Neighborhood Context and Police Use of Force

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* The views and opinions of the author expressed herein do not necessarily reflect those of the United States Department of Justice

Neighborhood Context and Police Use of Force

- Introduction
  - Use of force as a fundamental topic of study in Criminal Justice
  - Research questions
    - How often is force used within an encounter
    - How prevalent is force overall
    - What is the maximum level of force
  - Research perspectives
    - Psychological
    - Sociological
    - Organizational

What are Neighborhoods?

- Prior research (Bursik and Grasmick) argues that neighborhoods consist of:
  - Geographic concentration
  - Shared values
  - Shared experiences
- This has meant a focus on:
  - Public housing
  - Racial segregation
  - Normative structures accepting of illegal activities

Neighborhoods as Unit of Analysis

- Contextual influences
- Ecological contamination
- Threshold-triggered police behaviors
- Aggregation bias
- Cognitive maps

Neighborhood-based studies

- Adult and Juvenile Offending
  - General support for the effects of neighborhood SES and concentrated disadvantage
- Police Behavior
  - General support for the effects of concentrated disadvantage and the concept of honor

Use of Force Research

- Studies of association
  - National data collection efforts (base rates of force around 1%)
  - City-based efforts (studies of minority rates of victimization by police)
  - Non-lethal force
  - Lethal force
  - Continuum of force
  - Definitions of force

Varying methodologies and definitions of force have resulted in base rates ranging from .8% to 58.4% in these studies

Use of Force Research

- Multivariate studies
  - Friedrich (1980) (studied all three perspectives)
  - Bayley and Garofalo (1989) (looked at Potentially Violent Mobilizations)
  - Garner et al (1995) (Used 3 separate measures of force)
  - Worden (1995) (separate models for unreasonable and reasonable force)
  - Kavanagh (1997) (39 separate logistic regression equations)
  - Engel et al (2000) (tested demeanor interactions)
  - Phillips and Smith (2000) (looked at time-space dynamics)
  - Terrill and Mastrofski (2002) (four-category measure of force; included handcuffing)
  - Garner et al (2002) (6 sites; 2 measures of force; examined suspect resistance)

Table A-1: Significant Predictors of Use of Force Behavior Across Multivariate Studies

	Friedrich (1980)	Bayley and Garofalo (1989)	Garner et al (1995)	Worden (1995)	Kavanagh (1997)	Engel et al (2000)	Phillips and Smith (2000)	Terrill and Mastrofski (2002)	Garner et al (2002)
Base Rate	5.1%	6-9%	22%	3.9%	17.2%	3.4%	NR	58.4%	17.1%
Minority Suspect				+	+			+	
Male Suspect			+	+			+		+
# of bystanders	+		+	+		+	+		+
# of officers	+		+				+		+
Suspect sobriety	+		+	+	+	+		+	
Offense type			+	+	+	+			
Suspect demeanor	+	+		+	+	+			+
Suspect resistance			+			+	+	+	+

Neighborhood-Based Use of Force Studies

- Smith (1986)
  - Explicit look at neighborhood context
  - Used an individual level model
- Terrill and Reisig (2003)
  - 4-category measure of force (included handcuffing)
  - Used HLM (fixed-effects model)

Limitations of Prior Studies

- Use of only one theoretical orientation
- Ignoring neighborhood context
- Operationalization of neighborhoods
- Operationalization of use of force
- Improper statistical analyses
- Sampling criteria

Data Collection

- Police Use of Force (PUF) Study
  - 6 jurisdictions: (1) Charlotte, NC; (2) Colorado Springs, CO; (3) Dallas, TX; (4) St. Petersburg, FL; (5) San Diego City, CA; (6) San Diego County, CA
  - 2-page surveys to be completed after each arrest (N = 7,512)
  - Conducted during summer, fall, winter 1996-1997
  - 5 elements of force: (1) weapons; (2) weaponless tactics; (3) restraints; (4) motion; and (5) voice
  - 4 measures of force: (1) physical force; (2) physical force plus threats; (3) continuum of force; and (4) maximum force

Specific Hypotheses

- H1: Officers will use more force in neighborhoods which are higher in concentrated disadvantage
- H2: Minority officers will use less force than white officers in minority neighborhoods due to their decreased social distance from residents
- H3: Officers will use more force against suspects with poor demeanor in high-crime neighborhoods due to the officer's need to 'save face' and maintain control in such areas
- H4: Officers will use more force against suspects with poor demeanor in neighborhoods high in concentrated disadvantage due to the officer's need to 'save face' and maintain control in such areas
- H5: Officers will use less force against minority suspects in neighborhoods higher in concentrated disadvantage, due to the ecological contamination hypothesis and the concept of tolerance.

Dependent Variables

- Physical force plus threats
  - Coded as ‘0’ if no force was used
  - Coded as ‘1’ if any of the following were used: (1) weapons; (2) weaponless tactics; or (3) severe restraints
- Maximum force
  - Based on 1-100 rankings constructed from officer surveys

Independent Variables

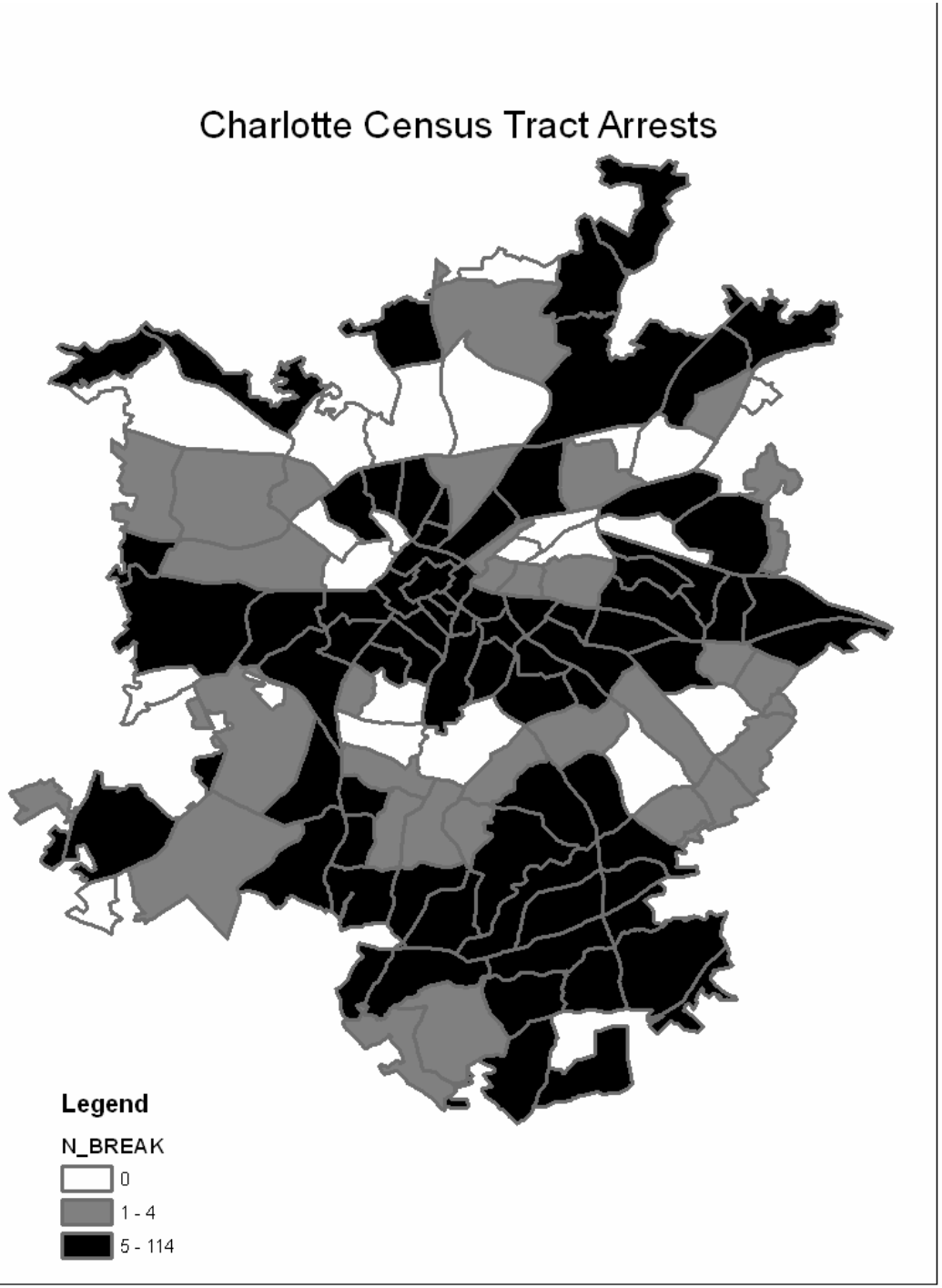
- Neighborhood-level variables
  - Concentrated disadvantage
  - Violent crime rate per 100,000 residents
  - Spatial Error Term
    - Characteristics of the surrounding neighborhoods influence the dependent variable
    - Heterogeneity across units (i.e. differences between neighborhoods) is appropriately modeled with a spatial error, rather than spatial lag, term

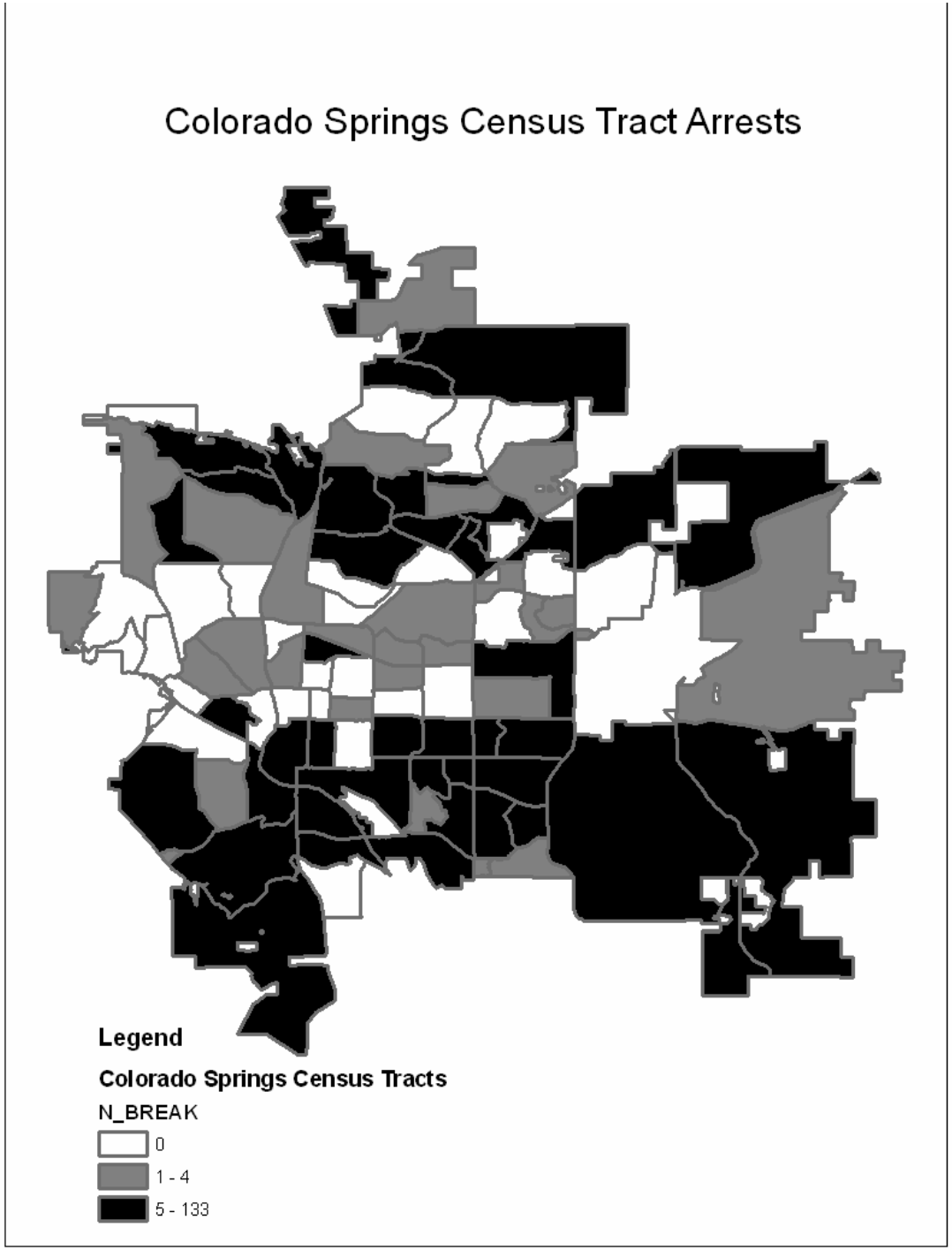
Independent Variables

- Suspect characteristics
- Officer characteristics
- Nature of the encounter
- Nature of the location

Analysis Procedures

- GIS
  - ArcMap used to map each arrest location to a specific address and neighborhood
- Spatial Autocorrelation corrections
  - Spatial Lag (Effect) vs. Spatial Disturbance (Error)
  - Moran coefficient
  - GeoDa software
- Hierarchical Linear Model
  - Use intraclass correlation coefficient to determine if HLM is appropriate (measures the effect of clustering on the Dependent Variables)
  - Random coefficients model (both the intercept for neighborhood and the slope for officer race and demeanor are allowed to vary)


Charlotte Census Tract Arrests
Legend
N_BREAK
0
1 - 4
5 - 114


Colorado Springs Census Tract Arrests
Legend
Colorado Springs Census Tracts
N_BREAK
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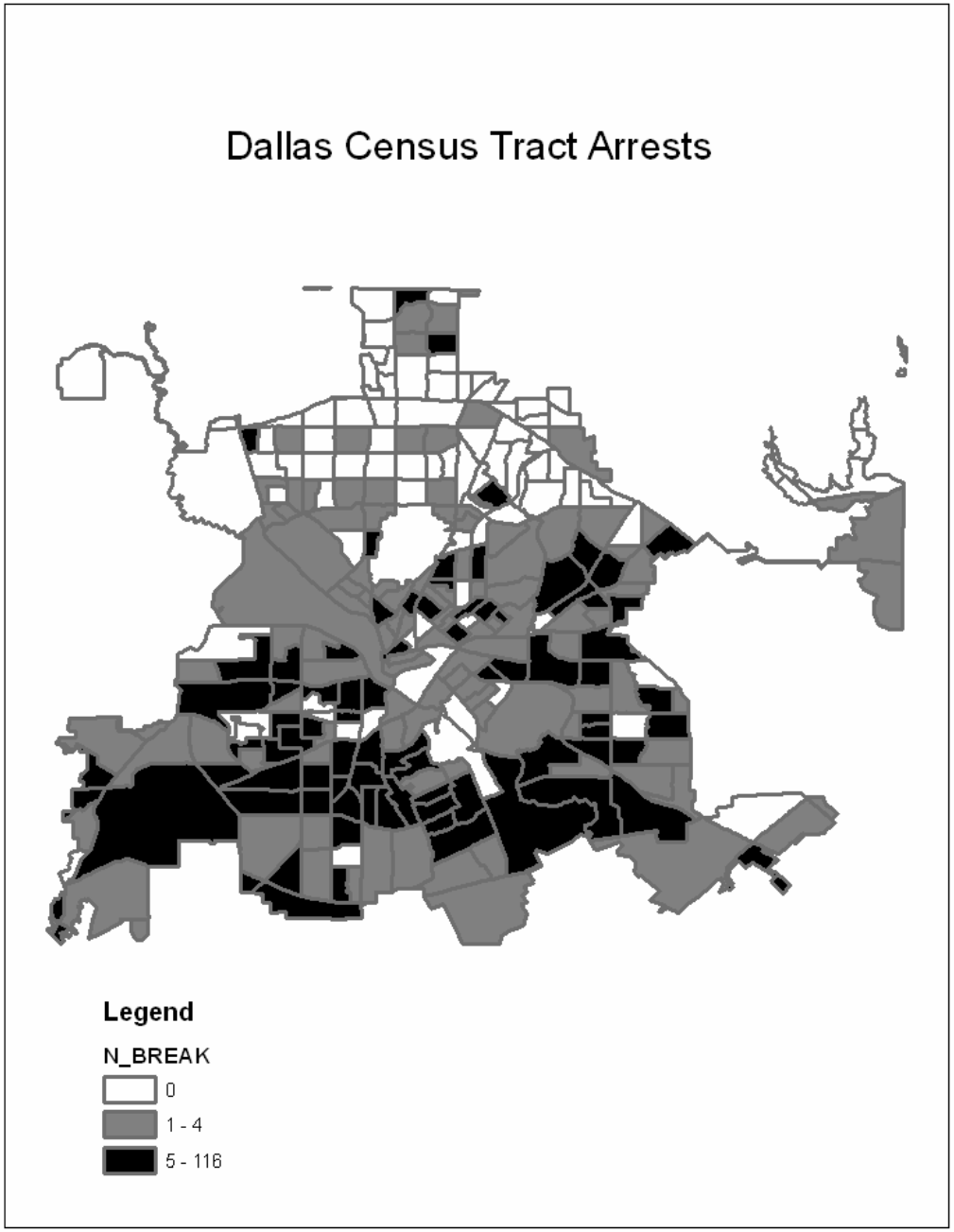
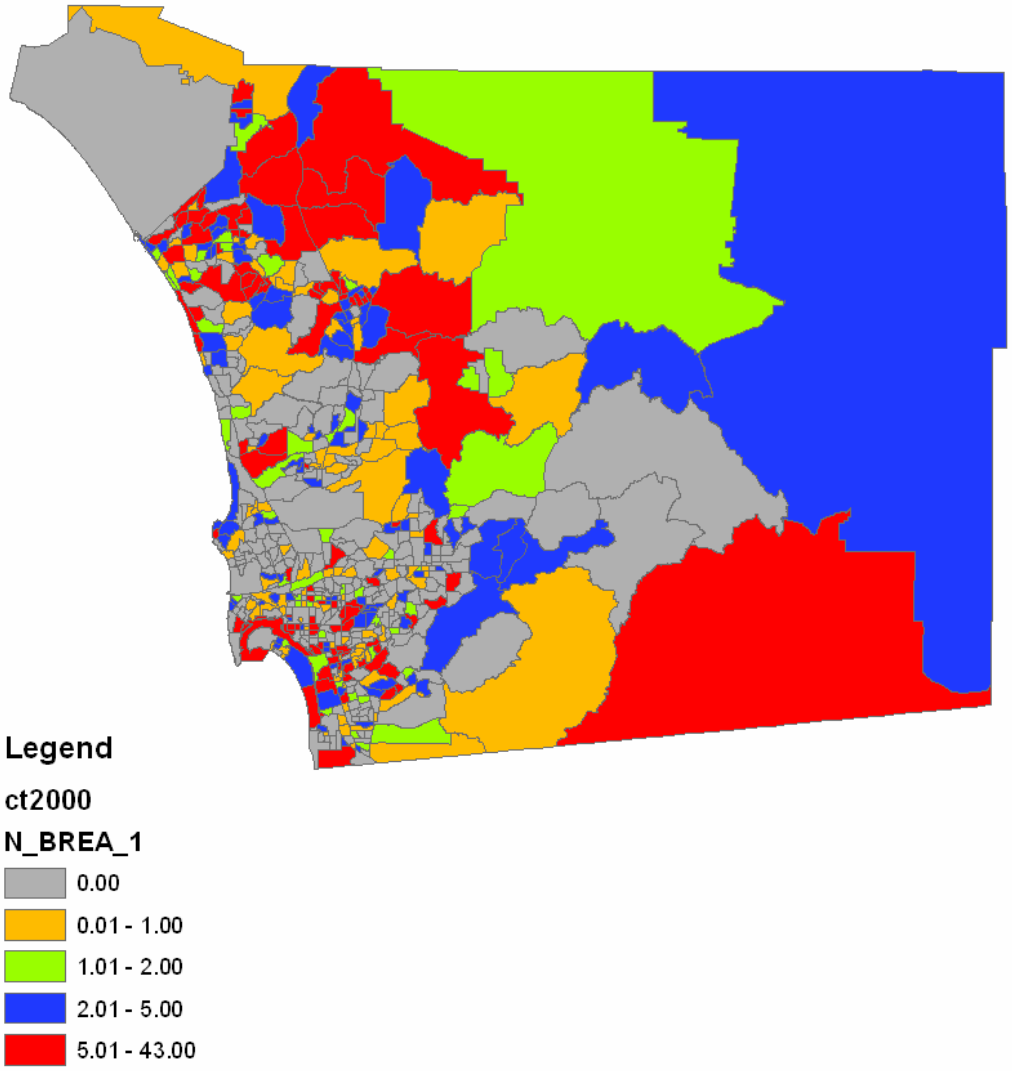
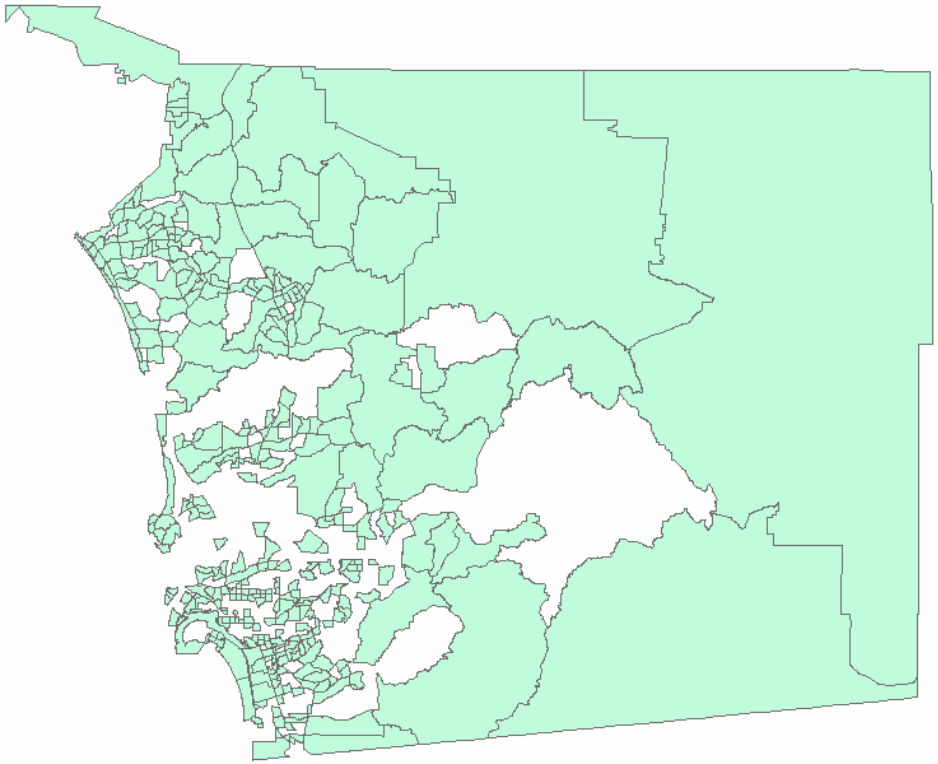
1 - 4
5 - 133


Dallas Census Tract Arrests
Legend
N_BREAK
0
1 - 4
5 - 116

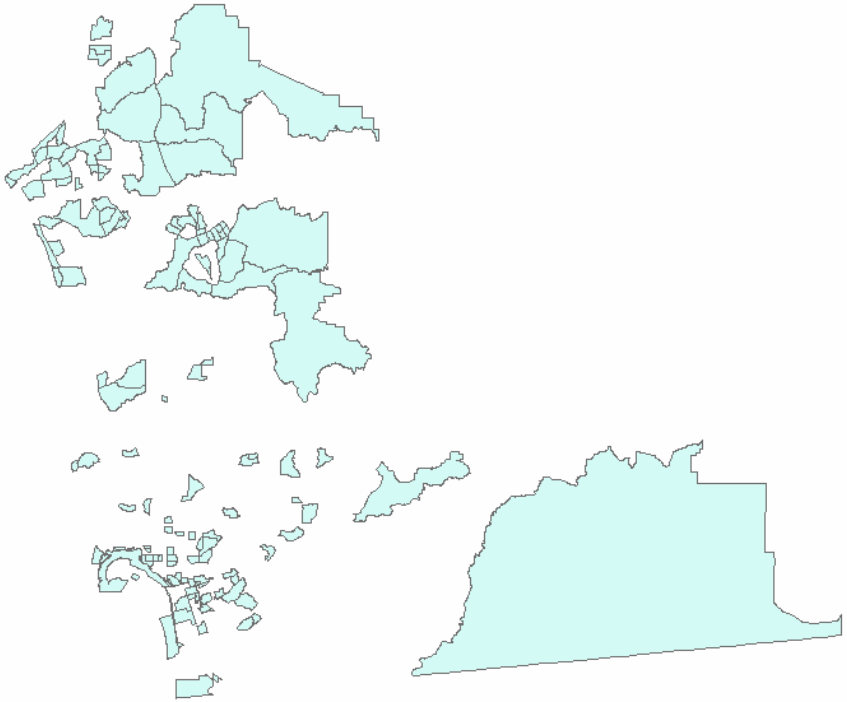
San Diego County Census Tract Arrests

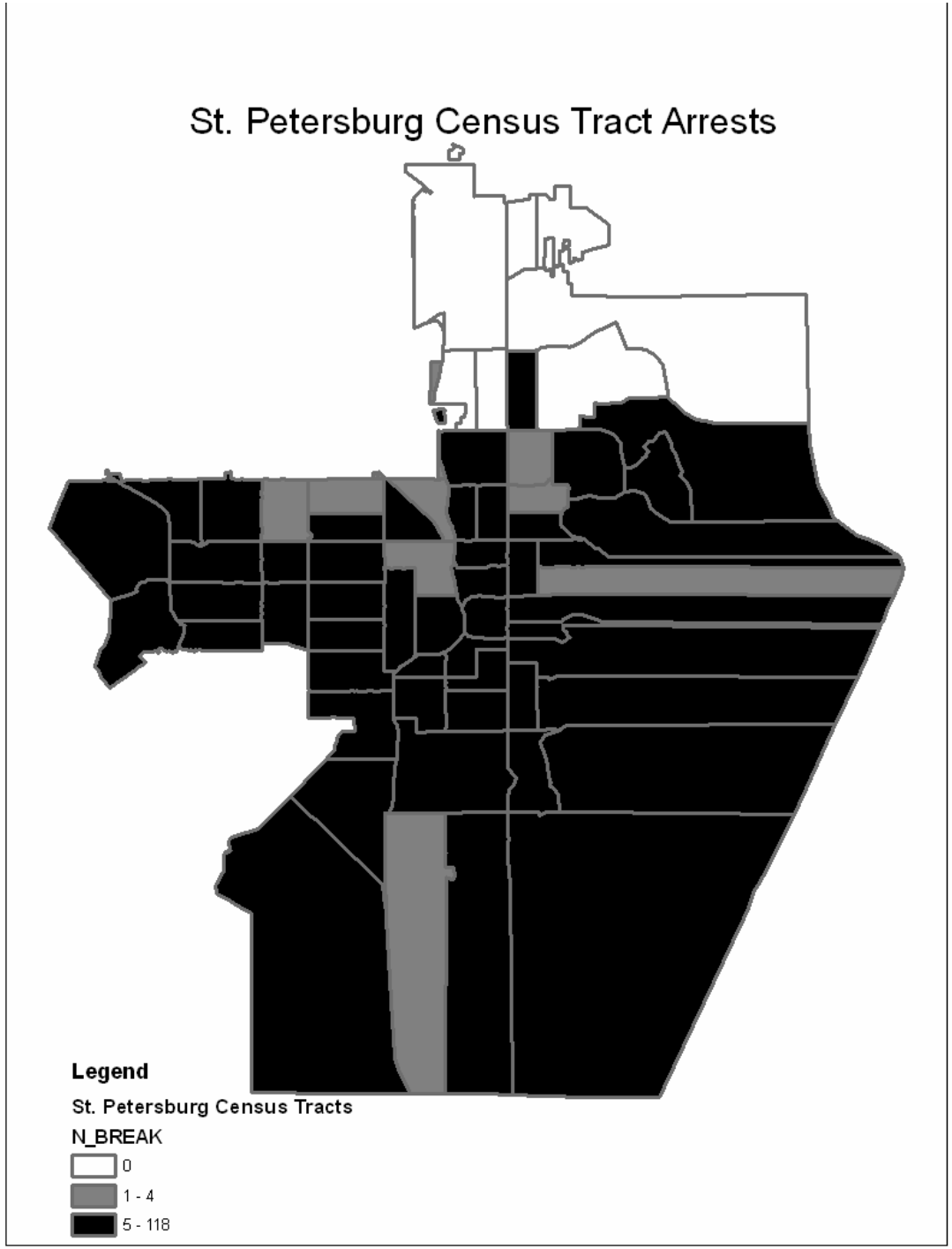


San Diego County Census Tracts with 1-5 Arrests



San Diego County Census Tracts with 5 or more Arrests




St. Petersburg Census Tract Arrests
Legend
St. Petersburg Census Tracts
N_BREAK
0
1 - 4
5 - 118

Results

- Maximum Force Model
  - Level-1 Variables
    - Intercept (25.36)
    - Visibility (-0.13)
    - Violent Offense (0.94)
    - Number of Suspects (0.28)
    - Suspect already in Custody (-0.81)
    - Other initiation to incident (-0.70)
    - Priority Approach to incident (0.97)
    - Lights and Sirens Approach to incident (1.50)
    - Officer Called for Back-up (1.51)
    - Number of Officers (0.68)

Results

- Maximum Force Model
  - Level-1 Variables
    - Officer Age (-0.04)
    - Officer Gender (0.79)
    - Officer Demeanor toward Suspect (2.33)
    - Suspect Gender (0.99)
    - Suspect Known to Carry Weapon (2.60)
    - Suspect intoxicated (0.73)
    - Victim is Friends with Suspect (-0.59)
    - Victim is Family of Suspect (-1.08)
    - Bystanders are Strangers to Suspect (0.69)
    - Bystanders are Friends to Suspect (0.53)
    - Suspect Demeanor toward Officer (1.73)
    - Suspect uses Physical Force (5.98)

Results

- Physical Force Model
  - Level-1 Variables
    - Intercept (0.03)
    - Visibility (0.97)
    - Violent Offense (1.33)
    - Suspect already in Custody (0.70)
    - Police initiated incident (1.38)
    - Priority Approach to incident (1.46)
    - Lights and Sirens Approach to incident (1.28)
    - Other non-routine Approach to incident (1.42)
    - Officer Called for Back-up (1.59)
    - Number of Officers (1.14)

Results

- Physical Force Model
  - Level-1 Variables
    - African-American Officer (1.38)
    - Hispanic Officer (1.79)
    - Other Officer Race (non-white) (1.80)
    - Officer Gender (1.63)
    - Other Suspect Race (non-white) (1.58)
    - Suspect Race was Missing (1.66)
    - Suspect Gender (1.35)
    - Suspect Known to Carry Weapon (1.97)
    - Suspect intoxicated (1.30)
    - Bystanders are Strangers to Suspect (1.34)
    - Bystanders are Family to Suspect (1.30)
    - Suspect Demeanor toward Officer (2.19)
    - Suspect uses Physical Force (8.61)

Conclusion

- “Standard” independent variables found to be significant:
  - Number of suspects
  - Officer use of back-up
  - Number of officers
  - Suspect demeanor
  - Suspect use of physical force
- Neighborhood effects were not significant, except:
  - Suspect demeanor in neighborhoods high in concentrated disadvantage (CSPD – Maximum Force model)
  - Hispanic officer in neighborhoods high in concentrated disadvantage (SD – Physical Force plus Threats model)

What does it Mean?

- So, are neighborhood effects dead?
  - Consideration of spatial lag models, as opposed to the spatial error models used
  - Different levels of aggregation
- Good news for law enforcement
  - Officers are not using force based on things such ‘saving face’, or ecological contamination, and are instead focusing on factors related to the dangerousness of the suspect