

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. | Romanicu 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.