from taxpayers to students by charging higher tuition
- The federal government should increase financial support for public four-year colleges

- **Behavioral Outcome 1:** Share their preferences regarding spending on public education with state officials:

Thank you for sharing your opinions regarding state spending on public four-year colleges in [subject’s state]. We’d now like to give you a chance to share those thoughts with your elected officials. We will compile any comments you make in a report for [subject’s state] state officials. If you wish to make any comments, please provide them here:

[Text box for subject’s response]

Recipient options

- Governor
- Senate Democrat Leader
- Senate Republican Leader
- House Democrat Leader
- House Republican Leader
- I do not wish to make any comments

- **Behavioral Outcome 2** Donation to public higher education

We’d also like to give you a chance to directly support public higher education in [state]. As part of this survey, you can donate up to \$0.25 to higher education in [subject’s state], keeping any money you do not donate as a bonus payment (for example, you could choose to donate \$0.10 and keep \$0.15). In the first box below, please type the name of the public university in Arizona that you would like to make a donation to.

- Amount
- College name

Finally, we survey individuals to learn basic demographic information such as age, gender, race, educational attainment, political affiliation, and whether they or their children participated in the state’s four year college system.

3. Variables and Coding

The following is a list of variables we will create and coding decisions:

- Priors: continuous variable measuring **prior - truth** and indicators for whether the error is greater than or less than zero.
- Main outcomes: transform dollar spending amounts with a natural logarithm.
- Likert questions: generate indicator for whether agree or strongly agree.
- Representative writing: generate indicator for whether they responded (removing responses directed as us as researchers), the character count, and seconds spent writing. We will also measure the number of specified recipients (by party).
- Donation activity: amount donated, and generate indicator for whether they donated a positive amount.
- Demographics will be converted into binary variables:
 - Republican = lean republican, not very strong republican, lean republican.
 - Family ties = generate indicator for subject or child has previously attend, is currently attending, or child will likely attend a public four-year college in state.

4. Hypotheses and Estimating Equations

We estimate the following regression equations to answer our research questions. For hypothesis tests of this main regressions, we will report EHW robust standard errors.

4.1 The Effect of Information on Preferences for Public Expenditure

This main regression measures the average effect of information provision about rate D_1 and rank D_2 on the log of stated ideal spending (y):

$$y_{is} = \beta X_i + \tau_1 D_{1i} + \tau_2 D_{2i} + \varepsilon_{is}$$

H1: Effect of Information. We test whether information changes preferences about spending. This will be the test of $\tau_d = 0$ for $d = 1, 2$, and $\tau_1 = \tau_2$. Note, that β (including β_0 , the constant) are coefficients of descriptive interest: What are people's preferences and what predicts them?

The second set of results focuses on two main dimensions of heterogeneity,

$$y_{is} = \beta X_i + \tau_1 D_{1i} + \tau_2 D_{2i} + \Gamma_1 D_{1i} W_i + \Gamma_2 D_{2i} W_i + \varepsilon_{is}$$

- **H2a: Effects by bias.** We test whether that the change in the effect will vary for groups that had different priors. Specifically we will test $\Gamma_k \neq 0$ for $W = (\mathbb{1}(\text{rate_bias}_{is} > 0), \mathbb{1}(\text{rank_bias}_{is} > 0), \mathbb{1}(\text{rate_bias}_{is} > 0 \ \& \ \text{rank_bias}_{is} > 0))$, (interaction?). We will also explore differences in effects over bias nonparametrically to allow for richer heterogeneity along the intensive margin of belief.
- **H2b: Subgroup effects.** We test whether the average effects vary for different demographic groups. Specifically, we will test $\Gamma_k \neq 0$ for the characteristics $W = (\text{republican}, \text{family ties})$.¹

We additionally test whether the interventions change the difference between ideal spending levels during economic recovery and the COVID-19 pandemic.

H3: Effect on Preferences in Different Economic Conditions Using the outcome $y_{is} = \log \text{ideal_uncons}_{is} - \log \text{ideal_cons}_{is}$ We will test whether the interventions change the difference between ideal spending levels during economic recovery and the COVID-19 pandemic: $\tau_d = 0 \ d = 1, 2$

H4: Effect on Revealed Preferences Using the outcomes $y_{is} = \text{donation_amount}_{is}$ and $y_{is} = \text{any_donation}_{is}$ We will test whether the interventions change the revealed willingness to pay (out of pocket) for increased public good provision: $\tau_d = 0 \ d = 1, 2$

4.2 Mechanisms and other outcomes

We will explore models using the mechanisms, supplemental outcomes, and representative-writing as dependent variables.

5. Descriptive Results

In addition to our research questions, we also want to measure taxpayer knowledge about public investment in higher education.

- **What beliefs do people hold?** Describe the relationship between individual beliefs over the truth for graduation rates, graduation ranks, spending levels, and spending rank.

¹We are also interested in the interaction effects of bias and subgroups.

- **What are baseline preferences?** Show the expected outcomes in the control group for ideal spending, mechanisms, and supplemental outcomes.