

GENERAL INFORMATION

Title: The Impact of Financial Market Exposure and Climate Disclosures on Knowledge of Climate Change and Attitudes towards Mitigation Policies

Initial registration date: 10/2/2024

LOCATION(S):

Country: [United States](#)

PRIMARY INVESTIGATORS

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Dates

Trial Start date

2024-09-27

Intervention Start date

2024-10-04

Intervention End date

2024-11-08

Trial end date

2025-03-01

Keywords (multi-select): Political economy, Climate policy, polarization, financial markets

ABSTRACT

Climate change has proved to be one of the most important and salient challenges of our times. While informed and effective policies are essential to mitigate the adverse effects of climate change, attitudes towards climate change and preferences over climate mitigation policies in America are highly varied (Leiserowitz et al., 2019) and among the most politically polarized, making it highly challenging to develop support for bold, broad and bipartisan initiatives needed to address its challenges. Understanding which policy levers can be effective in reaching individuals, helping them to learn and overcome existing barriers that hinder support and action on climate change policies is thus vital.

Sponsors & Partners (optional)

Sponsors and Partners: Stanford University, MIT, Institute for Humane Studies.

Experimental Details

INTERVENTION:

In past work (see references below), we have shown that learning by doing through financial market investment can provide a non-paternalistic approach to empowering individuals, helping them to learn, and rebuild trust, particularly among politically polarized groups. Building on these insights, we aim to see whether financial market exposure, both by itself and in combination with green disclosures, may also engender learning, and build broad support for climate change mitigation policies. We will implement a large-scale experiment in which we endow investors with tailored investment portfolios, including assets in “green” or “brown” energy companies as well as climate disclosure information.

Combining data on asset allocation with surveys and behavioral data, we plan to answer three primary questions: 1) How do financial exposures impact beliefs about climate change, as well as support for climate mitigation policies? 2) How does climate disclosure information impact investors’ decisions, beliefs about climate change, as well as support for climate mitigation policies? 3) Do disclosures further impact the perceived risk-adjusted returns of financial portfolios, in a way that alters the effect of financial market exposures on these outcomes?

Our experiment follows six stages, with a total of 5 treatment conditions:

1. First, we implement an online survey with 3800 survey respondents, collecting baseline covariates and pre-treatment measures of our primary outcomes of interest.
2. We then block randomize respondents (stratifying sequentially based on party ID, experience in financial markets, sex, region, risk tolerance (above and below median), liquid assets (above and below median), and salience of climate change (above and median) as a policy priority) into one of three initial conditions (63% of the sample will be assigned to conditions a-b):
 - a. Invitation to participate in a six-week trading platform with an endowment of “Green Stocks,” with real or mock-up portfolios ranging in value from about \$0 to \$100.
 - b. Invitation to participate in a six-week trading platform with an endowment of “Brown Stocks” with real or mock-up portfolios ranging in value from about \$0 to \$100.
 - c. Empty control (no invitation to participate in the trading platform).

In conditions a-b, portfolio composition is randomly selected to include 3 out of 4 initial assets.

After informing respondents from groups a-b about the trading platform, we will invite participants from groups a-b to participate in a weekly survey on the platform in which they can receive information about their stock performance and buy and sell stocks within their treatment condition (e.g., if assigned green stocks, respondents will be able to buy and sell stocks from a curated list of green stocks, including an index fund). We will collect data on respondents’ trading behavior on the platform.

3. After 3 weeks of trading, and before the fourth trading session, we implement our midline survey among all study participants (including the empty control) in which we collect our primary attitudinal and behavioral measures relating to climate beliefs, attitudes, preferences, and behaviors.

4. On the fourth week of trading, we open up trading across sectors (Brown/Green). Then on the fifth week, we randomize respondents from treatment groups a-b to receive access to either i) financial disclosures about their assets or ii) financial and climate-related disclosures about their assets. Our primary objective here is to i) measure whether respondents consume the information disclosed, ii) identify the effects of random assignment to climate disclosures on trading behavior, and iii) identify the effects of climate disclosures on climate beliefs, attitudes, and behaviors in future surveys.
5. We plan the final week of trading (with the disclosure treatment) to occur following the 2024 US election. In each trading session following the start of disclosures, respondents will receive access to disclosures in accordance with their initial treatment status, and we will examine whether demand for and responses to exposure differ before and after the election, which is likely to determine the trajectory of future climate change policies in the US.
6. After six weeks of trading we implement an endline survey collecting all our outcomes of interest. We will also implement a long-term endline 3-months post-treatment.

PRIMARY OUTCOMES

Primary Outcomes (end points)

We consider outcomes in two domains:

1. **Climate Beliefs** (4 item index): Please indicate how much you agree or disagree with each of the following statements about climate change (7 point Likert scale).
 - a. Climate change will have a serious impact on the quality of life of people in the US during my lifetime.
 - b. Human activities are a significant cause of climate change.
 - c. Extreme weather events such as floods, fires, and hurricanes are made more likely due to climate change.
 - d. Climate change is not a serious issue.
2. **Perception of Transition Costs and Limitations** (4 item index): Please indicate how much you agree or disagree with each of the following statements (7 point scale):
 - a. Renewable energy will threaten many coal, oil and gas jobs in America.
 - b. Renewable energy will take up land that could be used for more productive economic causes.
 - c. Renewable energy will not be able to efficiently meet the needs of the American economy in the next 10 years.
 - d. Renewable energy will not be able to efficiently meet the needs of the American economy in the next 20 years.
3. **Perceptions of Transition Benefits** (4 item index): Please indicate how much you agree or disagree with each of the following statements (7 point scale):
 - a. Renewable energy industries, including those based on wind, solar, etc., will create many well-paying jobs for Americans.
 - b. Renewable energy industries have the potential to be a central cause of economic growth in the U.S.
 - c. Investing in renewable energy is an important way to fight climate change.

d. On balance, the transition to renewable energy solar from fossil fuels like coal and gas will be beneficial for the US economy in the next 10 years.

4. Climate policy priority (single item measuring the position of climate in respondents' priorities): Please order the following policy priorities from most (1) to least (7) important:

- a. Addressing climate change
- b. Addressing immigration
- c. Strengthening the nation's economy
- d. Improving the nation's healthcare system
- e. Strengthening the U.S. military
- f. Improving access to social services for low-income communities
- g. Other (please specify)

5. Support for government action on climate issues (2-item index): How much do you agree or disagree with the following statements (7 point scale)?

- a. The U.S. government should do more to reduce greenhouse gas emissions.
- b. The U.S. government should only contribute to climate mitigation if other countries like China and India do the same.

6. Support for business action on climate issues (2-item index): How much do you agree or disagree with the following statements (7 point scale)?

- a. U.S. companies should do more to reduce greenhouse gas emissions.
- b. U.S. companies should contribute to climate mitigation if companies in other countries, such as China and India, do the same.

7. Climate-friendly behavioral intentions (5 item index): How likely are you to engage in each of the following behaviors (7 point scale):

- a. Sign a petition in support of protecting the environment.
- b. Join or renew membership in an environmental group.
- c. Actively choose to walk, bike or use public transportation over driving your own vehicle.
- d. Actively attempt to use reusable bags when visiting the grocery store.
- e. Consciously reduce meat consumption.
- f. Donate survey award to climate-related NGO (amount donated).

Second Domain: Polarization and Voting.

1. Affective polarization: Measured as in-party feeling thermometer subtracted from out-party feeling thermometer.
2. Vote intentions, turnout as well as candidate choice.

Where appropriate, we will form indices of the outcomes above, following Kling, Liebman and Katz 2007.

Secondary Outcomes (end points)

Financial Literacy

1. Financial literacy (3 item index measuring correct answers to the following questions):

- a. Suppose you had \$100 in a savings account, and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money in the account for the entire period?
- b. Do you think the following is true or false: Buying a company stock usually provides a safer return than a stock mutual fund?
- c. Suppose you had \$100 in a savings account, and the interest rate is 20% per year, and you never withdraw money or interest payments. After five years, how much would you have in this account in total?

2. Generalized Trust.

We expect strongest effects on the true or false financial literacy question (b), which tends to be the one that is the hardest to answer. We will also combine the questions into a 0-1 dummy variable for whether all financial literacy questions were answered correctly, following Lusardi and Mitchell.

EXPERIMENTAL DESIGN

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Our primary specifications will compare: i) allocation of any stock with real value relative to control, ii) testing for differences in treatment effects for green vs. brown stocks relative to control, iii) testing for the impact of disclosure vs. not, iv) testing whether the treatment effects of disclosure vary by green vs. brown stocks.

To test the mechanism, we will also vary the value of the portfolio, including having a 'fantasy' treatment, which we anticipate will have weaker effects. For secondary analysis, we will test whether the value of the portfolio impacts the treatment effects.

To correct for potential imbalances ex post, if necessary, we will use double-lasso procedures as suggested by Belloni, Chernozhukov and Hansen 2014 and Duflo et al. 2020.

Directional Hypotheses:

1) We hypothesize that exposure to green stock portfolios will have a more positive impact on climate change knowledge, beliefs and support for climate mitigation policies, relative to control and to brown portfolios.

- 2) We further hypothesize that disclosures that making salient the adverse environmental impacts and associated risks of brown companies relative to green companies may also reduce the relative demand for brown company stock and their impact on attitudes.
- 3) Climate disclosure of green companies may in contrast strengthen the demand for green stocks, and the effects of green exposure.
- 4) Consumption of climate risk disclosures will increase (decrease) with a Democratic (Republican) presidential victory.
- 5) We will also examine whether stock exposures enhance financial literacy, reduce affective political polarization, enhance trust, as well as increase turnout.

Heterogeneous Treatment Effects

We will also examine heterogeneous treatment effects by:

- i) Pre-treatment climate preferences and prior beliefs about the climate-related risk of the assigned stocks.
- ii) Pre-treatment Party ID, affective polarization and trust
- iii) Pre-treatment experience in financial markets
- iv) Risk tolerance
- v) Proximity to recent extreme weather events or natural disasters (if any)
- vi) Stock price performance
- vii) Pre-treatment geographical proximity to fossil fuel industries or those affected by (or likely to be affected by) the green transition.

EXPERIMENT CHARACTERISTICS

Randomization Method:

Randomization at the individual level done in an office by a computer. Stratification sequentially based on party ID, region, climate policy priority, and past trading experience.

Sample size: planned number of clusters

3800 subjects: adults. Randomization at the individual level.

Sample size: planned number of observations

3800 subjects.

Sample size (or number of clusters) by treatment arms

Total 3800 of which pure control 1400

Assigned to Trading 2400

Of which:

Fantasy 500

Real 1900

Cross randomized into Brown and Green Stock portfolios.

Brown 950

Green 950

Cross randomized into high initial value (\$100):950, low value (\$50): 950

Minimum detectable effect size for main outcomes (accounting for sample design and clustering)

Given our main specification (that does not include the fantasy treatment and thus includes a total of 3300 respondents), and assuming that we run a one-tailed test, our minimal detectable effect is 0.0866 SDs. If we are running a 2-tailed test, then our MDE would be .0975 SDs.

INSTITUTIONAL REVIEW BOARDS (IRBs)

IRB Name

Stanford IRB

IRB Approval Date

2023-05-30

IRB Approval Number

70119

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