Voting Scared: Does Neighborhood Crime and Fear of Crime Affect Voter Turnout?

Timothy Bray, PhD

Anthony Galvan, MAP

Denise Paquette Boots, PhD

The Institute for
Urban Policy Research
at The University of Texas at Dallas

Crime and Civic Participation

- Voter turnout is frequently included in measures of civic participation and social capital (Putnam 1993, 1995; Paxton 1999).
- Prior research establishes a relationship between social capital and crime (Putnam 1995; Kawachi, Kennedy & Lochner 1997),
  - As well as between crime and neighborhood trust and collective efficacy (Sampson & Raudenbusch 1999; Sampson et al. 1997, 1999)
- Social disorganization theory suggests that crime results from weak informal social controls (Shaw & McKay 1942; Kornhauser 1978).
- Rosenfeld, Messner, & Baumer (2001) found a relationship between social capital – measured in part by voter turnout – and homicide rates.

Drivers of Turnout: Macro-Level

- Pioneer studies of macro-level turnout show that institutional factors play a key role (Powell 1982, 1986; Jackman 1987):
  - Competitiveness
  - Party-group linkages
  - Social and professional influence groups
- Studies of municipal elections point to Progressive Era Reforms:
  - Separate (odd-year) elections (Wood 2002; Hajnal & Lewis 2003)
  - Nonpartisan ballots (Alford & Lee 1968; Karnig & Walter 1983; Schaffner et al. 2001)
  - Council-Manager Government (Karnig & Walter 1983; Wood 2002; Hajnal & Lewis 2003)
- Other macro-level factors include persuasion campaigns and campaign spending (Patterson & Caldeira 1983; Ansolabehere et al. 1994).

Individual-Level Drivers of Turnout

- Individual level predictors of turnout include:
  - Resource-based factors (Wolfinger & Rosenstone 1980)
  - Rational choice factors (Downs 1957)
  - Psychological factors (Campbell et al. 1960)
  - Other demographic Factors (Aldrich & Simon 1986)

Data Sources

Dallas County Board of Elections

Record-level Voter Registration Data

- Voted in 2015 Mayoral Election
- Voted in 2011 Mayoral Election
- Party Identification (2014 Party Primary)

Dallas Police Department

Point-level Incident Data (2015) Aggregated to Beats

- Part 1 Crime
- Part 2 Crime
- Total Crime

ESRI Business Analyst 2015 Population Projections

Beat-level Demographic Estimates

- Total Population (for rate calculation)
- Median Income
- Race (Percent White)
- Owner Occupancy

Dataset Construction

Voter Data

- Voter registration data were geocoded using Census geocoder API.
- Point-level voter data were attributed to the beats in which they fell (spatial join).
- Party identification was determined by the primary in which each voter voted in 2014.

Crime Data

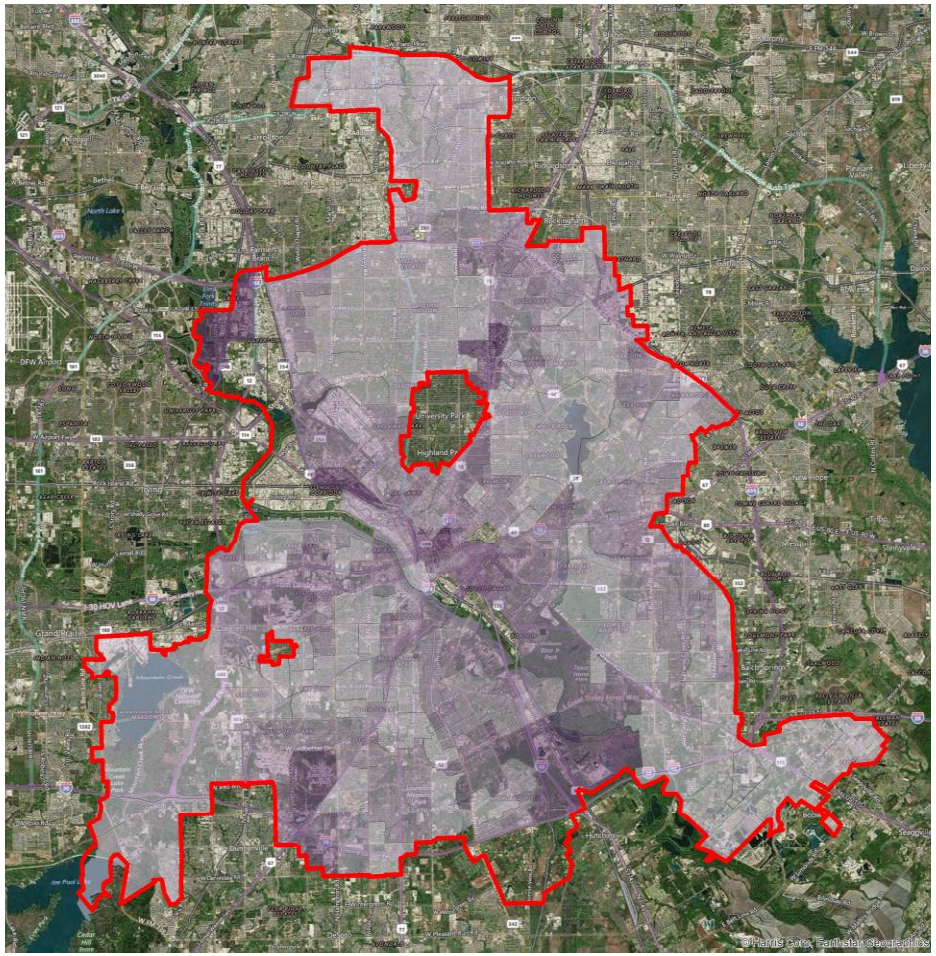
- Point level data were aggregated to police beats.
- Part 1, Part 2, and overall crime rates were calculated using ebat-level population estimates.

Demographic data

- Beat level measures of population, income, race, and home ownership were calculated using a spatial overlay of ESRI Business Analyst 2015 population projections.

About the City and Crime Data

- A General Orientation to the City
- Statistically Significant Positive Spatial Autocorrelation
  - Moran's I = 0.31987***
    (Z = 13.8728)
  - Getis-Ord G = 0.000045***
    (Z = 8.1941)



Methodology

- Multi-Level, Mixed-Effects Logistic Regression using the following models:
  - At the individual level:
    - 2015 turnout (DV)
    - 2011 turnout
    - Party affiliation
  - At the beat level:
    - UCR crime rate
    - Percent White
    - Home ownership rate
    - Median household income

Models

- Model 1

$$\ln(y_{ij}) = \beta_{0j} + \beta_1 Vote11_{ij} + r_{ij}$$

- Model 2

$$\ln(y_{ij}) = \beta_{0j} + \beta_1 Vote11_{ij} + \beta_2 Party14_{ij} + r_{ij}$$

- Model 3

$$\ln(y) = \beta_{0j} + \beta_1 Vote11_{ij} + \beta_2 Party14_{ij} + r_{ij}$$
$$\beta_{0j} = \gamma_0 + u_{0j}$$

- Model 4

$$\ln(y) = \beta_{0j} + \beta_1 Vote11_{ij} + \beta_2 Party14_{ij} + r_{ij}$$
$$\beta_{0j} = \gamma_0 + \gamma_1 UCRRate_j + u_{0j}$$

- Model 5

$$\ln(y) = \beta_{0j} + \beta_1 Vote11_{ij} + \beta_2 Party14_{ij} + r_{ij}$$
$$\beta_{0j} = \gamma_0 + \gamma_1 UCRRate_j + \gamma_2 PctWhite_j + u_{0j}$$

Logistic and Multi-level Mixed Effects Logistic Regression

	Model 1 (Logit)	Model 2 (Logit)	Model 3 (MEQR Logit)	Model 4 (MEQR Logit)	Model 5 (MEQR Logit)
Constant	0.0419*** (0.0003)	0.2358*** (0.0038)	0.2300*** (0.0101)	0.2302*** (0.0101)	0.2339*** (0.0103)
Voted in 2011	19.8144*** (0.2396)	4.6568*** (0.0817)	5.0891*** (0.0947)	5.0894*** (0.0947)	5.0916*** (0.0947)
Voted in Democratic Primary in 2014		1.5549*** (0.0274)	1.3566*** (0.0309)	1.3564*** (0.0309)	1.3561*** (0.0309)
Police Beat					
Variance (Constant)			0.2946*** (0.0331)	0.2832*** (0.0390)	0.2280*** (0.0467)
Variance (UCR Crime Rate)				1.86×10^{-6} (3.94×10^{-6})	2.95×10^{-6} (4.98×10^{-6})
Variance (Pct. White Population)					0.00004 (0.00002)
Variance (Pct. White x Crime Rate)					4.02×10^{-18} (2.26×10^{-13})
N (Level 1) **N (Level 2)**	524,966	65,279	65,279 215	65,279 215	65,279 215
Fit Statistic	LR(χ^2) 56,149.11***	LR(χ^2) 8,533.54***	Wald χ^2 7,726.40***	Wald χ^2 7,726.52***	Wald χ^2 7,730.47***

Limitations

- Geographical Issues
  - Dallas vs. Collin County
  - Current vs. Previous Addresses
- Methodological Issues
  - Spatial Autocorrelation

For More Information

Dr. Timothy M. Bray

Institute for Urban Policy Research
The University of Texas at Dallas

800 West Campbell Road, WT20
Richardson, Texas 75080

V: 972-883-5430
F: 972-883-5431

timothy.bray@utdallas.edu
http://iupr.utdallas.edu

@timothy_bray

SlideShare www.slideshare.net/TimothyBray