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# Social Pressure and Voting Behaviour

Capstone Sprint 1

Rishane Dassanayake • 08.03.2024

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**How might we use machine learning to understand the role of social pressure on voting behaviour?**

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# The Problem

## Why voting?

- Fundamental pillar of democracy; Some evidence that higher voter turnout leads to better societal outcomes.
- Voter turnout is quite low on average (especially for local elections).

## Why data science/ML?

- Reasons for voting are complex
  - The true impacts of interventions are obscured by average treatment effects (heterogeneity)
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# The Solution

## Social Pressure?

- Fulfilling civic duty is one of many reasons people vote.
- Use DS/ML to find out whether social pressure to fulfill civic duty increases voter turnout.

## Identify Subgroups

- Find subgroups within the population that are particularly responsive to social pressure.
  - Provide insights into where behavioural nudges might be most effective.
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# The Data

- Gerber and Green (2008): Field Study in Michigan
  - **Treatment:**  $\frac{1}{4}$  mailings
  - **Outcome:** Vote in 2006 Michigan Primary
  - **Other:** census data, previous voting data
  - 344,084 individuals, 180,002 households, 65 columns
  - Random assignment
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For more information: (517) 351-1975  
email: ctov@grebner.com  
Practical Political Consulting  
P. O. Box 6249  
East Lansing, MI 48826

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### Neighbors mailing

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Dear Registered Voter:

### WHAT IF YOUR NEIGHBORS KNEW WHETHER YOU VOTED?

Why do so many people fail to vote? We've been talking about the problem for years, but it only seems to get worse. This year, we're taking a new approach. We're sending this mailing to you and your neighbors to publicize who does and does not vote.

The chart shows the names of some of your neighbors, showing which have voted in the past. After the August 8 election, we intend to mail an updated chart. You and your neighbors will all know who voted and who did not.

### DO YOUR CIVIC DUTY — VOTE!

MAPLE DR	Aug 04	Nov 04	Aug 06
9995 JOSEPH JAMES SMITH	Voted	Voted	_____
9995 JENNIFER KAY SMITH		Voted	_____
9997 RICHARD B JACKSON		Voted	_____
9999 KATHY MARIE JACKSON		Voted	_____
9999 BRIAN JOSEPH JACKSON		Voted	_____
9991 JENNIFER KAY THOMPSON		Voted	_____
9991 BOB R THOMPSON		Voted	_____
9993 BILL S SMITH			_____
9989 WILLIAM LUKE CASPER		Voted	_____
9989 JENNIFER SUE CASPER		Voted	_____
9987 MARIA S JOHNSON	Voted	Voted	_____
9987 TOM JACK JOHNSON	Voted	Voted	_____
9987 RICHARD TOM JOHNSON		Voted	_____
9985 ROSEMARY S SUE		Voted	_____
9985 KATHRYN L SUE		Voted	_____
9985 HOWARD BEN SUE		Voted	_____
9983 NATHAN CHAD BERG		Voted	_____
9983 CARRIE ANN BERG		Voted	_____
9981 EARL JOEL SMITH			_____
9979 DEBORAH KAY WAYNE		Voted	_____
9979 JOEL R WAYNE		Voted	_____

Dear Registered Voter:

### DO YOUR CIVIC DUTY AND VOTE!

Why do so many people fail to vote? We've been talking about this problem for years, but it only seems to get worse.

The whole point of democracy is that citizens are active participants in government; that we have a voice in government. Your voice starts with your vote. On August 8, remember your rights and responsibilities as a citizen. Remember to vote.

### DO YOUR CIVIC DUTY — VOTE!

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# The Data

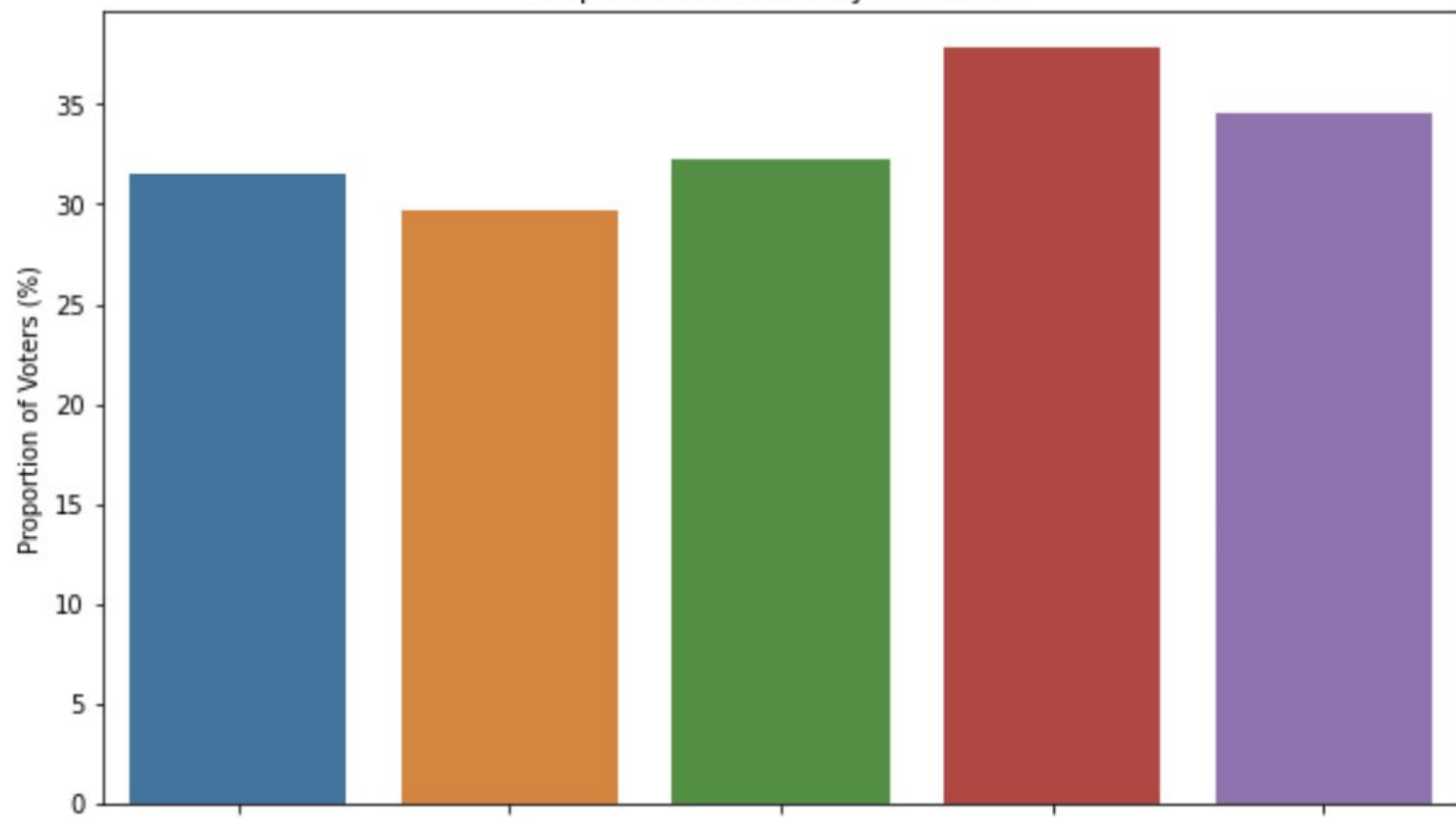
## Preliminary EDA

- There seems to be a positive treatment effect.
- Mapped out demographic characteristics in the dataset.
- High correlation features: age, previous voting behaviour.

## Data Quality

- plus4?????
  - Data exists at different levels of aggregation
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Proportion of Voters by Treatment





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## Next steps

1. Investigate unknown columns
  2. Pre-process data and create linear models
  3. Explore ML models that might be good at identifying heterogeneous treatment effects
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