

# INTRODUCTION TO NEURO-ECONOMICS (CG4.402)

## PROBLEM STATEMENT: BEHAVIOURAL INSIGHTS INTO VOTER TURNOUT AND ELECTORAL PARTICIPATION

SEPTEMBER 30, 2025

---

### ***"To Vote or Not To Vote"***

Systematic study for estimating utility of a vote as perceived by the voters across demographics and deriving insights for economic nudges

---

*Author:*

PRAKHAR SINGHAL  
SATIVIKA MIRYALA

*Professor:*

KAVITA VEMURI



INTERNATIONAL INSTITUTE OF  
INFORMATION TECHNOLOGY

---

H Y D E R A B A D

## I. Motivation

Voter turnout is a cornerstone of a healthy representative democracy, yet its drivers remain a subject of intense study. Classical rational choice models, which posit that individuals vote only if the instrumental benefit of affecting the outcome outweighs the cost, fail to explain why millions of people participate in large-scale elections—a phenomenon often termed the "**paradox of voting**". Furthermore, as noted in recent literature (*e.g.*, *Cantoni et al., 2024*), turnout in many established democracies is stagnating or declining even as logistical costs to voting have generally decreased. This suggests that the decision to vote is not a simple cost-benefit calculation but a complex behavioral choice, deeply influenced by psychological, social, and systemic factors that warrant a behavioral economics perspective.

## II. Initial Guiding Idea

The core idea of this project is to reframe the voting decision from a purely rational act to a behavioral one, governed by an individual's **net perceived utility**. We posit that a person's choice to vote or abstain is a function of a wide array of factors that shape their subjective valuation of the act. This utility is not static but is a dynamic function of the individual's personal characteristics (demographics, beliefs, biases) and the specific electoral context (election competitiveness, media narrative, institutional trust). Our guiding principle is to move beyond explaining the act of voting and towards understanding the *perceived value* of the vote itself.

## III. Proposed Methodology

Our approach is to develop a conceptual model where an individual's probability of voting is a function of their perceived utility.

The central task of this project is not to pre-define the components of perceived benefits and costs, but to identify and measure them. This framework allows us to systematically categorize the myriad influences on a voter.

- 1) **Context Gathering through Literature Review:** We will begin by conducting a review of existing political science and behavioral economics literature. The goal is not to find a final answer, but to gather context, understand established theories, and compile a broad list of potential factors that are believed to influence a voter's decision.
- 2) **Parameter Selection via Hypothesis Testing:** The core of our approach is to select the most impactful factors (parameters) to include in our model. We will not assume all factors from the literature are relevant. Instead, we will:
  - Formulate a series of clear hypotheses based on our initial insights, partially inspired by our literature review. For example, a hypothesis might be: "A higher perceived cost of travel negatively impacts the likelihood of voting."
  - Verify each hypothesis to determine if the proposed factor has a statistically significant effect. This verification will be done in one of two ways: either by confirming the factor's importance through established, widely accepted findings in academic literature, or by conducting a new on-the-ground survey to collect primary data and test the hypothesis directly.
  - Only the factors that are validated through this hypothesis-testing framework will be selected as parameters for our final model.
- 3) **Model Building and Analysis:** With the significant parameters selected, we will construct our formal model. We plan to use a **logistic regression model**, which is a standard statistical tool for predicting a binary ("yes/no") outcome like the decision to vote. This model will provide a mathematical equation that connects the chosen factors to the probability of an individual voting.
- 4) **Deriving Insights and Nudges:** Finally, we will analyze the completed model. By examining the model's coefficients, we can determine the relative impact of each factor. These quantitative results will form the evidence-based foundation from which we will derive our core insights and propose targeted, economical "nudges" to positively influence voter participation.

## IV. Goals

The primary objectives of this project are:

- To identify and rank the key demographic, psychological, and systemic factors that significantly influence an individual's decision to vote.

- To develop a predictive model that estimates the probability and/or perceived-utility (maybe economic equivalent) of voting based on these identified factors.
- To use the model to derive aggregated insights, such as predicting turnout rates across different demographic segments.
- To propose a set of evidence-based, economical "nudges" and policy recommendations designed to lower psychological barriers and encourage voter participation.

## V. Phase-wise planning

The project will be executed in three distinct phases:

- **Phase 1: Framework and Hypothesis Development.** This phase will involve a systematic literature review to compile a comprehensive set of potential factors influencing voter turnout and formulate specific, testable hypotheses for each.
- **Phase 2: Data Collection and Model Estimation.** This phase will focus on designing and deploying the survey instrument, collecting the data, and subsequently applying the logistic regression model to test the hypotheses and estimate the parameters of our model.
- **Phase 3: Insight Derivation and Nudge Design.** In the final phase, we will interpret the model's results to understand the key drivers of turnout. We will then use these insights to design targeted, behaviorally-informed interventions aimed at fostering electoral participation.

## VI. References

- VOTING RULES, TURNOUT, AND ECONOMIC POLICIES
- SOCIAL NETWORKS AND VOTER TURNOUT