Estimating Neighborhood Effects on Turnout from Geocoded Voter Registration Records

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Motivation

- Do voters turn out more or less frequently when surrounded by those like them?
- Decades of research on turnout and demographic characteristics:
  - Older, educated, wealthy people vote more often
  - Whites vote more frequently than minorities
- But we know little about how your turnout is affected by the characteristics of other voters around you
- Challenges of neighborhood effects research:
  - Different voters live in different neighborhoods
    - cannot simply compare them
  - Neighborhood effects are confounded by electoral and other factors
    - require a large scale individual-level data collection
Overview of the Talk

- Theories:
  1. Psychological theories
  2. Mobilization theories

- Data:
  1. Labels & Lists, Inc: a non-partisan firm specializing in voter files
  2. 50 million geocoded voter registration records in FL, CA, and GA
  3. Past voter registration files for FL and CA

- Identification strategies:
  1. Cross-section difference-in-differences
  2. Panel difference-in-differences

- Findings:
  1. Turnout is affected by those you live near
  2. A 10 percentage point (ppt) increase in the out-group in your neighborhood leads to a 0.5 to 2 ppt decrease in your turnout
  3. Neighborhood effects persist even in non-competitive districts
Theories of Neighborhood Effects

- **Psychological theories:**
  1. **Threat**: you feel threatened and vote more often when surrounded by those different from you
     \[ \Rightarrow \text{Neighborhood-majorities vote more often as minorities increase} \]
  2. **Empowerment**: you are more likely to express yourself when your neighbors are like you
     \[ \Rightarrow \text{Neighborhood-minorities vote more often as their group size increases} \]

- **Mobilization theories:**
  1. **Individual**: campaigns target potential supporters regardless of their neighborhood
     \[ \Rightarrow \text{No neighborhood effects} \]
  2. **Neighborhood**: campaigns target neighborhoods of potential supporters but single out potential voters
     \[ \Rightarrow \text{Neighborhood-majorities vote more often than minorities} \]
Goals of the Project

- Estimate neighborhood effects at the census block level
- Consider partisan minority and racial minority neighborhood effects in the same framework
  - partisanship and ethnicity are both social identities
- Neighborhood effects differ from district or candidate effects
  - We examine the interaction between a voter and her neighbors
  - Interaction with candidates/districts:
    - coethnicity
    - majority-minority districts
Florida Cross-Section Data

- Voter files from 2004 and 2012
  - 10.5 million registered voters
  - 25 congressional districts
  - 2010 census block neighborhoods
  - 293,056 census blocks
  - Geocode addresses
  - Turnout: ‘02 and ‘10 elections

- Partisanship
  - 36% Republican
  - 40% Democratic
  - 20% Independent
  - 4% Other parties

- Racial Demographics
  - 14% Black
  - 17% Latino
  - 68% White
California Cross-Section Data

- Voter files from 2006 and 2012
  - 15 million registered voters
  - 53 congressional districts
  - 2010 census block neighborhoods
  - 383,892 census blocks
  - Geocode addresses
  - Turnout: ‘04 and ‘10 elections

- Partisanship
  - 30% Republican
  - 43% Democratic
  - 21% Independent
  - 5% Other parties

- Racial Demographics
  - 6% Black
  - 21% Latino
  - 65% White
Georgia Cross-Section Data

- Voter file from 2012
  - 4.6 million registered voters
  - 13 congressional districts
  - 2010 census block neighborhoods
  - 291,086 census blocks
  - Geocode addresses
  - Turnout: ‘10 elections

- Partisanship
  - 27% Republican
  - 22% Democratic
  - 51% Independent

- Racial Demographics
  - 33% Black
  - 3% Latino
  - 53% White
Census Block as a Neighborhood

Democrat
Republican
Non-partisan
Other Parties
Mixed Household
Census Blocks are Small Neighborhoods

Florida
Number of Registered Voters
Density

California
Number of Registered Voters
Density

Georgia
Number of Registered Voters
Density

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Census Blocks and Administrative Boundaries

- Nation
  - States
    - Counties
      - Census tracts
        - Block groups
          - Census blocks
            - School districts
        - State legislative districts
      - Congressional districts
    - Precincts
      - School districts

Census Blocks Have Diverse Partisanship

Percent Democrat

Percent Republican

Percent Independent

Density

Florida

California

Georgia

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Neighborhood Effects

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Partisanship Measure Correlates Well with Vote Share

Florida

2008 Republican Pres Voteshare by Precinct (election results)
Percent Registered Republican (our measure)
0 20 40 60 80 100
0 20 40 60 80 100
correlation = .85

California

2008 Republican Pres Voteshare by Precinct (election results)
Percent Registered Republican (our measure)
0 20 40 60 80 100
0 20 40 60 80 100
correlation = .84

Georgia

2008 Republican Pres Voteshare by Precinct (election results)
Percent Registered Republican (our measure)
0 20 40 60 80 100
0 20 40 60 80 100
correlation = .84

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Race Measure and Validation

- Florida and Georgia: self-reported race (more accurate)
- California: predicted using name and census characteristics
Racial Composition of Census Blocks

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Cross-Section Identification Strategy

Cannot simply compare two voters in different neighborhoods

Our identification strategy:

(a) Democratic neighborhood

(b) Republican neighborhood

Difference-in-differences: 
\[
(\bar{Y}_R^D - \bar{Y}_D^D) - (\bar{Y}_R^R - \bar{Y}_D^R)
\]
We analyze congressional districts separately for each election.

Average results across districts and elections.

Liner probability partisanship model with fixed effects:

\[ Y_i = \alpha_{\text{group}[i]}^D + \beta^D \text{Dem}_i + \gamma^D \text{Dem}_i \times \overline{\text{Rep}_{\text{block}}[i]} \\
+ \delta_1^D \text{age}_i + \delta_2^D \text{age}_i^2 + \epsilon_i^D \]

where \(\alpha_{\text{group}[i]}^D\) is the fixed effects based on the full interaction between census blocks, gender, and race.

Fitted to a subset of Democrats and Republicans for each district.

Comparison within the same neighborhood, gender, and race.

Interpretation of \(\gamma\): percentage point (ppt) increase in turnout when the proportion of out-group increases by 1 ppt.
Modeling Racial Neighborhood Effects

- Partisanship neighborhood effects:

\[ Y_i = \alpha^B_{\text{group}[i]} + \beta^B \text{Black}_i + \gamma^B \text{Black}_i \times \frac{\text{Non} - \text{Black}}{\text{block}[i]} + \delta_1^B \text{age}_i + \delta_2^B \text{age}_i^2 + \epsilon_i^B \]

where \( \alpha^B_{\text{group}[i]} \) is the fixed effects based on the full interaction between census blocks, gender, and partisanship

- Fitted to the entire data

- Comparison within the same neighborhood, gender, and partisanship

- Interpretation of \( \gamma \): percentage point (ppt) increase in turnout when the proportion of out-group increases by 1 ppt
Mapping the Statistical Model Back to Theories

<table>
<thead>
<tr>
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<th>sign of $\gamma$</th>
<th>+</th>
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<th>0</th>
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Neighborhood Effects from Cross-Section Analysis

-0.20  -0.16  -0.12  -0.08  -0.04  0.00  0.04  0.08
Republican x Percent Democrat
Democrat x Percent Republican
Independent x Percent Republican
Independent x Percent Democrat
Black x Percent non-Black
Latino x Percent non-Latino
White x Percent Non-White
Percentage Points

FL CA GA FL CA GA FL CA GA FL CA GA FL CA GA FL CA GA FL CA GA
Data Overview for Panel Analysis

- Geocode voters from old files in FL and CA
- Match voters between old and new files with name and birthdate
- Among matched calculate difference in
  - Neighborhood partisanship
  - Neighborhood racial composition
- Non-movers only

- **Florida**
  - 2012 voter file
  - 2004 voter file
  - Turnout: ’10 – ’02, ’08 – ’00
  - 40% match
  - 66% do not move
  - 80% do not change party

- **California**
  - 2012 voter file
  - 2006 voter file
  - Turnout: ’10 – ’02, ’08 – ’04
  - 44% match
  - 70% do not move
  - 80% do not change party
Change in Neighborhood Partisanship

Florida

Change in Neighborhood Percent Republican

Change in Neighborhood Percent Democratic

Change in Neighborhood Percent Independent

California

Density

-50 -30 -10 10 30 50

0 2 4 6 8 10 12

0 2 4 6 8 10 12

0 2 4 6 8 10 12

0 2 4 6 8 10 12

0 2 4 6 8 10 12

0 2 4 6 8 10 12
Change in Neighborhood Racial Composition

Change in Neighborhood Percent Black

Change in Neighborhood Percent Latino

Change in Neighborhood Percent White

Florida

California

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Panel Identification Strategy

- Within-voter comparison for non-movers:

\[
Y_{i,t}^{R}, Y_{i,t+1}^{D}, \quad Y_{i',t}^{R}, Y_{i',t+1}^{D}
\]

- Difference-in-differences:

\[
(Y_{i,t+1}^{D} - Y_{i,t}^{R}) - (Y_{i',t+1}^{D} - Y_{i',t}^{R})
\]
The Statistical Models for Panel Analysis

- First-difference linear probability models:

\[
Y_{i,t+1} - Y_{it} = \alpha_{D\text{group}[i]}^D + \beta^D \text{Dem}_i + \delta_1^D \text{age}_i + \delta_2^D \text{age}_i^2 \\
+ \gamma^D \text{Dem}_i \times (\overline{\text{Rep}}_{\text{block}[i,t+1]} - \overline{\text{Rep}}_{\text{block}[i,t]}) + \eta_i^D
\]

\[
Y_{i,t+1} - Y_{it} = \alpha_{B\text{group}[i]}^B + \beta^B \text{Black}_i + \delta_1^B \text{age}_i + \delta_2^B \text{age}_i^2 \\
+ \gamma^B \text{Black}_i \times (\overline{\text{Non-Black}}_{\text{block}[i,t+1]} - \overline{\text{Non-Black}}_{\text{block}[i,t]}) + \eta_i^B
\]

where \(\alpha_{D\text{group}[i]}^D (\alpha_{B\text{group}[i]}^B)\) is the fixed effects based on the full interaction of census blocks, gender, and race (partisanship).

- Comparison within the same census block, gender, and race (partisanship) groups

- Interpretation of \(\gamma\): percentage point (ppt) increase in turnout when the proportion of out-group increases by 1 ppt
Neighborhood Effects from Panel Analysis

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Neighborhood Effects
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Two theories are consistent with empirical findings:

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Neighborhood mobilization theory:
Campaigns target neighborhoods of potential supporters but single out potential voters
\[\Rightarrow \text{Prediction: Neighborhood effects largest in competitive districts} \]
Cross-Section Evidence

- Uncompetitive districts (hollow) to other districts (solid)
- Neighborhood effects persist in uncompetitive districts
- Uncompetitive districts at both time periods (hollow)
- Competitive districts at both time periods (solid)
Panel Neighborhood Effect Heterogeneity

- Threat theory $\implies$ neighborhood majority
- Empowerment theory $\implies$ neighborhood minorities
- Mobilization theory $\implies$ neighborhood majorities/minorities
Turnout is a function of a voter’s demographics and their environment.

Voters turn out less when they live near people not like them.

A 10 ppt increase in the out-group in your neighborhood leads to a roughly 0.5 to 2 ppt decrease in your turnout.

True for both partisanship and race.

True across a variety of geographies and electoral environments.

Mobilization alone cannot explain neighborhood effects.

Greatest support to the psychological empowerment theory.

Utilize experimental data (Moving-to-the-Opportunity Program).
Send additional comments and suggestions to

kimai@princeton.edu
Voters Live in Diverse Neighborhoods

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Voters’ Neighborhoods are Not Always Segregated

Percent Black Neighbors for Blacks

Percent Latino Neighbors for Latinos

Percent White Neighbors for Whites

Florida

California

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Neighborhood Effects

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Little Evidence of Geographic Sorting - FL & CA

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Little Evidence of Racial Geographic Sorting

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Matched Voters are Different From Unmatched Voters

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