DISCUSSION: TARGETED ADVERTISING IN ELECTIONS BY MARIA TITOVA

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Workshop on Misinformation: Causes, consequences, and remedies

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- This paper studies information disclosures in elections, assuming
  - Verifiable information: Milgrom and Roberts (1986)
  - Nonstrategic or expressive receivers: Alonso and Camara (2016)
  - The sender maximizes the ex ante utility (before learning the true state)
    - Sender can commit: Kamenica and Genztkow (2011)

- **Main message**: Privately information disclosure (Targeted advertisement) may allow the politician to win the election impossible to win under public information disclosure.

- State (policy outcome) space: $X := \{L, R\}$ with $L = -1$ and $R = 1$, equally likely
- A sender and two receivers with bliss points $\mathcal{V} := \{L, R\}$;
- Each receiver has
  - Binary actions: Approve or reject
- Receivers are expressive or nonstrategic: When the outcome is x
  - Reciver v approves under belief μ if and only if $\underbrace{\int -(v-x)^2 \, d\mu}_{\text{util from approval}} - \underbrace{\int -v^2 \, d\mu}_{\text{util from status quo}} \geq 0$
- Unanimity rule: Decisive coalitions $\mathcal{D} = \{L, R\}$.

- The sender can commit to a signal $\pi : X \to \Delta(M)$ and M is the verifiable message
  - $M = \{\{L\}, \{R\}, \{L, R\}\}$
  - **Info Verifiability**: for each state $x \in \{L, R\}$, only messages m that $x \in m$ can be sent

- The sender maximizes her ex ante probability of winning given the prior belief

- **Public disclosure**: All receivers get the same message
- **Targeted adverting**: Different receivers may get different messages

PUBLIC DISCLOSURE

Observation 1: The (ex ante) prob of winning under public disclosure is 0.

ANALYSIS

- For any posterior belief $\mu \in \Delta(X)$

  - Voter L approves iff $\mu(L) \geq \frac{3}{4}$
  - Voter R approves iff $\mu(L) \leq \frac{1}{4}$

- No belief can win the approval from both simultaneously.

- Therefore, no public disclosure can win the election with any positive probability.

> Under Target advertising, the sender can win this election
> with strictly positive probability.

Steps:

- Consider maximizing the probability of approval for each individual receiver

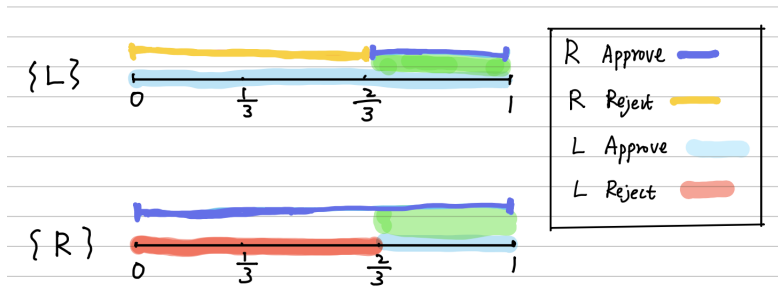- Then maximize the intersection of these approval messages

FIGURE: The signal that maximizes the joint approval areas

[▸ Details]

OBSERVATION 2

- Under targeted advertising, the politician can win the election with probability $\frac{1}{3}$, which is otherwise impossible if they constrain to public disclosure;
- The information verifiability has no bite here

- More general set-ups (such as dropping the nonatomic prior assumption)?

- Information verifiability has bites?
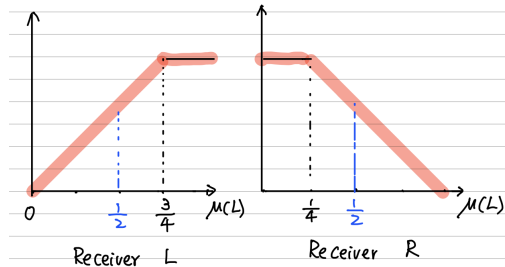
- What if receivers are strategic?

Appendix

FIGURE: *x*-axis: the belief of state being *L*

- The signal maximizes Receiver L's approval is to induce posterior belief $\frac{3}{4}$ (that the state is *L*) with $\frac{2}{3}$ and the belief 0 with probability $\frac{1}{3}$;
- The signal maximizes Receiver R's approval is to induce posterior belief $\frac{1}{4}$ (that the state is *L*) with $\frac{2}{3}$ and the belief 1 with probability $\frac{1}{3}$;

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