Evaluation of Chatbot Based Voter Mobilization by Resistbot in 2019 and 2020

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Executive Summary

Resistbot sought to increase turnout of its users in a number of statewide and district elections in 2019 and 2020. In the days leading up to Elections Day, Resistbot sent messages encouraging its users to vote along with links to information about polling locations. When appropriate, Resistbot also sent messages encouraging early voting. As part of the program, Resistbot ran a random control trial (RCT) aimed at evaluating the effectiveness of the messaging. With an estimated treatment effect of about 0.70 percentage points in 2019 and as much as 2 percentage points in 2020, the results are mostly consistent with prior tests of Resistbot mobilization efforts that indicate that messaging its user base can boost turnout. Based on a meta-analysis of Resistbot's mobilization experiments in 2018, 2019, and 2020, the average treatment effect is 0.66 percentage points (CI 0.28pp – 1.03 pp). This average treatment effect compares favorably with other tactics in similar elections.

Context

Resistbot is a chatbot app that seeks to increase political engagement. Its primary purpose is not voting participation. Resistbot was created to facilitate contacting elected officials by "find[ing] out who represents you in Congress or your state legislature, turn your text into an email, fax, or postal letter, and deliver it to your officials" (Resistbot 2019). The interaction between user and Resistbot is a text message conversation. By sending a key word plus their message, users can send a message to their elected officials or other actions. Thus, Resistbot users have an established record of interaction with the app prior to and unrelated to the voter mobilization in the experiment. The service has facilitated millions of contacts to Congressional offices and other elected officials (Peters 2017; Peterson 2017).

Table 1. Treatment and Control Groups by Election (Pre- and Post-Match)

		Pre-Voterfile Match			Post-Voterfile Match*		
Year	**Election**	**Control (N)**	**Treated (N)**	**Control (%)**	**Control (N)**	**Treated (N)**	**Control (%)**
2019	Virginia Statewide	3,899	33,101	10.54	2,881	24,572	10.49
2019	Louisiana Statewide	1,323	11,846	10.05	1,001	9,102	9.91
2019	New Jersey Statewide	4,390	37,447	10.49	3,536	29,984	10.55
2019	Kentucky Statewide	1,543	13,593	10.19	1,131	9,973	10.19
2019	Pennsylvania US-House 12	1,284	1,376	48.27	705	788	47.22
2019	**Total**	**12,439**	**97,363**	**11.32**	**9,254**	**74,419**	**11.06**
2020	California US-House 25	2,478	2,444	50.35	1,776	1,727	50.69
2020	California State-Senate 28	2,337	2,274	50.68	1,687	1,618	51.04
2020	**Total**	**4,815**	**4,718**	**50.51**	**3,463**	**3,345**	**50.86**

*Matched observations include those that had a cell phone/address match score ≥ 0.67

Experimental Population

The data for the experiment – including treatment and control groups – was selected by Resistbot. The experimental population is all Resistbot users self-identified as residing in the areas where Resistbot sought to increase voter turnout. Resistbot collaborated with VoteAmerica to match its experimental

population with voter turnout and demographic data provided by TargetSmart. Subjects were matched based on the mobile phone number and any other address information they provided. Table 1 above describes the seven pre- and post-match experimental population that are analyzed in this report. Depending on the election, either a 10% or 50% control group was used.

Treatment

The voter mobilization treatment was delivered in the days leading up to Election Day. Most, but not all, treatments were customized for the specific election. They all consisted of a reminder of the election and a way to get additional information on where and when to vote. Some treatments also allowed the recipient to find out what is on the ballot. When early voting was a possibility in the election, it was indicated. Examples of treatment messages are provided below.

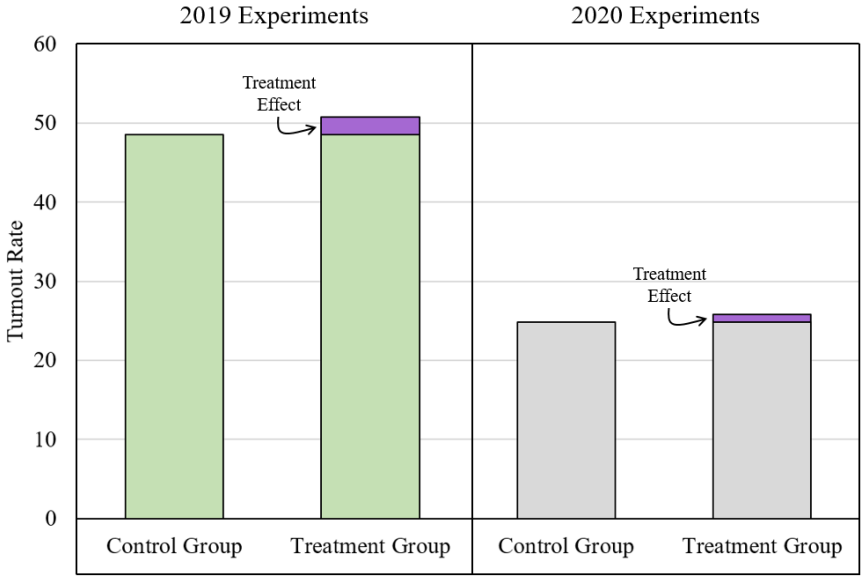
> "Resistbot here, election day is tomorrow, November 5! Say 'polls' to find where to go and get hours, or 'ballot' to see what's on the ballot before you go."

> "Resistbot here, there's an election in N.J. on Tuesday, Nov. 5, but you may be able to vote early! Say 'polls' to find where or 'voted' if you did already!"

Results

For 2019, the turnout models with and without covariates produce slightly different results. The raw combined analysis that included the five statewide elections and the PA-12 election had a turnout rate of 48.57% for the control group and 50.77% for the treatment group (visualized in Figure 1, left panel). Our most comprehensive model with covariates estimates an average treatment effect of 0.70 percentage points and p-value just above the 10% level (see Table 2). Of the five elections where Resistbot ran experiments, positive effects were found in three of them (Louisiana, New Jersey, and Kentucky). And when analyzed across voting propensity groups, the results indicate the average treatment effect size is fairly consistent, but confidence in the effect is highest among mid-propensity and high-mid propensity voters. This is in keeping with much of the previous literature on similar voter mobilization treatments.

Figure 1. 2019 Turnout Rates (Treatment v. Control)



The story for the 2020 California special election experiments is a bit different. Here, the models with covariates produce the stronger results. The raw results indicate a statistically insignificant treatment effect just shy of 1 percentage point (visualized in Figure 1, right panel). However, the more comprehensive models indicated an average treatment effect of 2.05 percentage points that is statistically significant at just above the 10% level. When the 2020 experiments are considered separately, there is a substantially stronger result for the California State Senate election (4.05 percentage points) than for the US House Election (0.30 percentage points). And, again, the effects are most robust among mid-propensity voters.

Table 2. RCT Results*

2019: Turnout (LA, NJ, KY, VA, and PA US House-12)

	Model 1 *No covariates*	**Model 2** *Election FE*	**Model 3** *Election FE* *Complete Covariates*
Avg. Treatment Effect	2.195	1.266	0.701
P-Value	0.000	0.02	0.119
N	83,673	83,673	82,470

2020: Turnout (CA US-House 25, CA Senate 28)

	Model 1 *No covariates*	**Model 2** *Election FE*	**Model 3** *Election FE + Covariates*
Avg. Treatment Effect	0.966	0.956	2.058
P-Value	0.359	0.364	0.077
N	6,808	6,808	5,049

*Restricted to matched observations with match scores ≥ 0.67
Model Covariates: *Model 1:* None | *Model 2:* Election Fixed Effects | *Model 3:* Election Fixed Effects, Female, Age, Race (White), College Graduate Score, Voter History

Resistbot Meta-Analysis

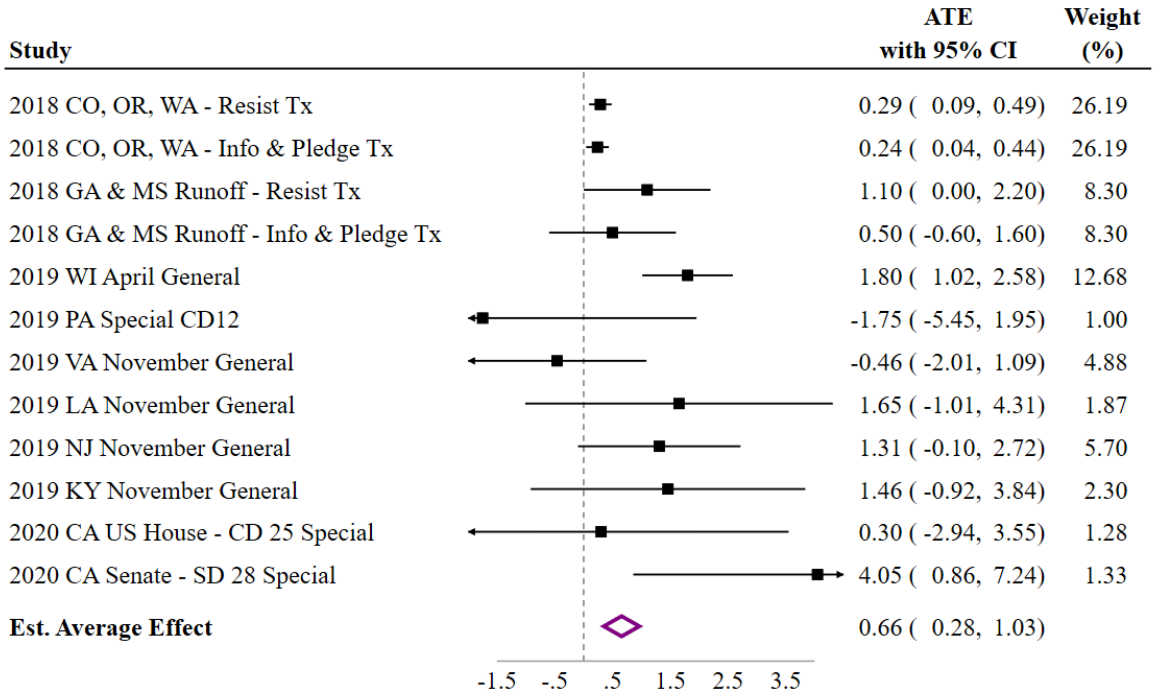
Meta-analysis is a form of statistical analysis that calculates the average treatment effect across a set of similar experiments. The calculation weights experiments based on the uncertainty about the treatment effect in each experiment.

Figure 2 below displays the twelve Resistbot voter mobilization experiments available from 2018 to 2020. The average treatment effect is 0.66 percentage points with a 95% confidence interval from 0.28 percentage points to 1.03 percentage points. Within this set of experiments, there is evidence of statistically significant differences in the treatment effects. Variations in the electoral context and competitiveness are the most likely causes of this variation.

Lessons and Cautions

A simple reminder with information about voting location from Resistbot increases turnout in lower salience elections. However, the effect of any voter mobilization communication is conditional on the execution of the program, the jurisdiction, the type of election, the level of interest in the election, and the activities of other organizations. Repeating these treatments in other election contexts or with variations of the treatments could produce different results.

Figure 2. Meta-Analysis 2018-2020 Treatment Effects



Appendix. Balance Tests*

	Virginia 2019 Statewide			Louisiana 2019 Statewide		
	Control	**Treatment**	**|Difference|**	**Control**	**Treatment**	**|Difference|**
Voter Propensity	3.457	3.497	0.040	3.320	3.313	0.006
Voter History	2.975	3.063	0.088	2.216	2.203	0.013
Female	0.734	0.743	0.009	0.719	0.724	0.005
Age	33.273	33.783	0.510	34.078	34.134	0.056
Race (White)	0.766	0.779	0.013	0.694	0.712	0.018
Race (Black)	0.103	0.093	0.010	0.195	0.183	0.011
Hispanic	0.033	0.032	0.002	0.043	0.032	0.011
College Grad Score	46.607	47.949	1.342	43.377	43.562	0.186

	New Jersey 2019 Statewide			Kentucky 2019 Statewide		
	Control	**Treatment**	**|Difference|**	**Control**	**Treatment**	**|Difference|**
Voter Propensity	3.425	3.447	0.023	3.567	3.516	0.050
Voter History	3.165	3.260	0.095	3.345	3.275	0.070
Female	0.678	0.677	0.000	0.738	0.758	0.019
Age	34.745	34.956	0.211	36.954	36.545	0.409
Race (White)	0.734	0.747	0.013	0.943	0.946	0.004
Race (Black)	0.061	0.054	0.007	0.031	0.026	0.005
Hispanic	0.100	0.096	0.003	0.000	0.003	0.003
College Grad Score	50.642	50.754	0.113	44.159	43.586	0.572

	Pennsylvania US House 12			2019 Combined		
	Control	**Treatment**	**|Difference|**	**Control**	**Treatment**	**|Difference|**
Voter Propensity	3.341	3.319	0.022	3.434	3.455	0.021
Voter History	3.258	3.094	0.164	3.032	3.066	0.034
Female	0.678	0.709	0.031	0.707	0.716	0.009
Age	34.207	33.799	0.408	34.443	34.669	0.225
Race (White)	0.943	0.957	0.014	0.781	0.782	0.001
Race (Black)	0.006	0.011	0.006	0.081	0.078	0.002
Hispanic	0.004	0.003	0.002	0.053	0.054	0.000
College Grad Score	37.156	36.147	1.009	46.763	47.826	1.064

	California US House 25 2020			California State Senate 28 2020		
	Control	**Treatment**	**|Difference|**	**Control**	**Treatment**	**|Difference|**
Voter Propensity	3.286	3.270	0.016	3.354	3.324	0.030
Voter History	1.684	1.612	0.072	1.642	1.614	0.028
Female	0.573	0.585	0.012	0.551	0.569	0.018
Age	31.304	31.003	0.301	35.863	35.537	0.327
Race (White)	0.600	0.594	0.006	0.588	0.579	0.009
Race (Black)	0.020	0.016	0.004	0.007	0.004	0.003
Hispanic	0.291	0.306	0.015	0.341	0.347	0.005
College Grad Score	37.776	37.005	0.771	36.788	36.970	0.182

	2020 Combined			
	Control	**Treatment**	**|Difference|**	
Voter Propensity	3.318	3.296	0.023	
Voter History	1.663	1.613	0.050	
Female	0.563	0.577	0.015	
Age	33.461	33.131	0.329	
Race (White)	0.594	0.587	0.007	
Race (Black)	0.014	0.010	0.004	
Hispanic	0.315	0.325	0.010	
College Grad Score	37.309	36.988	0.321	

*Restricted to matched observations with match scores ≥ 0.67

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