

Estimating Neighborhood Effects on Turnout from Geocoded Voter Registration Records

Michael Barber Kosuke Imai

Department of Politics
Princeton University

Waseda University

July 11, 2013

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
↪ Neighborhood-majorities vote more often as minorities increase
 - ② **Empowerment:** you are more likely to express yourself when your neighbors are like you
↪ Neighborhood-minorities vote more often as their group size increases
- **Mobilization** theories:
 - ① **Individual:** campaigns target potential supporters regardless of their neighborhood
↪ No neighborhood effects
 - ② **Neighborhood:** campaigns target neighborhoods of potential supporters but single out potential voters
↪ 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

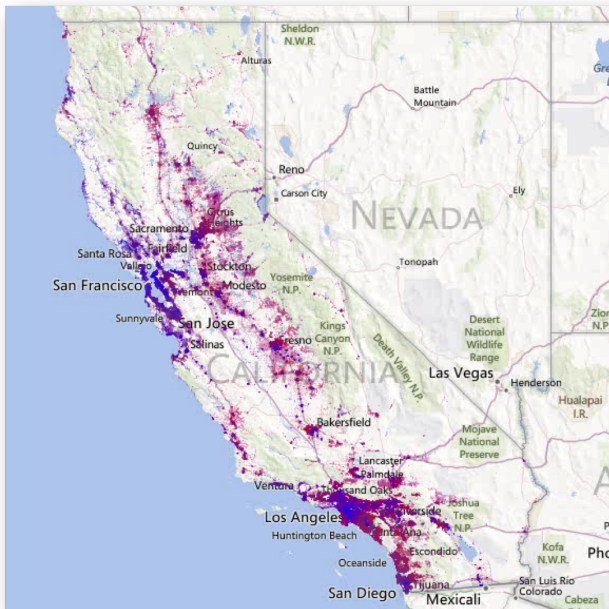
California Cross-Section Data

- 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

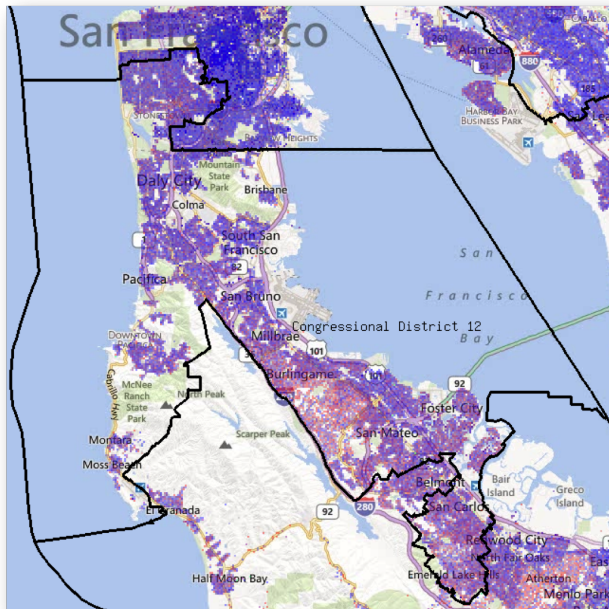
Georgia Cross-Section Data

- 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

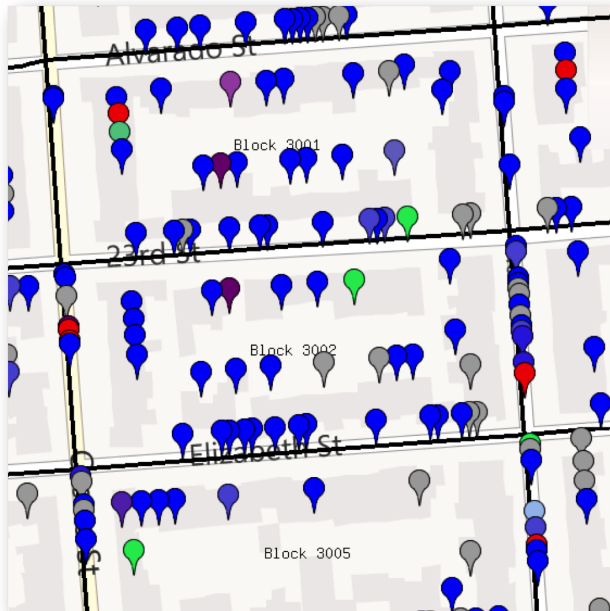
California at Glance



Congressional District



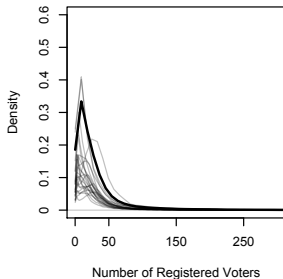
Census Block as a Neighborhood



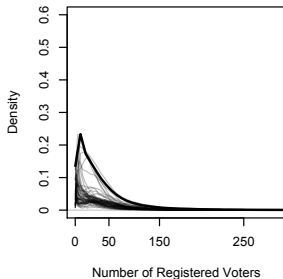
- Democrat
- Republican
- Non-partisan
- Other Parties
- Mixed Household

Census Blocks are Small Neighborhoods

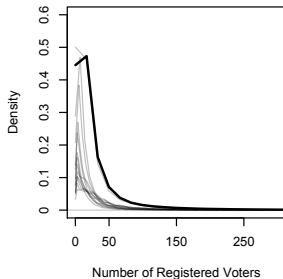
Florida



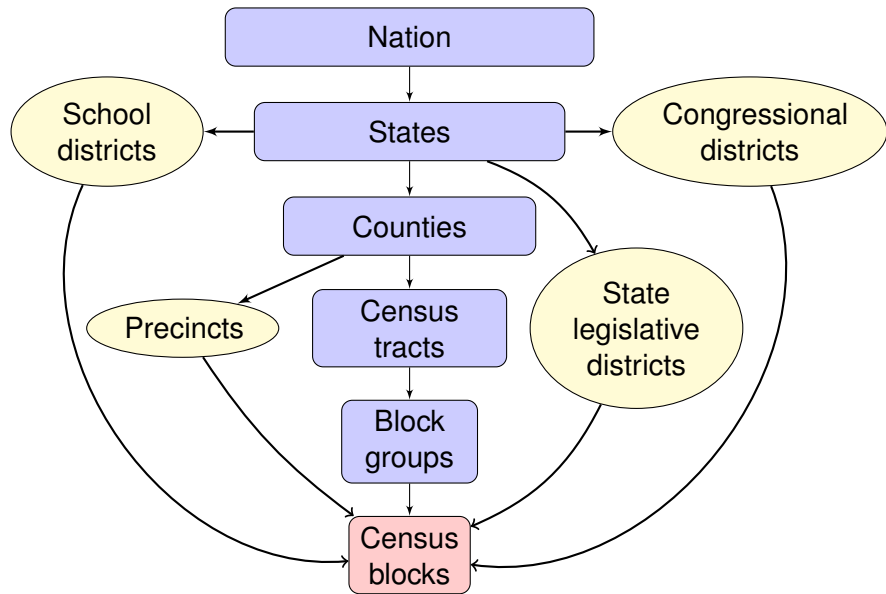
California



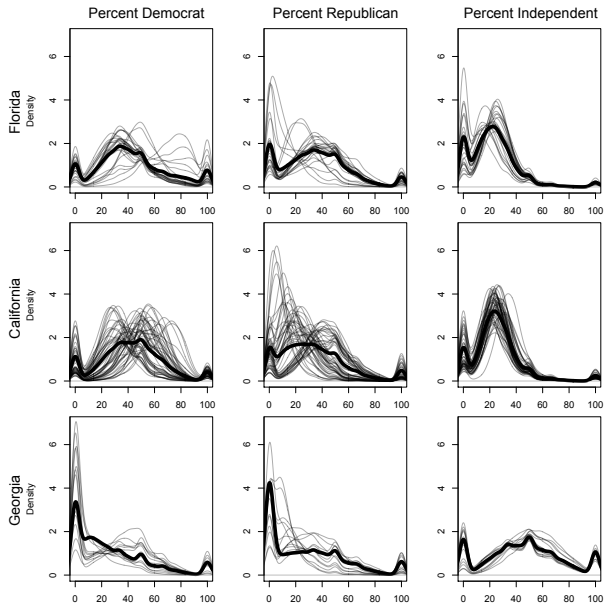
Georgia



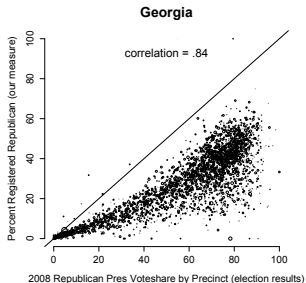
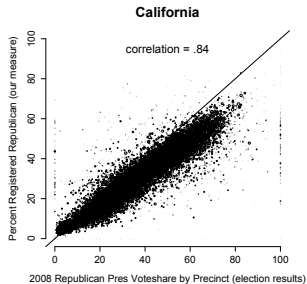
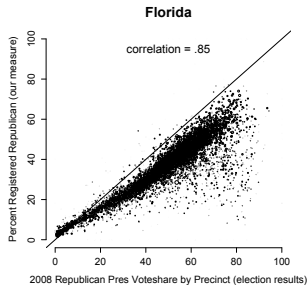
Census Blocks and Administrative Boundaries



Census Blocks Have Diverse Partisanship

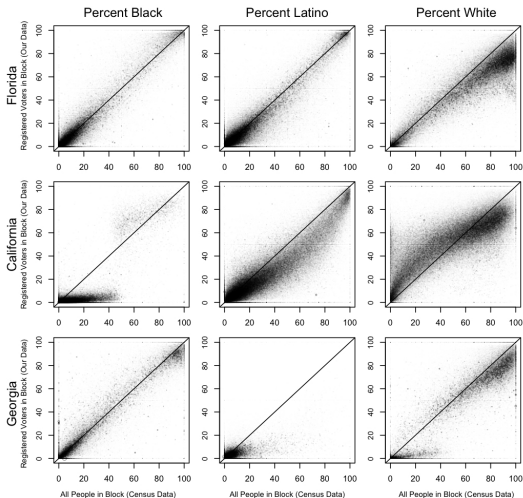


Partisanship Measure Correlates Well with Vote Share

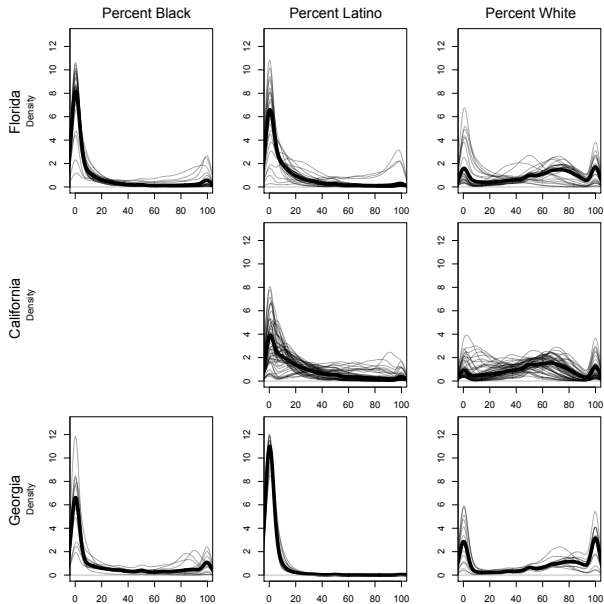


Race Measure and Validation

- Florida and Georgia: self-reported race (more accurate)
- California: predicted using name and census characteristics



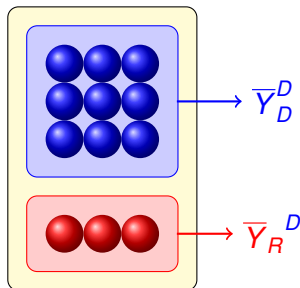
Racial Composition of Census Blocks



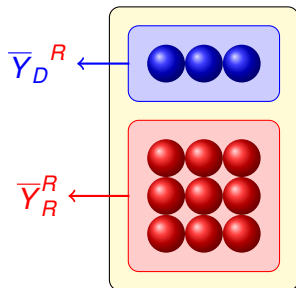
Cross-Section Identification Strategy

- Cannot simply compare two voters in different neighborhoods
- Our identification strategy:

(a) **Democratic neighborhood**



(b) **Republican neighborhood**



- Difference-in-differences: $(\bar{Y}_R^D - \bar{Y}_D^D) - (\bar{Y}_R^R - \bar{Y}_D^R)$

Statistical Model for the Cross-Section Analysis

- We analyze congressional districts separately for each election
- Average results across districts and elections
- Linear 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 γ : percentage point (ppt) increase in turnout when the proportion of out-group increases by 1 ppt

Modeling Racial Neighborhood Effects

- Partisanship neighborhood effects:

$$Y_i = \alpha_{\text{group}[j]}^B + \beta^B \text{Black}_i + \gamma^B \text{Black}_i \times \overline{\text{Non - Black}}_{\text{block}[j]} + \delta_1^B \text{age}_i + \delta_2^B \text{age}_i^2 + \epsilon_i^B$$

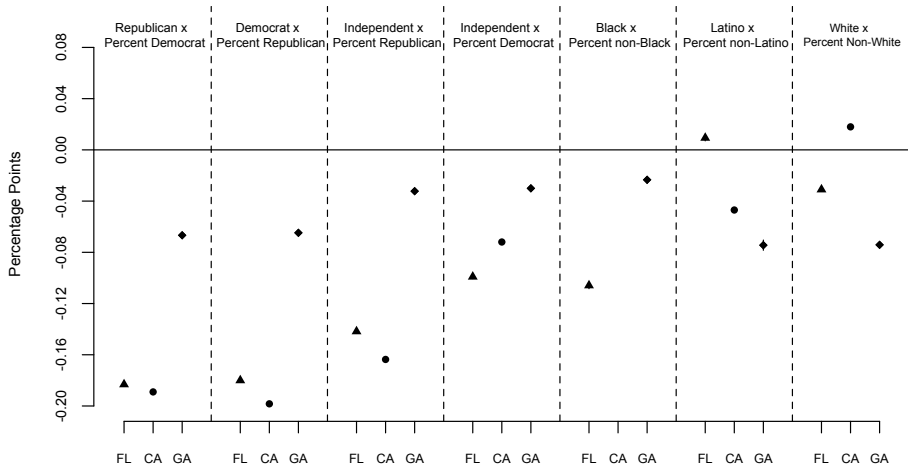
where $\alpha_{\text{group}[j]}^B$ is the fixed effects based on the full interaction between census blocks, gender, and partisanship

- Fitted to the entire data
- Comparison within the same neighborhood, gender, and partisanship
- Interpretation of γ : percentage point (ppt) increase in turnout when the proportion of out-group increases by 1 ppt

Mapping the Statistical Model Back to Theories

	Psychological theories		Mobilization theories	
	Threat	Empowerment	Individual	Neighborhood
sign of γ	+	-	0	-

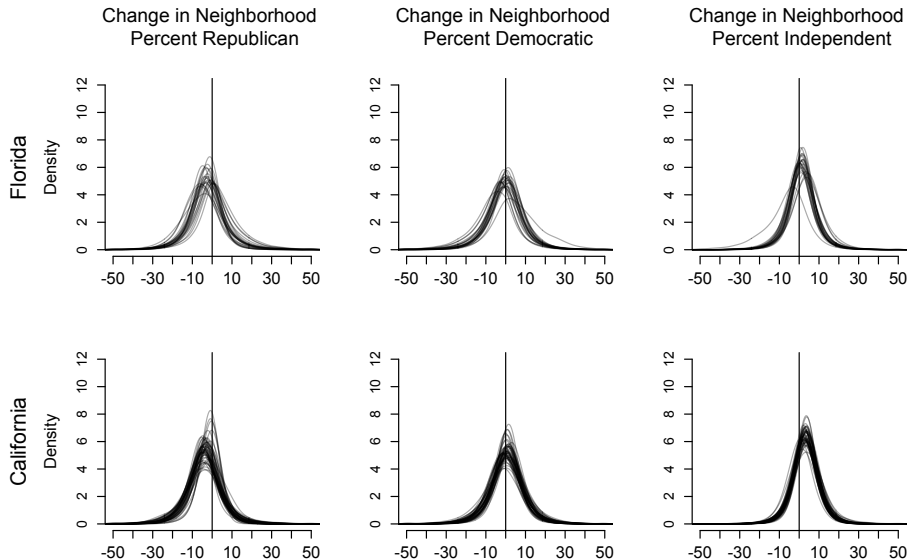
Neighborhood Effects from Cross-Section Analysis



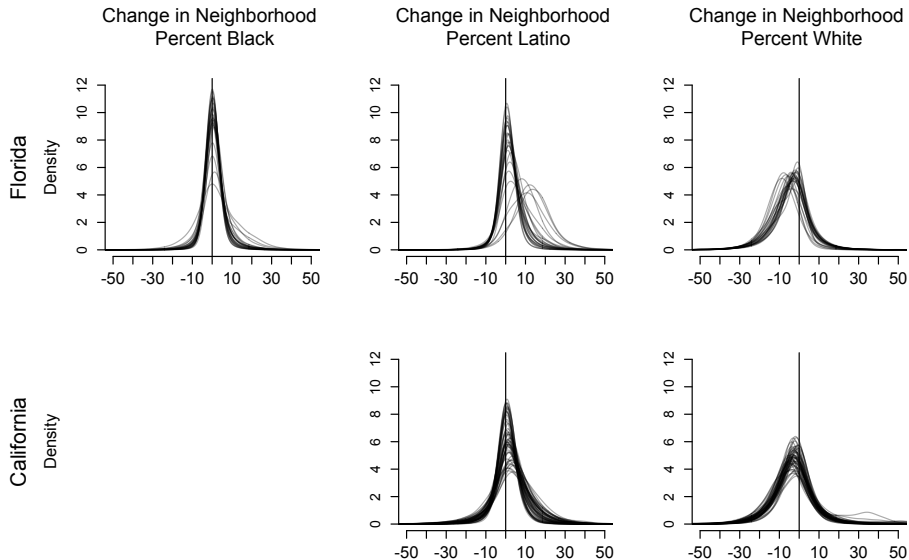
Data Overview for Panel Analysis

- 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 | ● California |
| ● 2012 voter file | ● 2012 voter file |
| ● 2004 voter file | ● 2006 voter file |
| ● Turnout: '10 – '02, '08 – '00 | ● Turnout: '10 – '02, '08 – '04 |
| ● 40% match | ● 44% match |
| ● 66% do not move | ● 70% do not move |
| ● 80% do not change party | ● 80% do not change party |

Change in Neighborhood Partisanship

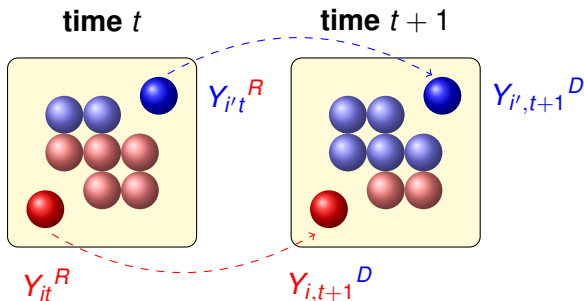


Change in Neighborhood Racial Composition



Panel Identification Strategy

- Within-voter comparison for **non-movers**:



- Difference-in-differences: $(Y_{i,t+1}^D - Y_{it}^R) - (Y_{i',t+1}^D - Y_{i't}^R)$

The Statistical Models for Panel Analysis

- First-difference linear probability models:

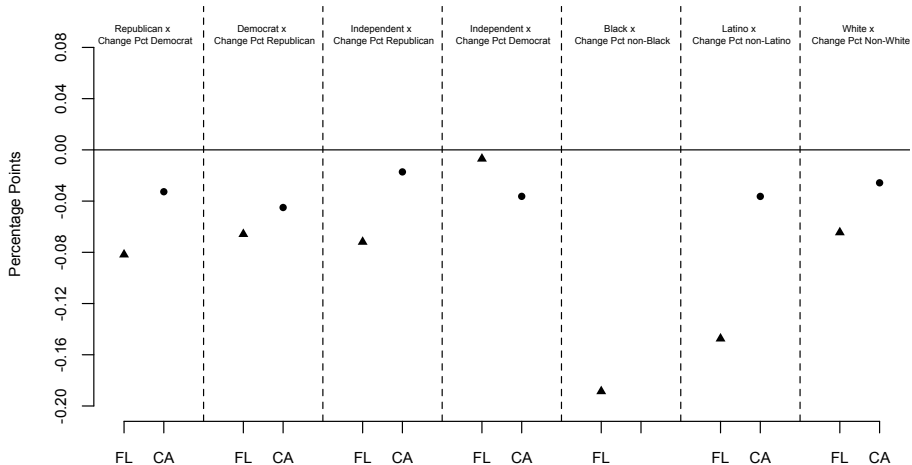
$$Y_{i,t+1} - Y_{it} = \alpha_{\text{group}[i]}^D + \beta^D \text{Dem}_i + \delta_1^D \text{age}_i + \delta_2^D \text{age}_i^2 \\ + \gamma^D \text{Dem}_i \times \left(\overline{\text{Rep}}_{\text{block}[i,t+1]} - \overline{\text{Rep}}_{\text{block}[i,t]} \right) + \eta_i^D$$

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

where $\alpha_{\text{group}[i]}^D$ ($\alpha_{\text{group}[i]}^B$) 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 γ : percentage point (ppt) increase in turnout when the proportion of out-group increases by 1 ppt

Neighborhood Effects from Panel Analysis



Testing the Neighborhood Mobilization Theory

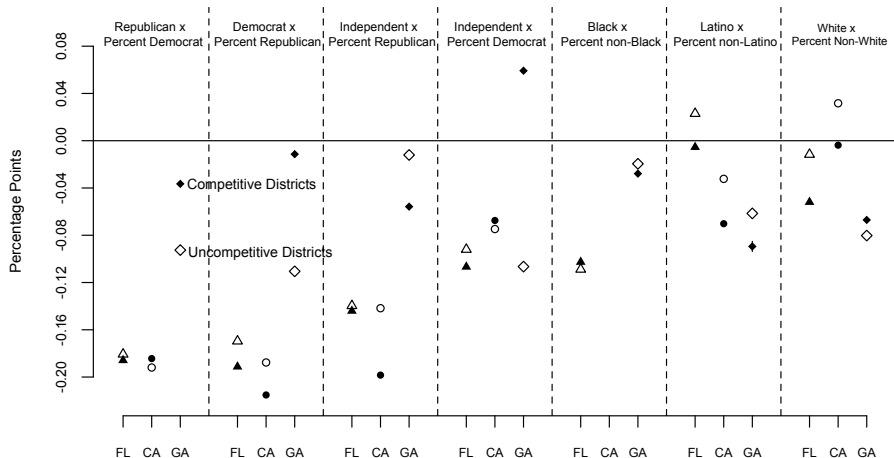
- Two theories are consistent with empirical findings:

	Psychological theories		Mobilization theories	
	Threat	Empowerment	Individual	Neighborhood
sign of δ_1	+	-	0	-

- Neighborhood mobilization theory:
Campaigns target neighborhoods of potential supporters but single out potential voters
 \rightsquigarrow Prediction: Neighborhood effects largest in competitive districts

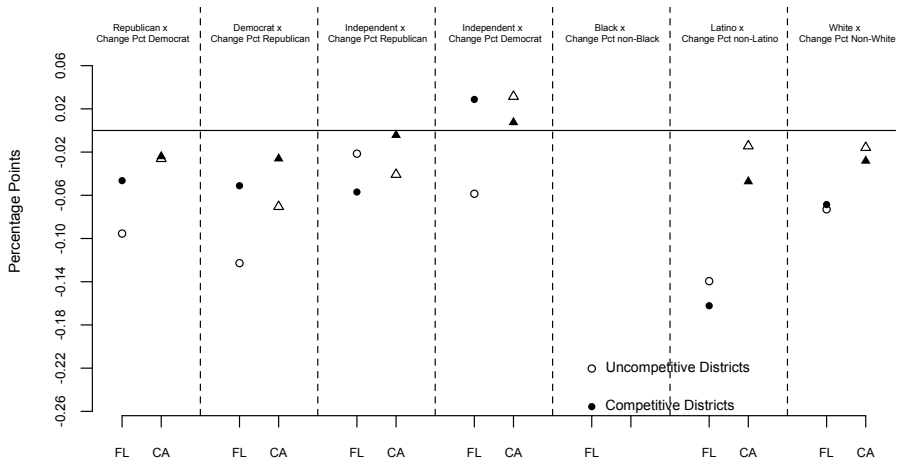
Cross-Section Evidence

- Uncompetitive districts (hollow) to other districts (solid)
- Neighborhood effects persist in uncompetitive districts



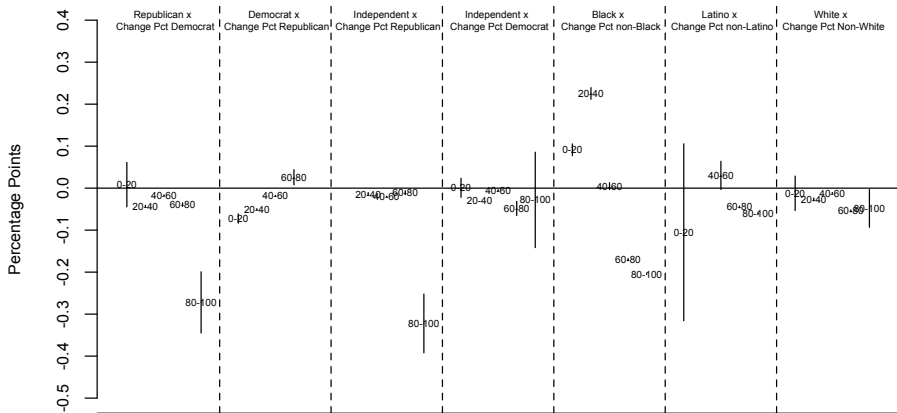
Panel Evidence

- 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



Concluding Remarks and Future Work

- 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 can not explain neighborhood effects
- Greatest support to the psychological empowerment theory

- Utilize experimental data (Moving-to-the-Opportunity Program)

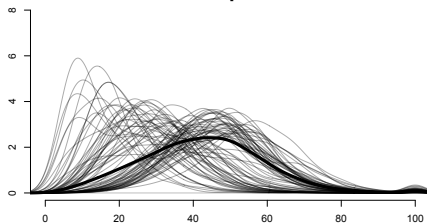
Send additional comments and suggestions

to

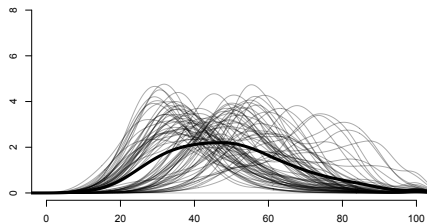
kimai@princeton.edu

Voters Live in Diverse Neighborhoods

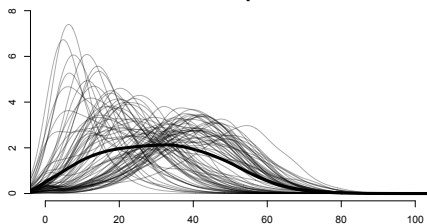
**Percent Republican Neighbors
for a Republican**



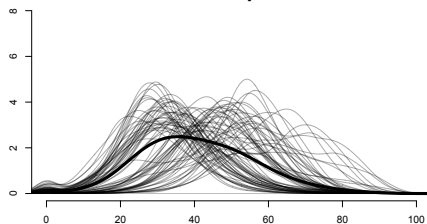
**Percent Democratic Neighbors
for a Democrat**



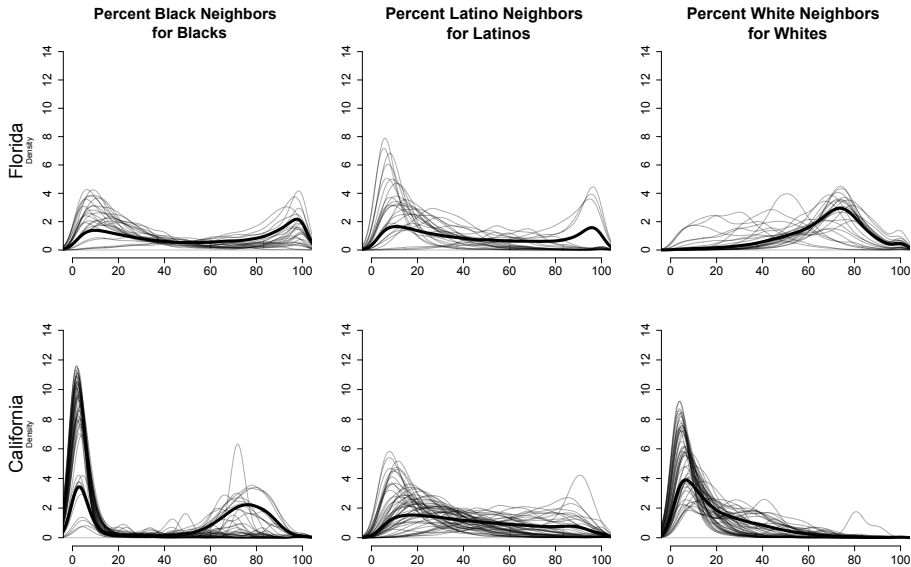
**Percent Republican Neighbors
for an Independent**



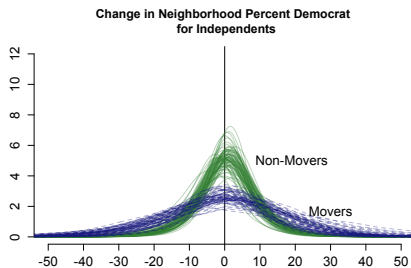
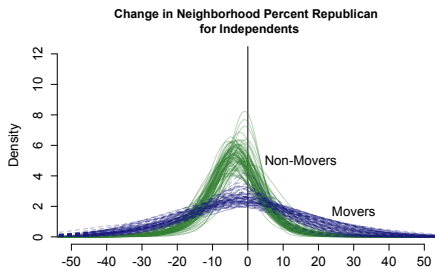
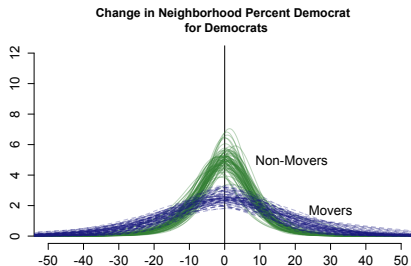
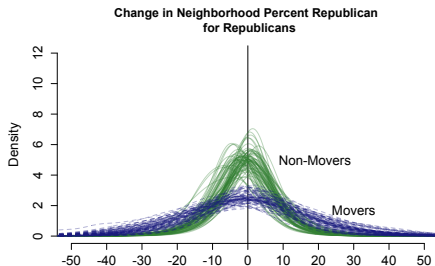
**Percent Democratic Neighbors
for an Independent**



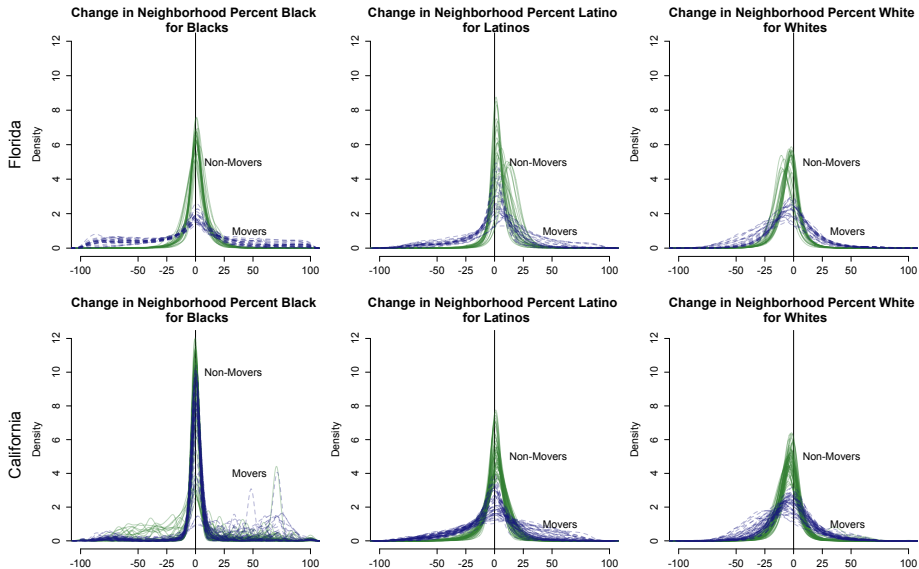
Voters' Neighborhoods are Not Always Segregated



Little Evidence of Geographic Sorting - FL & CA

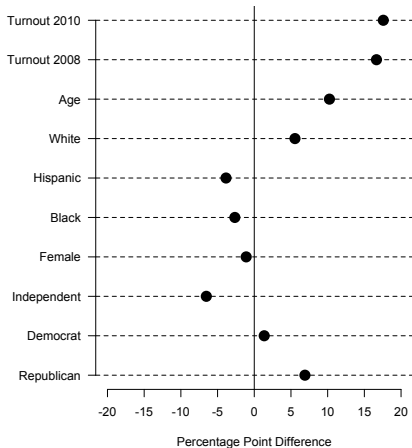


Little Evidence of Racial Geographic Sorting



Matched Voters are Different From Unmatched Voters

Difference Between Matched and Unmatched Voters in Florida



Difference Between Matched and Unmatched Voters in California

