Participation in Extremist Movements: The Case of Nationalist Violence in Stable Autocracies

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Unit level variables

- Unit of observation: Individual. Chinese adults with access to internet.

- Outcomes:
  - Primary: Tolerance for nationalistic violence index. 1 to 5 variable (5 higher tolerance). Obtained from vignette experiment.

  - Secondary: Degree of perception of victims as traitors, degree of perception of foreign property/companies as enemies. 1 to 5 discrete variable.

Unit level variables

- Covariates:
  - Age; gender; education level.
  - Urban/rural status, currently and origin.
  - Employment status: Employed by government, private sector, unemployed.
  - Province (region).
  - Index for Violence-Related Attitudes

- How to obtain them: Online in the game.
  - Covariates are information required at registration.
  - Treatment is the game itself.
  - Outcomes obtained in post-game survey.

Randomization

Individual level. The game itself will randomly assign questions:

- Control: General international knowledge.
- Treatment: Questions that specifically inform about foreign interactions with China that are beneficial to its population.

We will ensure the balance check across treatment groups with pre-test covariates.

- In case there is statistically significant discrepancy between treatment and control, we will balance the subsamples by inverse-propensity score weighting.

Regression Specification

- Model Specification

$$Yi = Y0i(1-Zi|Xi) + Y1i(Zi|Xi)$$

  - Yi is observed tolerance for nationalistic violence
  - Y0i and Y1i are individual potential outcomes for tolerance under control and treatment status
  - Zi is the treatment status where Zi=1 when treated and Zi=0 under control
  - X are individual covariates

- Heterogeneous Treatment Effects:

$$Y1i = Y0i + tau1i(Vi=1,X) + tau2i(Vi=0,X) + ei$$

  - Vi is the type of individual where if Vi=1, the individual with an intrinsic taste for violence, and Vi=0 otherwise
  - tau1 and tau2 are individual treatment effects for those with and without taste for violence
  - We expect our quiz game treatment will have no effect on those with taste for violence on average E(tau1i)=0 whereas we expect a negative average treatment effect on those without violence preference E(tau2i)<0.

Power Analysis Simulation

N sample size between {50, 75, 100, …, 575, 600}

200 Simulations of data generating processes and p-value estimations at each sample size.

Assumptions:

- A conservative mean/standard deviation ratio of 75%.
- Y0 starting value important, a conservative baseline control Y0 ~ N(3.5, 2.625) where Yi in [1,7] with a mean of 3.5 (in the middle ranges of the support so that we do not over-reject the null) - (Social acceptance of domestic violence across countries (UNICEF, 2022); prevalence of intimate partner violence across countries (WHO)).

Treatment Effects

- One treatment arm, so no need for Bonferroni correction.
- We expect a heterogeneous treatment effect, where our treatment will be ineffective on those with a taste of violence whereas on others, we'll have minimal 30% standard deviation decrease in tolerance for violence.
- We will conduct a pilot experiment to get an approximate treatment effect for this.

Power Analysis Simulation

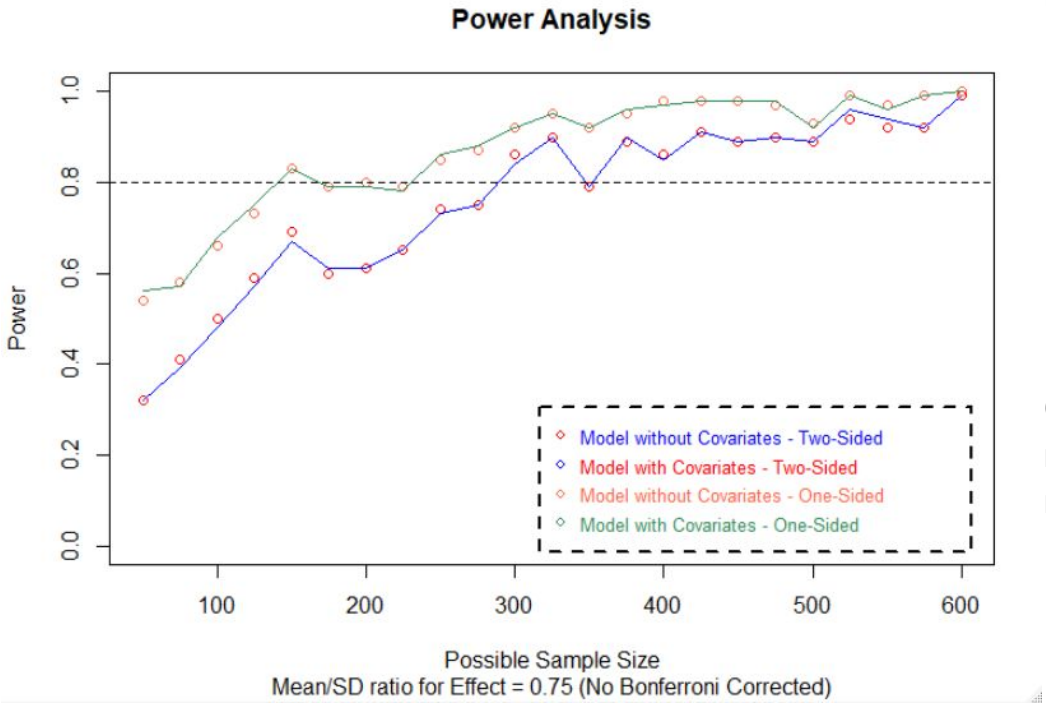
Assuming a cautious rate of 15% taste for violence:

- People with taste for violence (no effect) = tau1 ~ N(0, 0.5)
- People without taste for violence (treatment effect) = tau2 ~ N(-0.7875, 0.59)

Thus,

- Yi = Y0i(Zi=0) + Y1i(Zi=1) + ei where
  - Y0 ~ N(3.5, 2.625)
  - Y1(Z=1) ~ N(0, 0.5) when Taste for Violence=1 and
  - Y1(Z=1) ~ N(-0.7875, 0.59) otherwise
  - ei ~ N(0,2) - error terms

Power Curve



Power Analysis

- P-values calculated with heteroskedasticity-robust standard errors
- If test checks whether we have
  - Coefficient with expected direction
  - P-value smaller than the threshold value
- We tested with both one-sided and two-sided 5% significance level

Our conservative estimations show that we can reach the standard 80% power for rejecting the null for our treatment with sample sizes around

- 200 with one-sided test and
- 300 with two-sided tests.

Randomized Response - Sensitivity Issue

- One concern for asking people's tolerance is social desirability. Respondents may be reluctant to give their true answers. Randomized Response technique may be introduced to mitigate this issue.
- When evaluating their tolerance on a scale of 1-5, respondents will be reminded of the last digit of their cellphone number. If their last digit is in [1,5], their will be instructed to answer with the last digit. If their digit is any other number, they will be instructed to give a truthful answer.
- The truthful answer then can be inferred from the observed answers at the cost of power loss.

Randomized Response - Sensitivity Issue

Let Y represent the observed answer and W represent the latent variable for the true level of tolerance, we have

$$
\begin{aligned}
\bar{Y} &= p_1 * 1 + p_2 * 2 + p_3 * 3 + p_4 * 4 + p_5 * 5 + \\
&\quad Pr(W = 1) * (1 - 0.5) * 1 + Pr(W = 2) * (1 - 0.5) * 2 + \\
&\quad Pr(W = 3) * (1 - 0.5) * 3 + Pr(W = 4) * (1 - 0.5) * 4 + \\
&\quad Pr(W = 5) * (1 - 0.5) * 5 \\
&= 1.5 + 0.5 * \bar{W} \\
&\implies \bar{W} = (\bar{Y} - 1.5) * 2
\end{aligned}
$$

where p_i denotes the probability that a respondent's last digit is i, $i \in \{1, 2, 3, 4, 5\}$.