

Socioeconomic Determinants of County-Level Voter Turnout (2000-2020)

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Variables and Data Sources

We utilize demographic and economic data from Opportunity Insights combined with county-level voter turnout data (2000-2020) to identify key demographic predictors of voter turnout and analyze cross-county trends. Our voter turnout calculations use presidential election returns from the MIT Election Data and Science Lab¹ combined with Census voting-age population estimates. Key variables include:

- Dependent Variable: Voter turnout (voters/voting age population)
- Economic Indicators: Household income, poverty rates, job growth
- Demographics: Educational attainment, racial composition, foreign-born population
- Geographic Factors: Population density, commute times
- Social Indicators: Single-parent households, mail return rates

Planned Analyses

- Research Objectives
 - Identify which demographic factors are the strongest predictors of voter turnout
 - Analyze cross-county trends and patterns in voter participation
 - Quantify the marginal effects of each socioeconomic factor on turnout
- Exploratory Data Analysis
 - Test for multicollinearity using VIF
 - Examine temporal trends and spatial patterns
 - Assess distributional properties of variables
- Model Development
 - Primary: Beta regression (suitable for $[0,1]$ bounded dependent variable)
 - Alternative: Fractional logistic regression
 - Panel data methods to leverage temporal dimension
 - Calculation of average marginal effects for key predictors

¹MIT Election Data and Science Lab, 2018, "County Presidential Election Returns 2000-2020", <https://doi.org/10.7910/DVN/VOQCHQ>, Harvard Dataverse, V13

- Cross-validation to assess predictive power of demographic variables

Implications

Understanding the socioeconomic determinants of voter turnout has important implications for both policy and democratic participation:

- Policy Design
 - Identify barriers to voting faced by specific demographic groups
 - Guide resource allocation for voter outreach and education programs
 - Inform placement of polling locations and early voting sites
- Democratic Engagement
 - Better understand patterns of political representation across communities
 - Develop targeted strategies to increase civic participation
 - Address systemic inequalities in electoral participation
- Research Contribution
 - Provide updated evidence on turnout determinants using recent data
 - Establish causal relationships between socioeconomic factors and voting behavior
 - Create predictive models for identifying low-turnout communities

Challenges

- Calculating accurate voter turnout denominators required extensive processing of Census data to determine voting-age population
- Temporal alignment of various data sources spanning different years
- Managing potential spatial autocorrelation in county-level data
- Handling missing data and ensuring consistent geographic definitions over time

Data Dictionary

Key variables from Opportunity Insights²:

- Educational: College degree attainment (`frac_coll_plus2010`), 3rd grade math scores (`gsmn_math_g3_2013`)
- Demographics: Foreign-born share, racial composition (2010)
- Economic: Median household income (2016), poverty rates, employment, wage growth
- Housing: Two-bedroom rent (2015)

²Chetty, R., Friedman, J. N., Hendren, N., Jones, M. R., & Porter, S. R. (2018). The Opportunity Atlas: Mapping the Childhood Roots of Social Mobility [Data set]. Opportunity Insights. <https://opportunityinsights.org/data/>

- Geographic: Population density, job density (2013)
- Social: Single parent households, commute times (2010)