

Project Supplemental Document

To Vote or Not To Vote

Hypothesis Ledger & Nudge Formulation

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1 Comprehensive Hypothesis Ledger

This ledger systematically documents the key features hypothesized to influence voter turnout. Each entry includes a description, quantification unit, source, expected correlation, and validation method.

Feature	Description	Quantification Unit	Source	Corr.	Validation Method
Voting Habit	People who vote once are likely to vote again.	Number of times previously voted.	Cravens (2023)	+	US/UK survey dataset with CFA and ROC curve analysis.
Voting Candidates	Voters are more likely to vote if candidates they like or idealize are participating.	(Personality Matching): Perceived congruence of traits. (Perceived Integrity): 1-7 Likert Scale.	Caprara & Zimbardo (2004)	+	Lit review of various experimental sources.
Linguistic Cues	Framing participation as an identity ("to be a voter") vs. a task ("to vote").	Noun vs. Verb experimental framing.	Bryan et al. (2011)	+	Experiments with dedicated student samples.
Behavioural Nudges	Various nudges (e.g., implementation-intention) given to young people.	Experimental condition.	Romaniuc et al.	0	Study had limitations related to sample homogeneity and "light-touch" nudges.
Cost of Participation	Tangible and intangible resources (time, money, effort) required to vote.	Self-reported cost (time/money).	Downs (1957)	–	Analysis of election turnout data worldwide.
Education	Absolute and relative educational attainment positively correlate with voting.	Years of formal education.	PMC Study	+	Longitudinal analysis; education increases Civic Duty and Political Efficacy.
Overconfident	Overconfident voters are more engaged, possibly regardless of accuracy.	Self-reported political knowledge.	Ribeiro et al. (2022)	+	Online questionnaire and factor analysis.

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Feature	Description	Quantification Unit	Source	Corr.	Validation Method
Risk Aversion	High risk aversion reduces the likelihood of voting.	Psychometric scale for risk tolerance.	Ribeiro et al. (2022)	–	Experiment with online questionnaire; latent variable analysis.
Partisan Identity	A voter's psychological attachment to a political party.	1-7 Scale ("How strongly do you identify as...?").	Internal Lit Review	+	Strong correlation expected on turnout and loyalty.
Electoral Competitiveness	The perceived closeness of the election outcome.	Continuous (% poll spread) or Ordinal ("How close...?").	Geys (2006)	+	Meta-analysis of aggregate-level research.
Issue Salience	The importance of a specific political issue to the voter.	Ordinal Scale ("How important is...?").	Internal Lit Review	+	Assumed to drive motivation for engaged individuals.
Civic Duty	Internalized moral or social obligation to participate.	1-7 Likert Scale ("Voting is a duty...").	Riker & Ordeshook (1968)	+	Foundational component of the D-term in voting calculus.
Social Pressure	Perceived social cost of abstention due to public turnout status.	Experimental Condition.	Gerber et al. (2008)	+	Large-scale field experiment demonstrating accountability.

2 Formulated Intervention (Nudge) Hypotheses

Based on the features identified in the Hypothesis Ledger, the following testable nudge hypotheses have been formulated to guide the project's simulation phase.

H_{N1}: Monetary / Effort-Reduction Nudge

Feature(s): Cost of Participation, Voting Habit, Civic Duty.

Hypothesis: Providing a small, lottery-based monetary reward or reducing the effort to vote (e.g., pre-filled registration reminders) will significantly increase turnout among low-habit, low-duty voters, but will have minimal impact on those with high civic duty or established habits.

Rationale: Low-duty individuals are more responsive to tangible incentives. Those with strong habits or civic duty are intrinsically motivated and less sensitive to such changes.

H_{N2}: Cost & Education Nudge

Feature(s): Cost of Participation, Education Background.

Hypothesis: An informational nudge that reduces the perceived cost of participation (e.g., polling place locator, info on off-peak times) will cause a disproportionately larger increase in turnout among archetypes with lower educational attainment.

Rationale: Practical barriers are a stronger deterrent for less-resourced groups. Voters with higher education may have already overcome these barriers, making the nudge less impactful for them.

H_{N3}: Overconfidence & Competitiveness Nudge

Feature(s): Overconfidence, Electoral Competitiveness, Civic Duty.

Hypothesis: For voters exhibiting high overconfidence, a nudge emphasizing electoral competitiveness (e.g., "This election will be decided by a handful of votes") will be more effective than a nudge emphasizing civic duty.

Rationale: This tests if overconfident individuals are more motivated by the belief that their single vote is pivotal and influential rather than by a moral or social obligation.

H_{N4}: Risk Aversion & Social Pressure Nudge

Feature(s): Risk Aversion, Social Pressure, Partisan Identity.

Hypothesis: A social pressure nudge highlighting turnout as a community norm (e.g., "A record number of your neighbors are voting") will be more effective at increasing turnout among voters with high risk aversion than a nudge focusing on potential negative election outcomes.

Rationale: This suggests risk-averse individuals are more motivated by the "safe" choice of conforming to a social norm than by the uncertainty of political outcomes.

H_{N5}: Habit & Partisan Identity Nudge

Feature(s): Voting as a Habit, Partisan Identity Strength.

Hypothesis: For archetypes with a strong voting habit, a simple reminder that reinforces their partisan identity (e.g., "Democrats are counting on you!") will be sufficient to ensure high turnout. This nudge will have a negligible effect on sporadic voters.

Rationale: For frequent voters, the nudge only needs to activate an existing behavior. Non-habitual voters require a more compelling intervention to overcome inertia.

H_{N6}: Social Accountability Nudge

Feature(s): Social Pressure, Overconfidence, Civic Duty.

Hypothesis: Informing voters that participation is public information will increase turnout among low-confidence or moderate-duty individuals, but could backfire among highly overconfident individuals who perceive it as coercion.

Rationale: Social pressure increases the cost of abstention, but reactance may occur in confident or autonomous individuals who resist perceived threats to their freedom.

H_{N7}: Issue Salience / Personal Relevance Nudge

Feature(s): Issue Salience, Electoral Competitiveness, Education Background.

Hypothesis: Highlighting personally relevant issues ("This election will affect [X issue you rated highly]") will increase turnout more than general reminders, particularly for educated and politically aware archetypes.

Rationale: Educated voters with strong issue interests are more motivated when a clear, personally relevant connection is made between the election and their values.

H_{N8}: Personality–Candidate Congruence Nudge

Feature(s): Voting Candidates (Personality Match), Partisan Identity Strength.

Hypothesis: Reminding voters of perceived personality congruence with a candidate ("This candidate shares your values") will increase turnout among weakly partisan voters but will have limited effect among strong partisans.

Rationale: For low-identity voters, candidate-personality matching can substitute for party loyalty as a voting motivation.