Enforcement Trends in the City of St. Louis from 2007 – 2017: Exploring Variability in Arrests and Criminal Summonses over Time and across Communities

SCHOLARONE™
Manuscripts

Enforcement Trends in the City of St. Louis from 2007 – 2017: Exploring Variability in Arrests

and Criminal Summonses over Time and across Communities

Abstract

The goal of this research is to describe changes in enforcement activity in the City of St. Louis

from 2007 through 2017 and to better understand community variation in these trends. Results

indicate that enforcement activity decreased over the study period, particularly for non-felony

arrests among Blacks. With the exception of summonses, enforcement actions declined in most

neighborhoods but were most pronounced in communities characterized by high levels of

economic disadvantage. Reductions in misdemeanor and bench warrants arrests also were greater

in communities with higher percentages of Blacks; however, the percent of Black residents in a

neighborhood was positively related to changes in the number of criminal summonses issued.

The findings highlight the importance of disaggregating crime trends by community and looking

beyond traditional felony-only measures of law enforcement activity.

1. INTRODUCTION

Events in the St. Louis region brought attention to the legitimacy crisis for the local police and courts. Protests and media attention immediately following the 2014 shooting death of Michael Brown in Ferguson, Missouri, a St. Louis suburb, focused on police use of deadly force against Blacks, but an investigation by the Department of Justice also highlighted more pervasive problems in the region (U.S. Department of Justice, 2015; see also Ferguson Commission, 2015). These investigations found that many people in the St. Louis area, particularly minorities, entered the criminal justice system for relatively minor offenses and bench warrants that had been issued for missed court appearances or failure to pay fines.

There is an emerging body of research that finds encounters with the criminal justice system, even those in which "nothing legally important happens," can have negative collateral consequences (Fagan, Tyler, & Meares, 2016, p. 215; see also Harris, 2016; Kohler-Hausmann, 2018; Martin, Sykes, Shannon, Edwards, & Harris, 2018). These studies suggest that minorities and persons living in poverty are more likely to have contact with the lower courts and are more deeply entrenched in these systems, often because of difficulties complying with legal requirements, such as payment of fines and fees. The policing of minor crimes, particularly in urban and predominantly minority communities, can also tarnish citizens' perceptions of law enforcement, decrease the likelihood that individuals will report crimes or cooperate with police, and widen the net of criminal justice control (Gau & Brunson, 2010; Jacobs, 2015; U.S. Department of Justice, 2015; Young & Petersilia, 2016). Furthermore, some researchers have found that aggressive enforcement of low-level offenses is an ineffective crime control strategy and may even lead to increases in offending (Rosenfeld, Fornango & Rengifo, 2007; Schneiderman, 2013; Sullivan & O'Keeffe, 2017).

Recognizing the prevalence and potential harm associated with the enforcement of lower

level offenses, researchers have begun to focus attention on understanding how police actions are

patterned across time and place. This research is still in its nascent stages, and work has centered

primarily on large metropolitan regions (e.g., New York City) and heavily politicized policing

interventions such as stop and frisk and aggressive enforcement of quality of life offenses (Jones-

Brown, Gill, & Trone, 2010; Mulligan, Fera, Cuevas, Grimsley, & Chauhan, 2018; Patten, Hood,

Low-Weiner, Lu, Bond, Hatten, & Chauhan, 2018; White & Fradella, 2016). Less is known

about the nature of enforcement in cities that have not made addressing low level offenses the

centerpiece of their policing strategy. In addition, extant research has largely examined city-level

trends. Yet, policing is highly localized, which makes it important to understand how policing

activities vary not only across cities, but across neighborhoods.

This study adds to this emerging literature by describing temporal trends in enforcement

actions in the City of St. Louis from 2007 through 2017. The goal of the work is twofold. First,

we describe trends in five types of enforcement actions – arrests for municipal, misdemeanor,

felony violations, arrests for bench warrants, and the issuance of criminal summonses.

Disaggregating by enforcement type allows for a more nuanced understanding of changes in

enforcement and can help researchers and policymakers interpret how interventions or seminal

events, such as the protests in Ferguson, influence policing behaviors. Furthermore, it enables us

to explore if decreases in some types of enforcement have been coupled with increases in others,

indicating a shift in the nature, rather than extent, of police activity. We also disaggregate trends

by race because research suggests that minorities are disproportionately subject to police control

(Fagan & Davies, 2000; Piquero, 2008), and there is ample evidence that the policing of lower

level crimes can lead to racial disparities (Fagan, Geller, Davis, & West, 2010).

Second, we examine community-specific trends in enforcement activity and estimate a series of multivariate models to describe how changes in arrests and summonses from 2007 to 2017 varied across St. Louis neighborhoods with different sociodemographic characteristics. Arrests for minor offenses often are initiated when people reach out to the police either because they have been a victim of a crime or want them to resolve a problem (Rosenfeld et al., 2007); therefore, in these analyses we take into account changes in citizen calls to the police. This strategy helps parcel out changes enforcement in activity that are due to fluctuations in citizen demand for police services (i.e., reactive policing), and allows for a more nuanced understanding of the impact of race and community disadvantage on changes in the discretionary policing of minor crimes.

2. BACKGROUND

There is an established body of work devoted to documenting the nature and extent of police enforcement and the disproportionate impact of these actions on communities of color (Lum & Nagin, 2017). The initial impetus for much of this research was the rise of order maintenance policing in New York in the 1990s. This type of policing, which is rooted in Wilson and Kelling's (1982) broken-windows thesis, is based on the assumption that by aggressively enforcing quality of life offenses, the police send a message to would-be offenders that law violating behavior will not be tolerated, thereby deterring crime. The perceived success of this strategy led to its adoption by a number of agencies as well as the diffusion of proactive policing models more generally (Lum & Vocak, 2018; Weisburd & Majmandur, 2017). In New York, proactive and order maintenance policing strategies have been tied to substantial increases in misdemeanor arrests for public order offenses in the 2000s (Chauhan et al., 2015; Schneiderman, 2013).

As more people have entered the criminal justice system, there has been an increased recognition of the harms that can result from these interactions. Arrests can "kick-start" a cascade of negative consequences for the accused, even if charges are never issued or they are never convicted of a crime (Lofstrom et al., 2018, p. 5). Arrests and court appearances can be degrading experiences, time consuming, and lead to missed family and employment obligations (Kohler-Hausmann, 2018; Natapoff, 2018). Furthermore, those who are convicted of misdemeanors and ordinance violations often find themselves caught in "an ongoing set of legal entanglements with and obligations to various organs of the criminal justice system…that result in people cycling in and out of various legal statuses" (Kohler-Hausmann, 2018, p. 10). Minor contact with the police also can damage perceptions of police legitimacy and reduce citizens' willingness to report crime or to cooperate with law enforcement, making it harder for police to combat serious crime (Epp, Maynard-Moody, & Haider-Markel, 2014; Jackson & Gau, 2016; Tyler & Fagan, 2008; Rengifo, Slocum, & Chillar, 2019).

There is evidence that the negative ramifications of overly aggressive enforcement extends beyond the individual to the community at large. Predominantly minority communities have a greater policing presence and are often the focus of enforcement initiatives (Fagan & Davies, 2000; Fagan, Geller, & West, 2010; Piquero, 2008). Proactive police practices can lead to complaints of over-policing and contribute to legal cynicism and a lack of trust in the police among residents of economically disadvantaged communities and people of color (Clampet-Lundquist, Carr, & Kefalas, 2015; Gau & Brunson, 2010). For example, Lerman and Weaver (2014) found that in New York City, residents' willingness to interact with the government was dampened in neighborhoods with more stops that did not result in an arrest. This "chilling effect" was amplified in minority communities (p. 651).

2.1 Temporal Trends in Enforcement

In recognition of the potential harms associated with criminal justice system contact, researchers have begun to track long-term enforcement trends in U.S. cities with the purpose of informing policymakers and the public of these patterns and initiating policy reform (e.g., Chauhan et al., 2014; Lofstrom et al., 2018; Patten et al., 2018).[1] This work reveals considerable variation, but several common themes have emerged. First, low-level enforcement actions are far more prevalent than felony arrests. For example, a study of enforcement activity in Louisville found that the overwhelming majority (91.9 percent) of enforcement actions from 2009-2016 were for non-felony offenses (Schaefer, Huges, & Jude, 2018). Similarly, Seattle experienced consistently higher misdemeanor arrest rates compared to felony arrest rates between 2008 and 2016 (Helfgott, Parkin, Fisher, Morgan, & Kaur, 2018).

Second, enforcement of low-level offenses has declined in many cities over the past decade. Louisville, for example, saw precipitous drops in moving violations, misdemeanor citations, and misdemeanor arrests from 2009-2016 (Schaefer et al., 2018). New York City experienced substantial decreases in enforcement after 2011, declining from 1,007,924 enforcement actions in 2003 to 758,613 enforcement actions in 2014 (Chauhan et al., 2015). This reduction was driven primarily by decreases in reported stops and secondarily by declines in arrests for summonses. In California, there is some indication that these declines are part of a longer trend with felony and misdemeanor arrests in this state dropping almost 60% between 1989 and 2016 (Lofstrom et al., 2018).

Third, declines in enforcement of low-level offenses have been greater among Blacks as compared to Whites, leading to a narrowing of the race gap, but Blacks continue to have the

---

[1] A number of these studies have been funded by the Arnold Foundation and the Research Network on Misdemeanor Justice.

highest enforcement rates overall. In Louisville, for example, while enforcement rates for Blacks

are significantly higher than for Whites from 2009-2016, the disparity in enforcement has

decreased, albeit modestly, over time (Schaefer et al., 2018). Likewise, the misdemeanor arrest

rate fell for Blacks and increased for Whites in Seattle from 2008-2016, but Blacks continue to

experience higher levels of overall enforcement (Helfgott et al., 2018).

2.2 Geographic Variability in Enforcement Trends

In addition to exhibiting substantial variation across cities and police agencies, there is

research to suggest that enforcement trends vary across urban neighborhoods. Although,

minority communities have typically been subject to higher levels of enforcement (Fagan and

Davies, 2000, Fagan, Geller, & West, 2010; Piquero, 2008), some have speculated that post-

Ferguson, police have retreated from engaging with the community, particularly the Black

community, due to increased scrutiny and criticism (e.g., Mac Donald, 2016).[2] In addition,

citizen demands for police services vary by place, and thus trends likely will be dependent on

changes in the extent to which citizens call the police as well as the amount of crime that occurs.

There is emerging research on variability across places in enforcement trends in low-level

offenses. Several studies focused on differences in enforcement between police agencies. For

example, Lum and Vocak (2018) used misdemeanor arrest data from the Uniform Crime Reports

for 105 of the largest police agencies in the United States to identify trajectories in arrests from

1990 to 2013. They categorized agencies into four groups based on their trends, and three of the

four groups exhibited decreases in enforcement that began after misdemeanor arrests peaked in

2007, and the remaining group exhibited little change over time. Importantly, trajectory group

membership could not be explained by the socioeconomic characteristics of cities or trends in

---

[2] The Chief of the St. Louis Metropolitan Police Department coined the phenomenon of de-policing coupled with rising rates of violence the "Ferguson effect".

crime. A study by Shjarback and colleagues (2017) examined changes in the number of vehicle

stops made by police agencies in Missouri, with the explicit goal of looking at de-policing in the

wake of Ferguson. Consistent with a Ferguson Effect, they found that stops declined post-2015,

and these declines were more pronounced for agencies that policed cities with a higher

percentage of Black residents. Finally, in a study of over 50 large U.S. cities, Rosenfeld and

Wallman (2019) found that arrests for violent, property, drug, and public order offenses began to

fall several years before the Ferguson incident and the related public controversy over the use of

excessive force by the police. They found no evidence that the drop in arrests was associated

with an increase in homicide.

Researchers also have conducted descriptive analyses to assess if trends in the

enforcement of low level offenses differ across smaller levels of geography within the same city.

A report by the Misdemeanor Justice Project found that, in New York, there is significant

variation across police precincts in misdemeanor arrest trends (Chauhaun et al., 2014). For

example, of the five precincts with the highest number of misdemeanor arrests, three experienced

significant declines in misdemeanor enforcement from 1993 to 2013, one remained relatively

stable, and in the final, enforcement declined and then increased. Findings in Seattle also show

that the rate and percentage of misdemeanor arrests vary by precinct and micro-community (i.e.,

small geographic areas within neighborhoods), but have generally declined over time (Helfgott et

al., 2018). Neither of these reports, however, explores whether community characteristics can

account for these differences in enforcement.

3. CURRENT STUDY

This research describes trends in enforcement actions in the City of St. Louis from 2007

through 2017. Five types of enforcement actions are examined: felony, misdemeanor, and

municipal arrests; arrests for bench warrants; and criminal summonses-in-lieu of arrest. Overall

and race-specific trends are presented, followed by an examination of variability in enforcement

actions across census block groups.

St. Louis provides an important context for this research as it is a rustbelt city in the

Midwest located near the epicenter of recent protests targeted at changing the nature of policing.

The City of St. Louis is part of the largest metropolitan area in the state of Missouri and has a

residential population of 308,626 (U.S. Census, 2018). A quarter (25%) of the population lived

below the poverty level in 2017 (versus 15% for the state of Missouri), and the city had an

unemployment rate of 9% (U.S. Census, 2017). St. Louis is racially diverse, with Blacks making

up 50% of the population and Whites 44%. Similar to many U.S. cities, dimensions of race and

economic inequality are intertwined with spatial segregation, and the north side of the city tends

to have the greatest concentration of Black residents and the highest rates of poverty.

4. METHODS

4.1 Data and Measures

Data for this research were obtained from several sources. Information on enforcement

actions was provided by St. Louis Metropolitan Police Department (SLMPD) for the years 2007

to 2017. For each enforcement action, SLMPD provided the address at which it occurred and the

race of the individual involved. Race-specific population estimates for the city were generated

using data from the 2000 and 2010 United States Census, and linear interpolation was used to

calculate population counts for non-decennial census years based on data obtained from the

American Community Survey.

Four measures capture custodial arrests, which are arrests in which the police take an

individual into custody for formal processing. Custodial arrests are broken into types based on

the nature of the most serious charge: felony (most serious), misdemeanor, municipal, and bench

warrant (least serious). Individuals arrested for felonies and misdemeanors are charged with

violating state law, while municipal arrests are triggered by violations of city ordinances.[3] Bench

warrant arrests include people who are arrested solely on the basis of bench warrants issued by

the City of St. Louis Municipal Court. Arrests for fugitive warrants (i.e., warrants that have been

issued by municipalities outside the City of St. Louis) are excluded from these counts.

We also include a measure that captures the number of criminal summons that were

issued during this time period. Criminal summonses are encounters in which a citizen was

mandated to appear in court rather than taken into custody by the police. This measure excludes

citations issued for traffic violations.

In order to assess differences across communities in changes in enforcement, we use

census block groups to approximate neighborhoods. To create neighborhood-level measures of

enforcement, we first computed the number of enforcement actions in each block group by year

at the beginning and end of the study period. Rather than use single years of data, we use three-

year average counts to smooth out an unusually high or low number of enforcement actions in a

single year. Therefore, we are interested in the degree to which enforcement activity changed

from 2007-2009 to 2015-2017. As shorthand, we refer to the earliest period as 2007 and the later

period as 2017.[4] Table 1 provides descriptive statistics for the 358 block groups included in the

analysis. [5]

---

[3] Some offenses can be charged as either a municipal or misdemeanor violation. For example, different laws govern
possession of marijuana at the state and local level. An individual caught in possession of marijuana could be
charged with violating either state law or city ordinances.
[4] A number of arrests are recorded as occurring at police headquarters, district headquarters, and the city jail. These
arrests were excluded when computing block group counts of enforcement activity because they do not capture
arrests made in the community.
[5] There are 360 block groups in St. Louis, but one was excluded because it includes only a large urban park and a
second was omitted because regression diagnostics indicated it was having an undue influence on the results
(Cook's $D > 1$).

Information on the socio-demographic characteristics of these geographies was obtained

from the American Community Survey 5-year estimates for 2009.[6] Measures derived from these

data capture several aspects of community life that are likely to shape resident demand for police

services and enforcement activity. Economic disadvantage is a three-item factor score that

incorporates data on the mean household income in the block group, the percent of persons living

below the poverty line, and the percent of the population that is unemployed. Percentage of

residents who are Black measures the racial makeup of the block group. In addition, we include

the percent of residents who are 15 – 19 years old because this is a crime-prone age group. We

also include the percent of families with children. Areas with more residents may have more

arrests, so we control for the number of people living in the block group. Finally, to capture

neighborhood stability and home ownership we include the percent of households who were in

the same house as five years ago and the percent of owner occupied houses in the block group.

The downtown area is home to a number of venues that draw people into the city for

events such as baseball and hockey games, rallies, and conventions. There may be added

pressure on the police to address quality of life issues in this area and to maintain a strong

presence in order to promote a sense of security. Therefore, we include a dichotomous variable

scored 1 if the block group is located in the downtown area and 0 otherwise.

Research suggests that changes in enforcement can be driven by fluctuations in resident

demand for police services (Rosenfeld et al., 2007), so we account for changes in the number of

police calls for service that originate in a block group. This measure was created by aggregating

calls for service data from the SLMPD computer-assisted dispatch (CAD) system to the block

---

[6] We are interested in describing how enforcement varied across neighborhoods with different characteristics and not whether changes in community characteristics have a causal effect on changes in enforcement, so we use census data from one point in time.

group by year. We use three-year average counts to minimize the impact of annual fluctuations in

calls for service. For each block group, we computed the mean number of calls for service from

2007 through 2009 and from 2015 through 2017, and then computed the change in calls for

service between these two periods.

4.2 Analytic Plan

We begin by presenting rates of enforcement activity per 100,000 St. Louis residents age

17 and older separately by type of action.[7] Next, race-specific trends are displayed to assess

whether changes in arrests and summonses differed between Blacks and Whites. [8] These rates are

population specific; for example, enforcement rates for Blacks in 2017 are based on the number

of Blacks 17 years of age and older living in the City of St. Louis in 2017.[9]

Next, we describe differences across communities in changes in enforcement activity. To

provide a description of the geographical distribution of change, maps are presented that depict

the magnitude of change in each type of enforcement from 2007 to 2017. Next, we regressed

changes in enforcement activity from 2007 to 2017 on measures of community characteristics in

2007 to understand the factors that are associated with changes in these outcomes. Finally, a

measure of changes in calls for service between 2007 and 2017 is introduced to determine if any

observed relationships between community characteristics and changes in enforcement are

---

[7] Only people 17 years of age and older are included in this population count because 17 is the age of criminal
responsibility in Missouri.

[8] The percent of residents who are not White or Black or who are multi-racial is very small in St. Louis, and only 4%
of the population is Latino (U.S. Census, 2018). Therefore, we focus on the differences in enforcement trends for
Blacks and Whites.

[9] Using Census data to calculate rates of enforcement activity has limitations. First, rates are based only on the
number of people residing in the city and do not take into account non-residents who commute into the city or travel
through the area. Second, the U.S. Census systematically undercounts certain demographic groups, including Blacks
(Terry, Schwede, King, Martinez, & Childs, 2017). Finally, individuals may have multiple enforcement interactions
in a given year, which could result in an overestimation of the enforcement rate. Despite these limitations, rates
provide valuable information on enforcement activity over time, account for population changes and allow for
comparisons across demographic subgroups.

accounted for by changing demand for police services. Because block groups are more similar to

the communities surrounding them than more distal areas, we include spatially lagged error

terms. We also include spatial lags of changes in calls for service. Demand for police services in

nearby areas has the potential to either spillover into neighboring communities or direct police

attention away from nearby areas as law enforcement officers are forced to concentrate limited

resources and manpower in areas with more crime and disorder.

5. RESULTS

5.1 Trends in Enforcement for the City of St. Louis, 2007 - 2017

Figure 1 depicts changes in the enforcement rate by type of enforcement action for the

City of St. Louis. Across types of custodial arrests, the pattern is one of decline. Arrests for both

municipal violations and misdemeanors decreased at a relatively steady rate from 2007 to 2017.

Municipal arrests declined from 2,000 per 100,000 residents in 2007 to 955 per 100,000 in 2017.

This represents a 52.3% decrease. The decline for misdemeanor arrests was even greater,

dropping from 2,515 per 100,000 to 824 per 100,000, which is a reduction of 67.2%.

Bench warrant arrests exhibited steeper declines and followed a different temporal trend.

In 2007, the arrest rate for bench warrants was at its maximum for the study period at 4,503 per

100,000 persons. After 2007, with the exception of a lower peak in 2010, the rate declined

gradually until 2013, when the rate dropped more sharply, reaching a low of 1,170 arrests per

100,000 in 2017. Notably, bench warrant arrests were the most common type of enforcement

activity for much of the study period; however, between 2007 and 2017, they declined by almost

three-quarters (74.0%), and ended the study period at rates comparable to those observed for

misdemeanors and municipal violations.

<p align="center">**Figure 1 about here**</p>

Although felony arrests decreased from 2007 to 2017, the direction of the trend varied

over time. For example, the felony arrest rate was 3,720 per 100,000 in 2007, declined to 3,195

in 2009, and then reached a peak for the study period in 2011 of 3,932 per 100,000. Felony

arrests generally declined from 2011 through 2014, but then increased in 2015, after which they

remained relatively steady, ending the study period at 2,914 per 100,000. At 21.7%, the extent of

the decline was more modest relative to less serious arrests.

The criminal summons rate began and ended the study period at similar levels, but this

obscures the fact that for much of the study period, the rate at which summons were issued was

increasing. In 2007, there were 2,015 summonses issued per 100,000 persons. The following

year, the summons rate declined to its minimum for the study period, bottoming out at 1,792 per

100,000. After 2008, the summons rate increased gradually until it reached a peak of 2,372 per

100,000 in 2016. The following year, it once again declined ending the study period just below

the level at which it started – 1,999 summonses per 100,000.

5.2 Trends in Enforcement for the City of St. Louis by Race, 2007 – 2017

5.2.1 Enforcement trends for Blacks

Figure 2 displays Black enforcement rates by type of action. All five enforcement actions

decreased for Blacks over the study period. The rate of custodial arrests for municipal violations

started the study period at a high of 3,032 arrests per 100,000, and then trended downward. By

2017, the municipal arrest rate for Blacks reached a low of 1,258 per 100,000, a 58.5% decline

from 2007. Misdemeanor arrests for Blacks followed a similar trend. During the study period,

the misdemeanor arrest rate dropped by 72.9% from a high of 4,359 in 2007 to a low of 1,183

per 100,000 in 2017.

Figure 2 about here

In 2007, the bench warrant arrest rate for Blacks was at its peak of 8,328 per 100,000, after which it declined gradually until 2013. Post-2013, the rate at which Blacks were arrested solely on the basis of a bench warrant dropped steeply, reaching a low of 1,767 per 100,000 in 2017. The bench warrant arrest rate for blacks declined 78.8% during the study period.

The felony arrest rate for Blacks was 6,691 in 2007, after which it dropped until 2009. From 2009 to 2011, the felony arrest rate for blacks increased from 5,746 per 100,000 to 6,782, before declining slowly and ending at 4,423 per 100,000, the low for the study period. The decrease in the felony arrest rate for Blacks from 2007 to 2017 was 33.8%.

The rate at which summonses were issued to Blacks declined by 12.2% from 3,062 in 2007 to 2,689 in 2017; however, for much of this period the summons rate for this group was increasing. The overall decline occurred after 2015, when the Black summons rate dropped from its peak of 3,652 per 100,000.

5.2.2 Enforcement trends for Whites

Enforcement rates for custodial arrests and summonses for Whites are presented in Figure 3. Enforcement rates for Whites are substantially lower than those observed for Blacks. Therefore, to more clearly display changes across time in enforcement actions against Whites, the vertical axis ranges from 0 to 2,000 instead of 0 to 9,000 as in Figure 2. In contrast to the trends observed for Blacks, felony arrests of Whites increased 20.3% from 1,290 per 100,000 in 2007 to 1,552 in 2017. The summons rate for Whites also ended at a higher level than it began, increasing 22.8% from a rate of 1,159 in 2007 to 1,423 per 100,000 in 2017.

Figure 3 about here

Declines were observed for White municipal and misdemeanor arrests and bench warrants. Municipal arrest rates declined for this group from a high of 1,235 in 2007 per 100,000

to end the study period at 723 per 100,000, a 41.5% reduction. Misdemeanor arrest rates declined

50.3%, dropping from 1,030 per 100,000 in 2007 to 512 per 100,000 in 2017; however, the

reductions were concentrated in two time periods (2007 – 2008 and 2012 to 2014), with most of

the study period exhibiting little year-to-year change. Finally, White bench warrant arrests

gradually declined 53.4%, from a peak of 1,355 per 100,000 in 2007 to a low of 631 in 2017.

Overall, rates of most types of enforcement activity fell from 2007 to 2017; however, the

extent of the declines differed for Blacks and Whites. Moreover, Whites experienced increases

in felony arrests and criminal summonses, while all types of enforcement actions declined for

Blacks.

5.3 Differences among Communities in Changes in Enforcement

Figure 4 presents changes in enforcement actions from 2007 to 2017 by block group.

Approximately 90% of neighborhoods had reductions in municipal and misdemeanor arrests.

Declines were greatest in neighborhoods in North St. Louis, which tend to be predominantly

Black and have higher rates of poverty. Areas in which these types of actions increased tended to

be located in south city. Reductions in bench warrant arrests were even more universal, with

95% of block groups having fewer arrests of this type in 2017 versus 2007. The map for felony

arrests, however, differs. Two thirds of block groups had drops in the number of felony arrests,

and reductions were more evenly dispersed across the city, but with some concentration in the

northern part of the city. Declines in summonses were also more limited, occurring in only about

60% of neighborhoods, and similar patterns emerged in the north and south sections of the city.

Figure 4 about here

The regression results in Table 2 describe how enforcement trends vary across

neighborhoods and whether these differences are explained by fluctuations in demand for police

services. For each type of enforcement action, the first model includes sociodemographic

characteristics and spatially lagged errors, and the second model adds changes in calls to the

police and the spatial lag of this variable. [10]

Table 2 about here

Findings in Model 1 and Model 2 of Table 2 indicate that economically disadvantaged

neighborhoods have greater reductions in municipal arrests, net of calls for service. To illustrate

the nature of this relationship, Figure 5 depicts the predicted change in municipal arrests for

communities with varying levels of disadvantage. When all other variables are set at their mean,

it is expected that in areas with low levels of economic disadvantage (- 1 SD), there will be

approximately four fewer municipal arrests in 2017 than in 2007. In areas characterized by high

levels of disadvantage (+ 1 SD), the predicted reduction in municipal arrests (eight), is almost

double. As expected, change in citizen calls to the police has a positive association with changes

in municipal arrests indicating that variations in municipal arrests track fluctuations in citizen

demand. The spatial lag, however, has a negative relationship. This finding is consistent with the

idea that increases in demand for police services in nearby areas may divert police attention

away from the enforcement of minor offenses in a community.

Figure 5 about here

Similar to municipal violations, reductions in misdemeanor arrests are observed in more

economically disadvantaged neighborhoods (see Table 2, Models 3 and 4). And again, changes

in misdemeanor arrests are positively associated with variation in calls for service, but negatively

correlated with the spatial lag of this variable. There is also a significant reduction in

misdemeanor arrests in communities with higher percentages of Black residents, which is not

---

[10] Model 1 does not include a spatially lagged error term because, based on Moran's I, there is no spatial
dependence.

observed for municipal arrests, and this finding holds when calls for service and its spatial lag

are included in the model. To depict the nature of these relationships, Figure 6 displays predicted

changes in misdemeanor arrests at varying levels of economic disadvantage and percentage

Black. At low levels of disadvantage (-1 SD), misdemeanor arrests declined by 4.5 from 2007 to

2017, while there were 7.7 fewer arrests in neighborhoods with high levels of disadvantage (+ 1

SD) (Panel A). Over the study period, misdemeanor arrests fell by almost four in neighborhoods

in which 10% of the population is Black. This reduction was more than twice as great in areas

with a 90% Black population (Panel B).

Figure 6 about here

Turning to felony arrests, when calls for service are omitted, percent black is negatively

related to changes in felony arrests (Model 5), and declines are more modest in the downtown

area. Once changes in demand are taken into account (Model 6), percentage black is rendered

statistically non-significant, while the negative association between disadvantage and arrests

becomes stronger and significant. The effect of downtown location is relatively unchanged. As

with less serious types of enforcement, trends in felony arrests are coupled with calls for service;

however, felony arrests differ in that citizen demand for police services in nearby areas are

unrelated to changes in this type of enforcement action.[11]

Results for bench warrant arrests, which are located in columns 7 and 8 in Table 2, mimic

those for misdemeanors. Reductions in this type of enforcement are more modest in areas

characterized by higher levels of economic disadvantage and a greater percentage of Black

residents, and the results hold when controlling for calls for service. Declines in bench warrant

---

[11] Significant relationships are not graphically depicted for felonies and bench warrants because they are
substantively similar to those observed for misdemeanor and municipal violations.

arrests are partly attributable to reductions in citizen demands for police services; however, they

are not influenced by calls for service in neighboring areas.

The correlates of criminal summonses differ from those of other types of enforcement

activity (see Models 9 and 10). Neighborhoods located in the downtown area experienced

increases in the number of criminal summonses that were issued, and this is true regardless of

whether calls for service is included in the model. When demand is taken into account, race has a

positive relationship with changes in the issuance of summons, such that there is an increasing

number of summonses issued in neighborhoods with a higher percentage of Black residents. This

relationship is depicted in Figure 7, which shows the expected change in the number of

summonses that were issued in neighborhoods that vary in racial composition, setting all other

variables at their means. In neighborhoods in which 10% of the population is Black, the number

of summonses remained virtually unchanged. In comparison, summonses are expected to

increase by 7 from 2007 to 2017 in neighborhoods that are 90% Black. Calls for service are

related to changes in summonses in the expected positive direction and the spatial lag of this

variable is also positive and significant.

Figure 7 about here

5.4 Results Summary

Citywide, arrests for all types of offenses generally declined from 2007 to 2017, while

summonses remained unchanged. Enforcement rates for Blacks decreased at a greater rate than

those of Whites, and Whites, but not Blacks, experienced increases in summonses and felonies.

City-wide trends obscure some variability across neighborhoods in changes in enforcement. All

types of custodial arrests generally declined at a greater rate in neighborhoods characterized by

higher levels of economic disadvantage, and reductions in misdemeanor and bench warrant

arrests were greater in communities with a greater concentration of Black residents. In contrast, neighborhoods with a higher percentage of Black residents exhibited greater increases in the number of summonses issued.

6. DISCUSSION

The goal of this research is to describe changes in enforcement activity in the City of St. Louis from 2007 through 2017 and to better understand neighborhood variation in these trends. A central finding from this research is that arrests for municipal and misdemeanor crime declined substantially in St. Louis during the study period. The greatest one-year drop in custodial arrests occurred between 2013 and 2014, the year in which Michael Brown was killed. It is important to note, however, that declining trends in arrests began before the events in Ferguson.

Unlike arrests for other types of less serious offenses, bench warrants declined at a relatively slow rate until 2013, after which they dropped precipitously. The dramatic decrease could be attributed to post-Ferguson legislation that limited the use of bench warrants. Specifically, Missouri Senate Bill 5 (SB5), passed in 2015, prohibited the issuance of failure to appear charges for missing court dates. These legislative changes and changes in courtroom actor behavior, not changes in police behavior, could be responsible for the steep and sustained drop that is observed for bench warrants after 2013, but not other types of enforcement.

Felony arrests fluctuated over the study period, but generally declined, albeit to a lesser extent than arrests for less serious offenses. There is some indication that reductions in felony arrests may be due to falling crime rates. Supplemental analyses (not presented here) indicate that the ratio of violent felony arrests to reported violent felony crimes remained relatively steady over the study period. More work is needed to ascertain whether changes in the enforcement of minor offenses also resulted from declines in law violating behavior, but these results suggest

that while police may have shifted focus from away from minor crimes, they continued to concentrate efforts on more serious offenses.

Trends for summonses diverged from those of other types of enforcement. The criminal summons rate generally increased until 2015, after which it declined to 2007 levels. The decrease in misdemeanor and municipal arrests accompanied by increases in criminal summonses could indicate a shift in police policy to issuing summonses in lieu of custodial arrests. This finding is aligned with Natapoff's (2015) contention that the decriminalization of certain offenses, can jettison some punishments while retaining (or expanding) others. The passage of SB5 limited the use of custodial arrests, which may have resulted in increased use of summonses. Overall, the results highlight the need to disaggregate crime trends to better determine if and how changes are driven by court and legislative initiatives, not solely shifts in police behavior.

Mirroring trends in other cities across the country, Blacks continue to have the highest enforcement rates overall, but declines in enforcement are greater among Blacks as compared to Whites, resulting in a narrowing of the race gap. Reductions in race differences in arrests may be part of a long-term trend. LaFree, O'Brien, and Baumer (2006) found that in the United States, the race gap in arrests for violent felonies has been narrowing since the 1960s, and this convergence is greater for offenses in which the police have more discretion versus those that are more directly linked to offending behavior (see also LaFree, 1995).

There were reductions in arrests for low-level offenses in the vast majority of neighborhoods across the city. Only about 10% of neighborhoods experienced increases in misdemeanor or municipal arrests and even fewer had rising numbers of bench warrant arrests. Felony arrests and summonses also declined in the majority of areas in the city, but they increased in a sizeable percentage of neighborhoods (25% and 40%, respectively).

Although most neighborhoods experienced reductions in enforcement, the extent of these declines differed depending on the characteristics of the community. First, for all types of custodial arrests, neighborhood disadvantage has a negative relationship with changes in enforcement, even after controlling for the number of calls made to the police. Greater reductions in the number of misdemeanor and bench warrant arrests also were observed in neighborhoods with a higher percentage of Black residents, but changes in municipal arrests were unrelated to neighborhood racial composition.

A decline in arrests for low-level offenses in neighborhoods in which residents have limited economic resources could be viewed as a welcome respite for people who may not have the means to comply with monetary sanctions (Kohler-Hausmann, 2018; Harris, 2016; Martin et al., 2018). In addition, research has found that police-initiated contact can inhibit people's willingness to report violent victimizations or cooperate with the police, and this effect is stronger for Blacks (e.g., Rengifo et al., 2019; Slocum, 2018). Reductions in discretionary arrests may help to enhance community trust in the police and ultimately provide crime control benefits if citizens are more willing to cooperate with the police. Fewer arrests for minor offenses may also mean that fewer people enter the criminal justice system, easing many of the collateral burdens that formal criminal conviction imposes. At the same time, police can serve as an important deterrent to crime (Durlauf & Nagin, 2011), and residents often report that increasing police presence in a neighborhood would make them feel more safe (Carr, Napolitano, & Keating, 2007). Future research should attempt to understand how to balance the potential deterrent effects of arrests with the potential harms—to individuals, their families, and the community, as well as the community-police relations—that can result from the over-enforcement of minor offenses.

Felony arrests also declined at a greater rate in Black communities, but this relationship was accounted for by a reduction in calls for service, suggesting that the decline is due to reduced citizen demand for police services in these neighborhoods. What is not clear is whether residents of predominantly Black neighborhoods were calling the police less because there was real reduction in crime and disorder or if they have become increasingly reluctant to call the police for assistance. Work by Desmond, Pappachristos and Kirk (2016) found that 911 calls decline after high profile cases of police misconduct and this reduction is particularly pronounced in areas with a greater percentage of Black residents. The police shooting of Michael Brown occurred during the study period, and therefore future research should attempt to disentangle if high-profile cases of police violence suppress citizen crime reporting for matters of personal and public safety.

Results for criminal summonses were substantively different from those of custodial arrests. In areas with a higher percentage of Blacks, summonses increased or declined at lower rates. Like the city-wide trends, this finding could indicate that police may have changed how they handle some types of minor offenses, issuing criminal summonses instead of making arrests. There is some additional empirical support for this idea. There is a negative correlation between changes in misdemeanor arrests in a community and changes in the number of summonses issued indicating that in places where misdemeanor arrests declined, the number of summonses issued increased ($r = -.188$, $p < .001$).

While the factors driving this shift are unknown, it could be that officers are choosing to handle minor offenses differently, or it could be the result of changes in command-level decision-making. Legislative changes could also play a role. For example, during the study period, marijuana possession was reduced from a misdemeanor to a municipal violation,

increasing the likelihood that police handle this offense with a summons as opposed to an arrest. The decline in bench warrants also means that officers are coming across fewer people with outstanding warrants while responding to minor offenses, which would give them discretion to issue a summons rather than take someone into custody.

Second, there are some differences in enforcement trends between the downtown and other areas. Specifically, felony arrests and summonses exhibited greater increases in downtown versus other areas. The increase for summonses was particularly large. Downtown St. Louis is home to a number of tourist attractions and is the economic hub of the city. An increase in summonses, therefore, could be the result of initiatives targeted at reducing quality of life offenses in the downtown area (e.g., drinking in public, pan handling, cruising) as a way to make visitors and businesses feel safer. Given their seriousness and the sometimes high profile nature of felonies downtown, police also may be under pressure to make more arrests in this area.

Finally, we found evidence that enforcement trends in a given community are responsive not only to fluctuations in citizen demand in the neighborhood, but also changing demand in neighboring areas. Declines in municipal and misdemeanor arrests were greater in neighborhoods that are surrounded by areas with increasing levels of calls for service. The same relationship is not observed for felonies. These findings may reflect limited police resources. When requests for police services increases in one area, officers may have less time to devote to the enforcement of minor offenses in neighboring areas; however, attention to more serious types of offenses is not diverted.

6.1 Strengths and limitations

It is important to note the limitations inherent in enforcement data. First, the trends only reflect law enforcement actions of the SLMPD. The data are not reflective of the St. Louis region

and are not necessarily generalizable to other communities. Moreover, traffic offenses—the most common type of enforcement action in the City of St. Louis (Slocum et al., 2018)—are not included in the study, which means the true extent to which people come into contact with the police is underestimated.

Second, the city-wide and race specific trends are presented as rates, which have some limitations. For example, because the trends are based on the number of enforcement actions, not the number of different people who were subject to these actions, it is possible that a small number of people account for a substantial proportion of the contacts with law enforcement. Similarly, a sizable proportion of arrests made by SLMPD are of persons who reside outside of the city, but rates are based on the residential population (Slocum et al., 2018).

Third, in the community-level analyses, we examine how enforcement has changed between two time points. This masks potentially meaningful community differences in enforcement trends for the interim. Future research should employ methods, such as group-based trajectory modeling (Nagin & Land, 1993), that facilitate the identification of community differences in enforcement trends for the full study period.

6.2 Conclusion

The current study explored trends in law enforcement activity in St. Louis City. This work adds to the community literature in several ways. In particular, this paper addresses current debates around if and to what extent changes in low-level enforcement practices differ by neighborhood. Such an analysis is critical because the enforcement of minor crimes has the potential to exacerbate neighborhood-level disparities in arrest, conviction, and non-custodial punishments. Moreover, minor police contacts also can have serious and long-term impacts on

neighborhood viability by damaging citizens' perceptions of police legitimacy, which can, in turn, reduce their willingness to call upon and cooperate with law enforcement.

Finally, this line of research contributes to conversations on de-policing and whether enforcement actions have declined more steeply in minority communities. A key outstanding issue is whether, on balance, minority communities benefit from the decline in enforcement of less serious offenses. While a clear benefit is a reduction in minority contacts with the criminal justice system, a potential harm is more crime resulting from less law enforcement.

The police are consistently challenged in balancing the legal requirements of the job and the discretion to sanction a wide variety of behaviors. Arrests for minor charges can have significant negative consequences for those involved, including court fines and fees, loss of employment, and a criminal record. While low-level enforcement is in some ways less punitive, in other ways it is simultaneously preserving, or even widening, how the criminal justice system punishes citizens. On the other hand, some communities may feel they are being underserved by the police. If quality of life offenses go unenforced, people may feel less safe. An understanding of how people's encounters with the police have changed over time provides much needed context for discussions about how to minimize the collateral consequences of criminal justice contact while keeping communities safe and secure.

REFERENCES

Carr, P. J., Napolitano, L., & Keating, J. (2007). We never call the cops and here is why: A

qualitative examination of legal cynicism in three Philadelphia neighborhoods.

Criminology, 45(2), 445-480.

Chauhan, P., Warner, T.C., Fera, A.G., Balazon, E., Lu, O., & Welsh, M. with an Introduction by

Jeremy Travis. (2015). *Tracking enforcement rates in New York City, 2003-2014*. Report

Presented to the Citizens Crime Commission. New York: New York.

Clampet-Lundquist, S., Carr, P. J., & Kefalas, M. J. (2015). The sliding scale of snitching: A

qualitative examination of snitching in three Philadelphia communities. *Sociological

Forum*, *30*, 265-285.

Durlauf, S. N., & Nagin, D. S. (2011). Imprisonment and crime: Can both be

reduced?. *Criminology & Public Policy*, 10(1), 13-54.

Desmond, M., Papachristos, A. V., & Kirk, D. S. (2016). Police violence and citizen crime

reporting in the black community. *American Sociological Review*, 81(5), 857-87.

Epp, C. R., Maynard-Moody, S., & Haider-Markel, D. (2014). *Pulled over: How police stops

define race and citizenship*. Chicago, IL: University of Chicago Press.

Fagan, J, Geller, A., Davies, G. & West, V. (2010). Street stops and broken windows revisited:

The demography and logic of proactive policing in a safe and changing city. In S. K.

Rice & M. D. White (Eds.), *Race, ethnicity, and policing* (pp. 309-348). New York: New

York University Press.

Fagan, J., Tyler, T.R., & Meares, T.L. (2016). Street stops and police legitimacy in New York. In

J. E. Ross & T. Delpeuch (Eds.), *Comparing the democratic governance of police*

intelligence: New models of participation and expertise in the United States and Europe

(pp. 203-31). Glos, England: Edward Elgar.

Fagan, J. and Davies, G. (2000). Street Stops and Broken Windows: Terry, Race and Disorder in

New York City. *Fordham Urban Law Journal*, 28, 457 – 504.

Ferguson Commission. (2015). *Forward through Ferguson: A path toward racial equity*.

STLPositivechange.org.

Gau J.M., & Brunson, R.K. (2010). Procedural justice and order maintenance policing: A study

of inner-city young men's perceptions of police legitimacy. *Justice Quarterly, 27*, 255–

279.

Harris, A., Evans, H., & Beckett, K. (2010). Drawing blood from stones: Legal debt and social

inequality in the contemporary United States. *American Journal of Sociology, 115*, 1753-

1799.

Harris, A.. (2016). *A pound of flesh: Monetary sanctions as a punishment for the poor*. New

York: Russell Sage.

Helfgott, J.B., Parkin, W.S., Fisher, C., Morgan, L., & Kaur, S. (2018). *Trends in misdemeanor*

arrest rates in Seattle - final report. Seattle, WA.

Jackson, J., & Gau, J. M. (2016). Carving up concepts? Differentiating between trust and

legitimacy in public attitudes towards legal authority. In Shockley, E., Neal, T. M. S.,

PytlikZillig, L. and Bornstein, B. (eds.) *Interdisciplinary Perspectives on Trust: Towards*

Theoretical and Methodological Integration. New York: Springer.

Jacobs, J. B. (2015). *The eternal criminal record*. Cambridge, MA: Harvard University Press.

Jones-Brown, D., Gill, J. J., & Trone, J. J. (2010). *Stop, question, & frisk policing practices in*

New York City: A primer. New York, NY: John Jay College of Criminal Justice.

Kohler-Hausmann, I. (2018). *Misdemeanorland: Criminal courts and social control in an age of broken windows policing*. Princeton, New Jersey: Princeton Press.

LaFree, G. (1995). Race and crime trends in the United States, 1946–1990. In D. Hawkins (Ed.), *Ethnicity, race, and crime: Perspectives across time and place* (pp. 169-193). Albany, New York: State University of New York Press.

LaFree, G., O'Brien, R., & Baumer, E. P. (2006). Is the gap between black and white arrest rates narrowing? National trends for personal contact crimes, 1960 to 2002. In R.D. Peterson, L.J. Krivo, & J. Hagan (Eds.), *The many colors of crime: Inequalities of race, ethnicity, and crime in America* (pp. 179-198). New York: New York University Press.

Leovy, J. (2015). *Ghettoside: A true story of murder in America*. New York: Spiegel & Grau.

Lerman, A. E., & Weaver, V. M. (2014). *Arresting citizenship: The democratic consequences of American crime control*. University of Chicago Press.

Lofstrom, M., Brandon, M., Goss, J., Hayes, J., & Raphael, S. (2018). *New insights into California arrests: Trends, disparities, and county differences*. San Francisco, CA: Public Policy Institute of California.

Lum, C. & Nagin, D., (2017). Reinventing American Policing, *Crime and Justice* 46: 339-393.

Lum, C., & Vovak, H. (2018). Variability in the use of misdemeanor arrests by police agencies from 1990 to 2013: An application of group-based trajectory modeling. *Criminal Justice Policy Review*, 29, 536-560.

Mac Donald, H. (2016). *The war on cops*. New York: Encounter Books.

Martin, K, Sykes, L., Shannon, S., Edwards, F., Harris, A. (2018). Monetary sanctions: Legal financial obligations in US systems of justice. *Annual Review of Criminology, 1*, 471-495

Mulligan, K., Fera, A., Cuevas, C., Grimsley, E., & Chauhan, P., (2018). *The Criminal Justice Reform Act Evaluation: Trends in criminal summonses pre-implementation, 2003-2016.* New York: New York.

Nagin D., & Land, K. (1993). Age, criminal careers, and population heterogeneity: Specification and estimation of a non-parametric, mixed Poisson model. *Criminology,* 31, 327-362.

Natapoff, A. (2015). Misdemeanor decriminalization. *Vanderbilt Law Review,* 68, 1055 - 1116.

Natapoff, A. (2018). *Punishment without crime: How our massive misdemeanor system traps the innocent and makes America more unequal.* New York: Basic Books.

Patten, M., Hood, Q. O., Low-Weiner, C., Lu, O., Bond, E., Hatten, D., & Chauhan, P. (2018). *Trends in misdemeanor arrests in New York, 1980 to 2017*. New York: New York

Piquero, A. R. (2008). Disproportionate Minority Contact. *The Future of Children* 18(2), 59-79.

Rengifo, A. F., Slocum, L. A., & Chillar, V. (2019). From impressions to intentions: Direct and indirect effects of police contact on willingness to report crimes to law enforcement. *Journal of Research in Crime and Delinquency*. https://doi.org/10.1177/0022427818817338

Rosenfeld, R., & Wallman, J. (2019). Did de-policing cause the homicide rise? *Criminology & Public Policy* (in press).

Rosenfeld, R., Fornango, R., & Rengifo, A. F. (2007). The impact of order-maintenance policing on New York City homicide and robbery rates: 1988-2001. *Criminology*, *45*, 355-384.

Schaefer, B.P., Hughes, T.W., & Jude, D. (2018). *Tracking enforcement rates in Louisville, 2009-2016*. Report Presented to the Metro Criminal Justice commission. Louisville, Kentucky.

Schneiderman, E.T. (2013). *A report on arrests arising from the New York City Police Department's stop-and-frisk practices*. New York: Civil Rights Bureau, New York State Office of the Attorney. General.

Shjarback, J. A., Pyrooz, D. C., Wolfe, S. E., & Decker, S. H. (2017). De-policing and crime in the wake of Ferguson: Racialized changes in the quantity and quality of policing among Missouri police departments. *Journal of Criminal Justice*, *50*, 42-52.

 Slocum, L. A. (2018). The effect of prior police contact on victimization reporting: Results from the police–public contact and National Crime Victimization Surveys. *Journal of Quantitative Criminology*, 34, 535-589.

Slocum, L.A., Huebner, B.M., Rosenfeld, R.B., Greene, C. (2018). *Tracking enforcement rates in the City of St. Louis, 2002 – 2017*. Report prepared for the Research Network on Misdemeanor Justice. St. Louis, MO: University of Missouri- St. Louis.

Sullivan, C. M., & O'Keeffe, Z. P. (2017). Evidence that curtailing proactive policing can reduce major crime. *Nature Human Behaviour*, *1*, 730 - 737.

Terry, R. L., Schwede, L., King, R., Martinez, M., & Childs, J. H. (2017). Exploring inconsistent counts of racial/ethnic minorities in a 2010 Census ethnographic evaluation. *Bulletin of Sociological Methodology/Bulletin de Méthodologie Sociologique*, *135*, 32-49.

United States Census Bureau, 2018.

https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml?src=bkmk

United States Department of Justice. (2015). Investigation of the Ferguson Police Department. Washington, DC: United States Department of Justice, Civil Rights Division.

Weisburd, D., & Majmandur, M. (2017). *Proactive Policing: Effects on Crime and Communities*. Washington, DC: The National Academies Press.

White, M. D., & Fradella, H. F. (2016). *Stop and frisk: The use and abuse of a controversial policing tactic.* NewYork: NYU Press.

Wilson, J. Q., & Kelling, G. L. (1982). The police and neighborhood safety: Broken windows. *Atlantic Monthly, 127*(2), 29-38.

Young, K., & Petersilia, J. (2016). Keeping track: Surveillance, control, and the expansion of the carceral state. *Harvard Law Review, 129*, 1318–1360.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
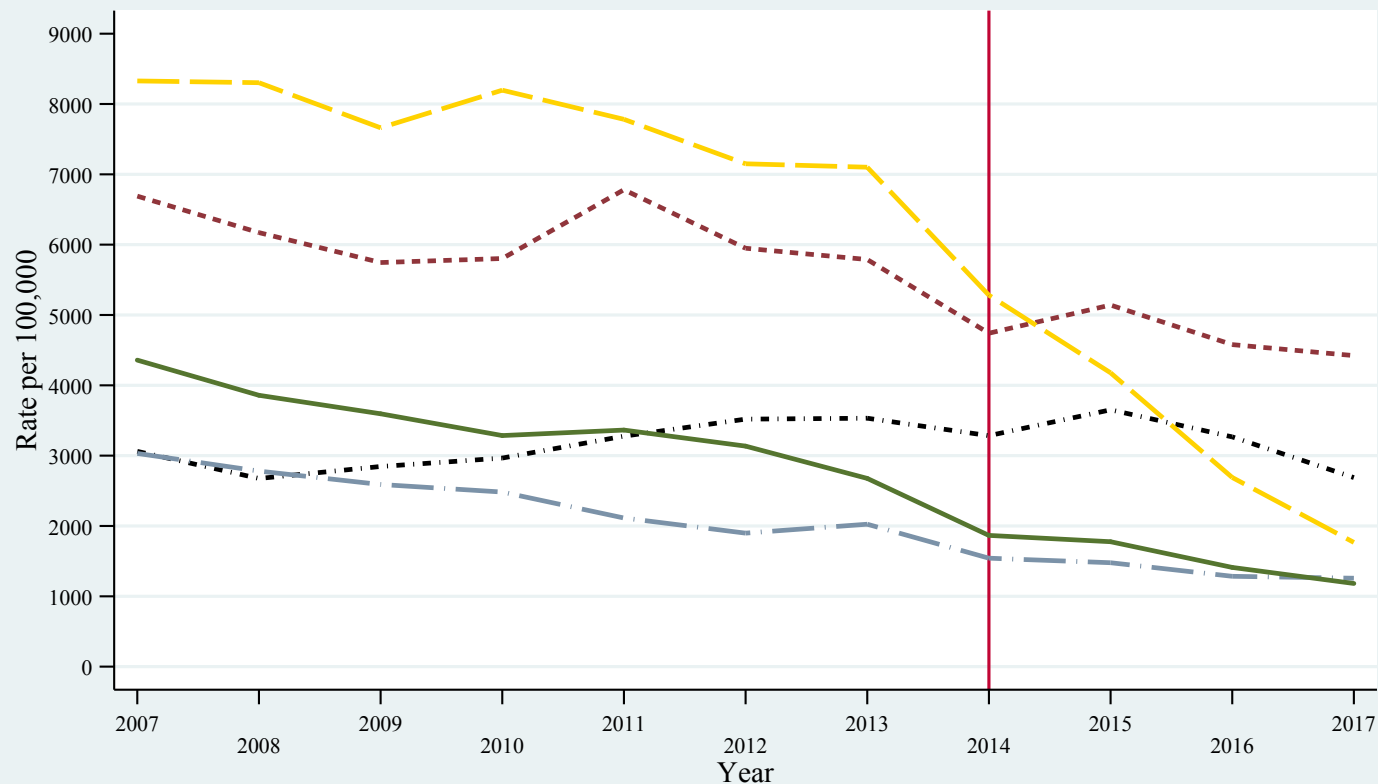
Figure 1. Enforcement Rates per 100,000 Persons in the City of St. Louis from 2007 - 2017
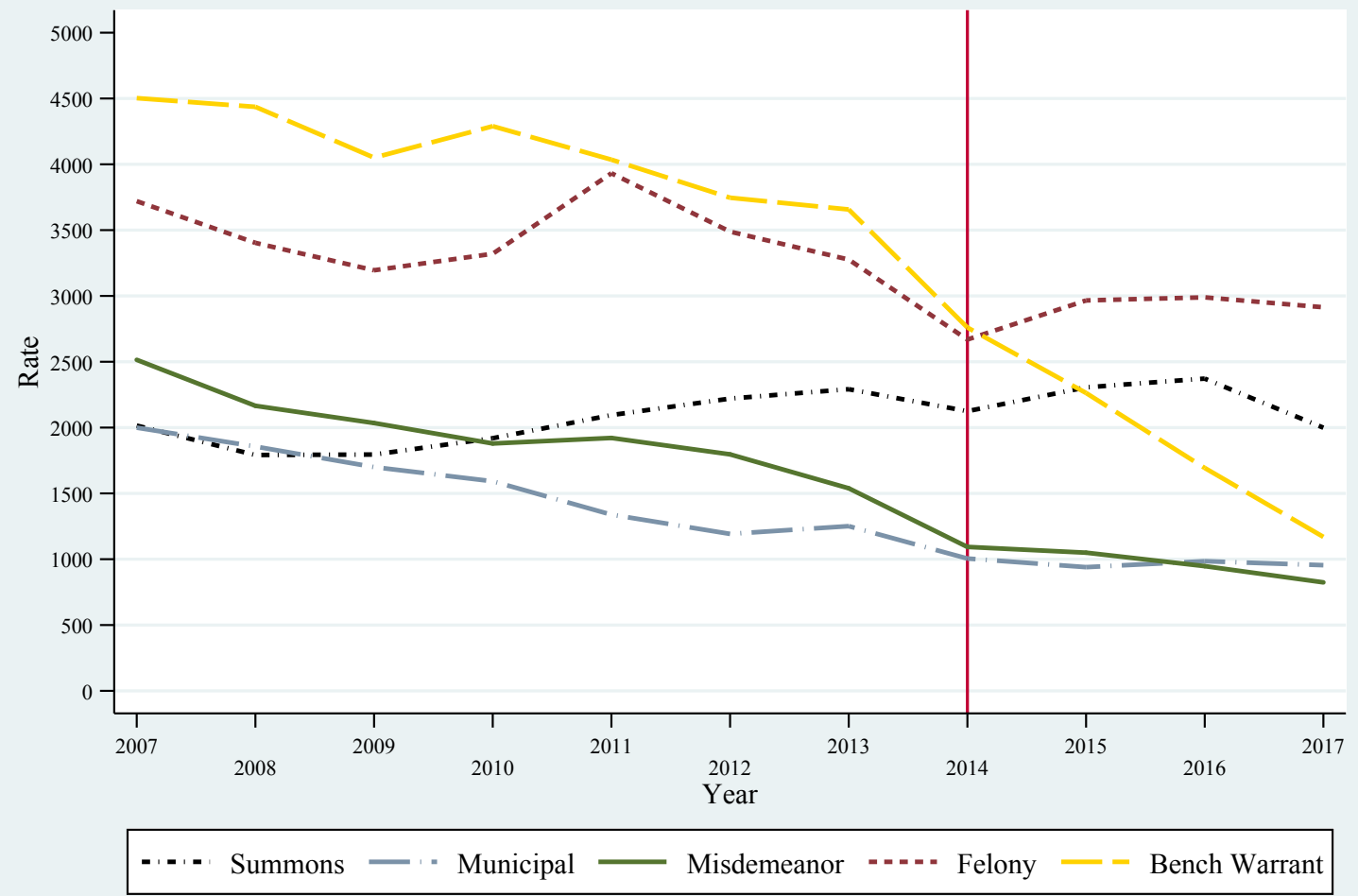
Data Sources: SLMPD for Enforcement Data and Census Bureau for Population Counts.
Vertical line indicates year of Michael Brown shooting and Ferguson protests.

Figure 2. Black Enforcement Rates per 100,000 in the City of St. Louis from 2007 - 2017

Data Sources: SLMPD for Enforcement Data and Census Bureau for Population Counts.
Vertical line indicates year of Michael Brown shooting and Ferguson protests.

Figure 3. White Enforcement Rates per 100,000 in the City of St. Louis from 2007 - 2017
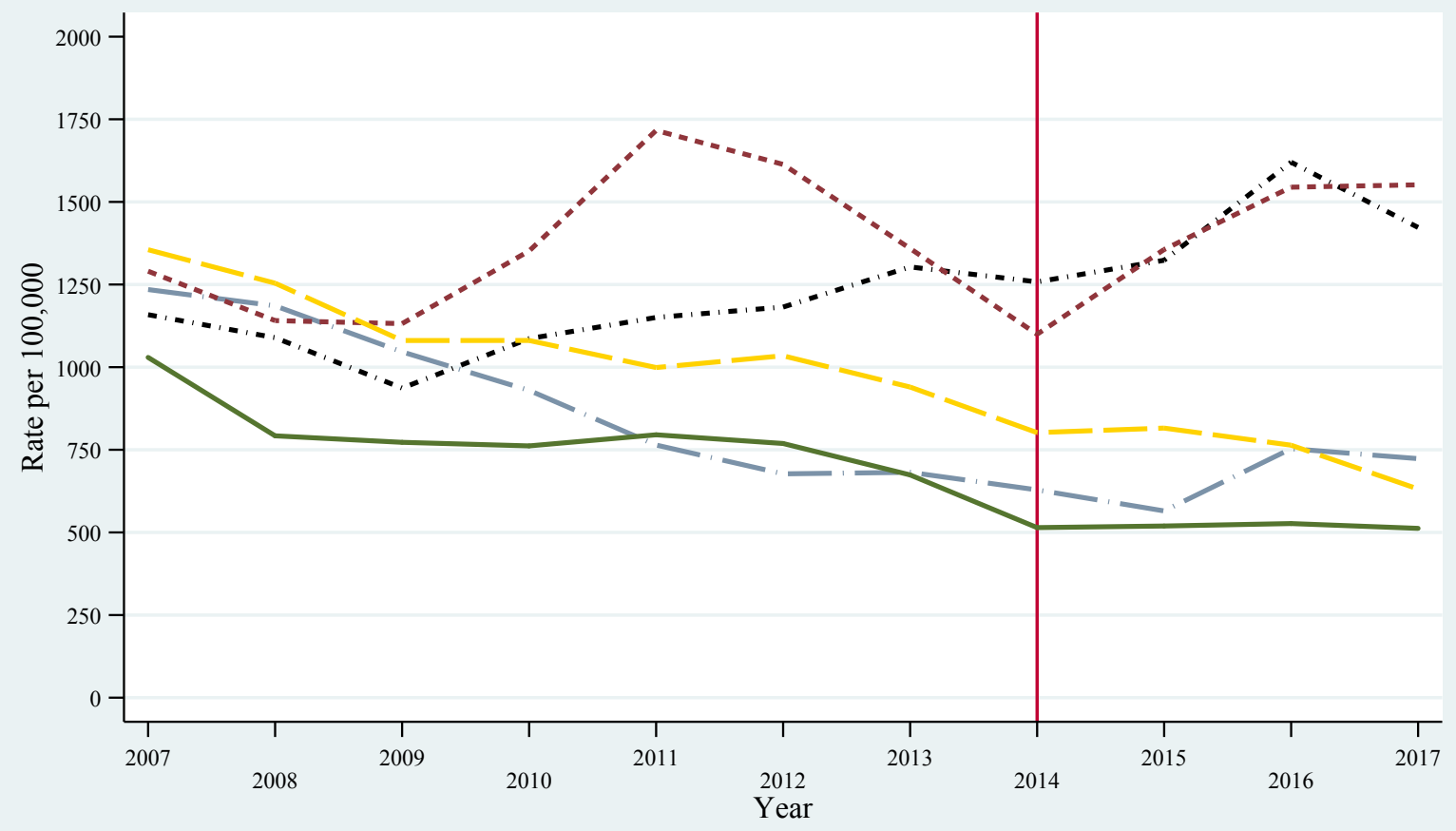

Data Sources: SLMPD for Enforcement Data and Census Bureau for Population Counts.
Vertical line indicates year of Michael Brown shooting and Ferguson protests.

Figure 4. Geographic Variability in Changes in Enforcement in St. Louis, 2007 to 2017 (N=360)

Panel A. Changes in Municipal Arrests

Panel B. Changes in Misdemeanor Arrests

Increase
0 to -2.5
-2.5 to -5
-5 to -10
Declined by more than 10

Increase
0 to -2
-2 to -5
-5 to -10
Declined by more than 10

Panel C. Changes in Bench Warrant Arrests

Panel D. Changes in Felony Arrests

Increase
0 to -4
-4 to -10
-10 to -22
Declined by more than 22

Increase
0 to -1.3
-1.3 to -4
-4 to -10
Declined by more than 10
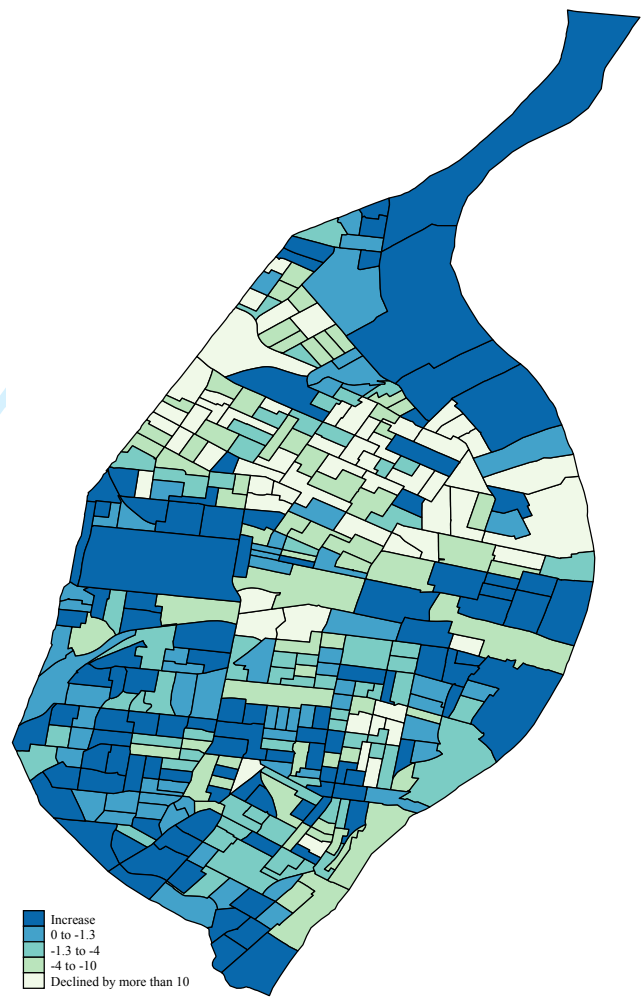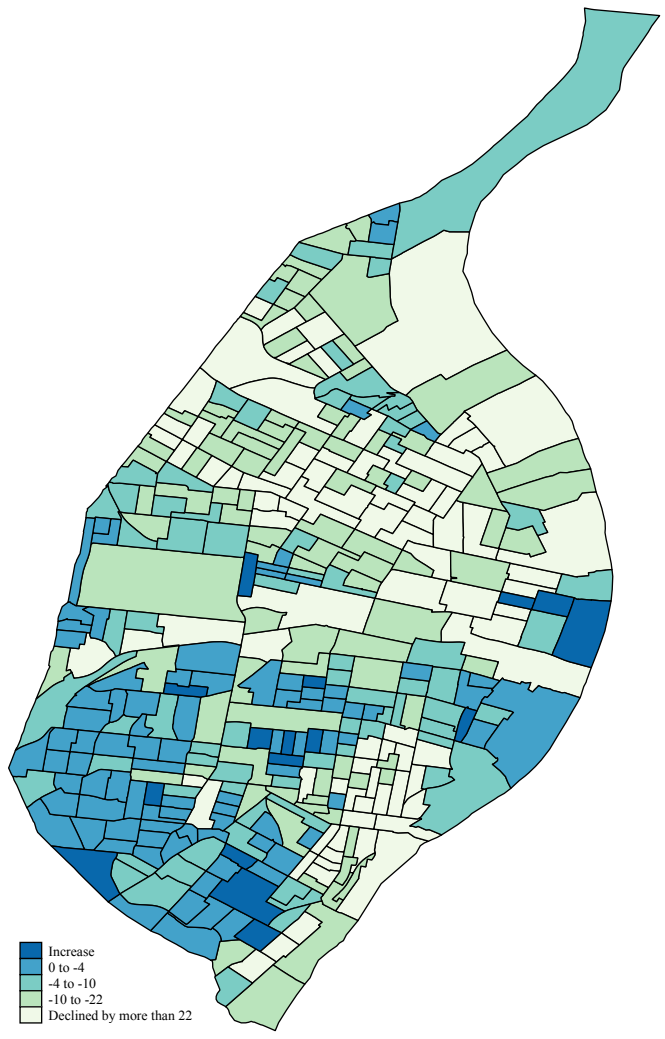
Panel E. Changes in Summonses Issued

Legend:
- Increase
- 0 to -2
- -2 to -4
- -4 to -8
- Declined by more than 8
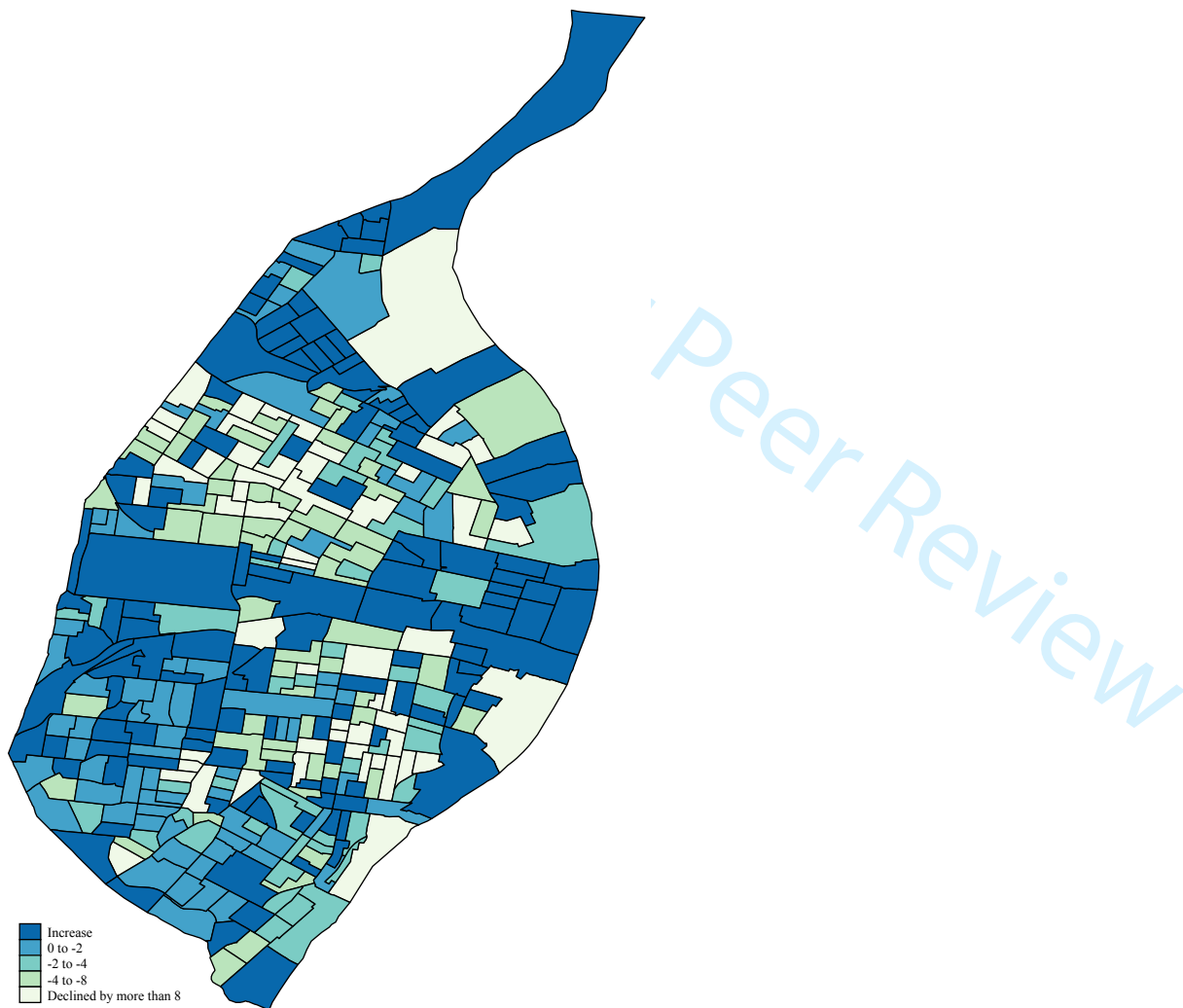
Figure 5. Predicted Change in Municipal Arrests at Varying Levels of Disadvantage (N = 358)

Relationship between Disadvantage and Changes in Municipal Arrests

All other variables at means.
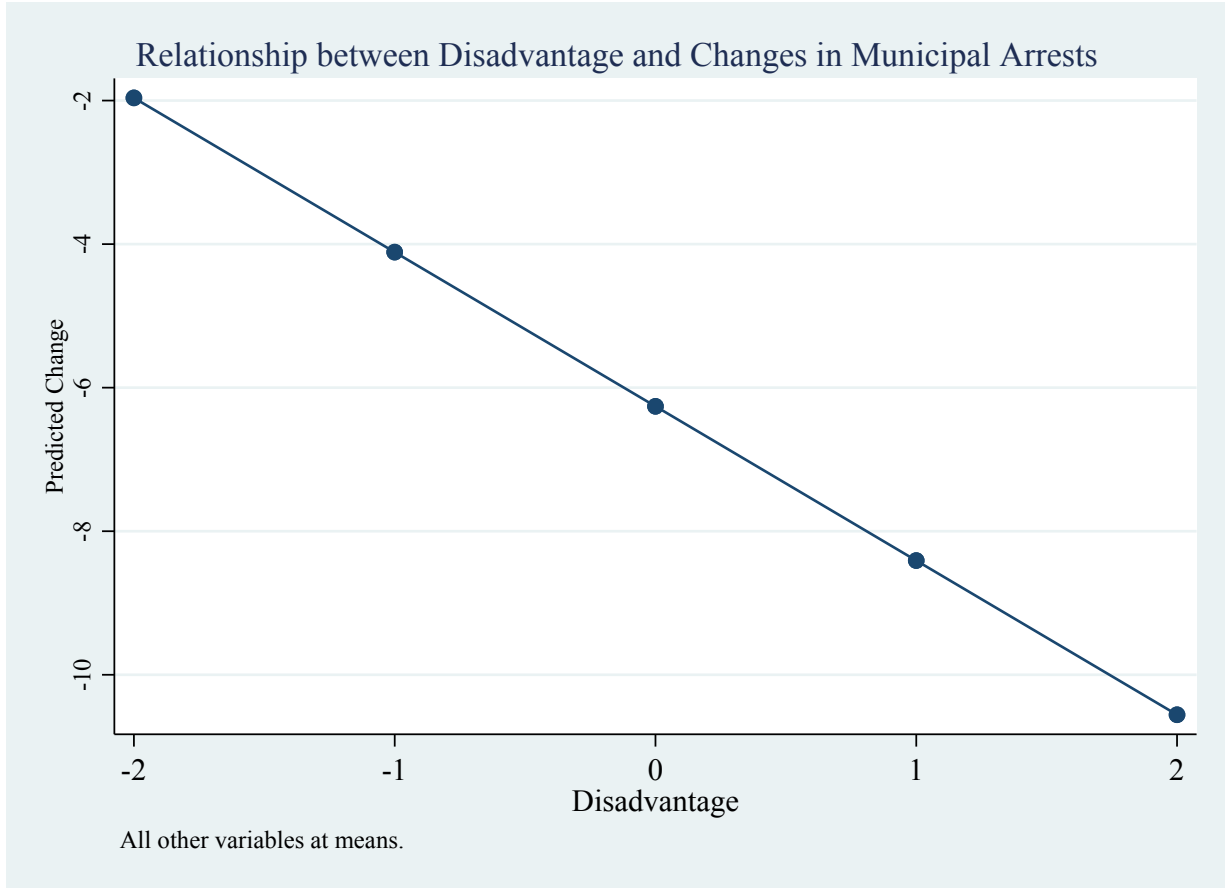
Figure 6. Predicted Change in Misdemeanor Arrests at Varying Levels of Disadvantage and

Percent Black (N = 358)

Panel A. Predicted Change in Misdemeanor Arrests at Varying Levels of Disadvantage
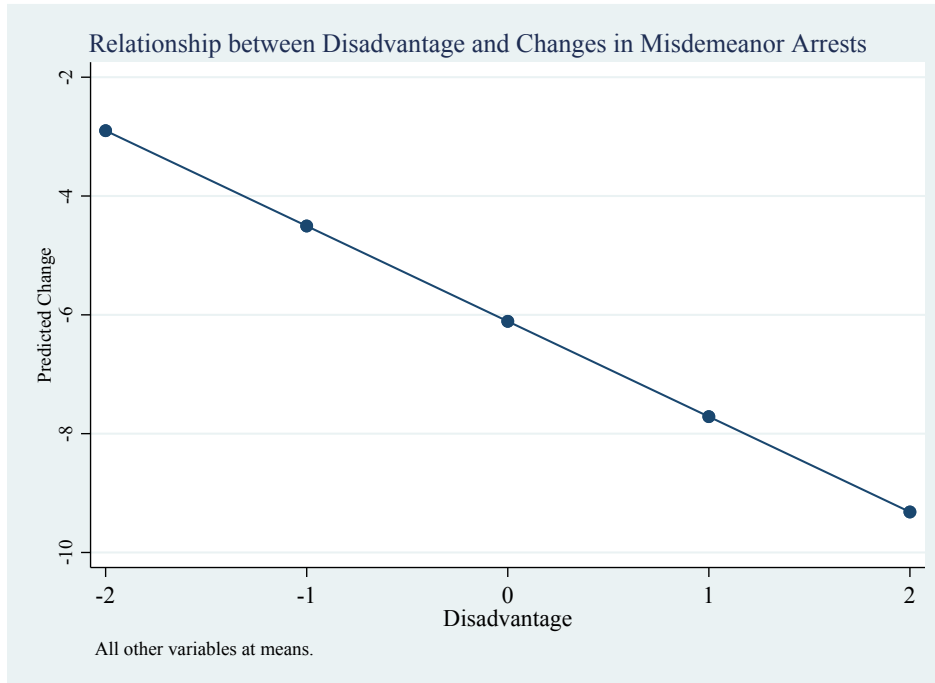
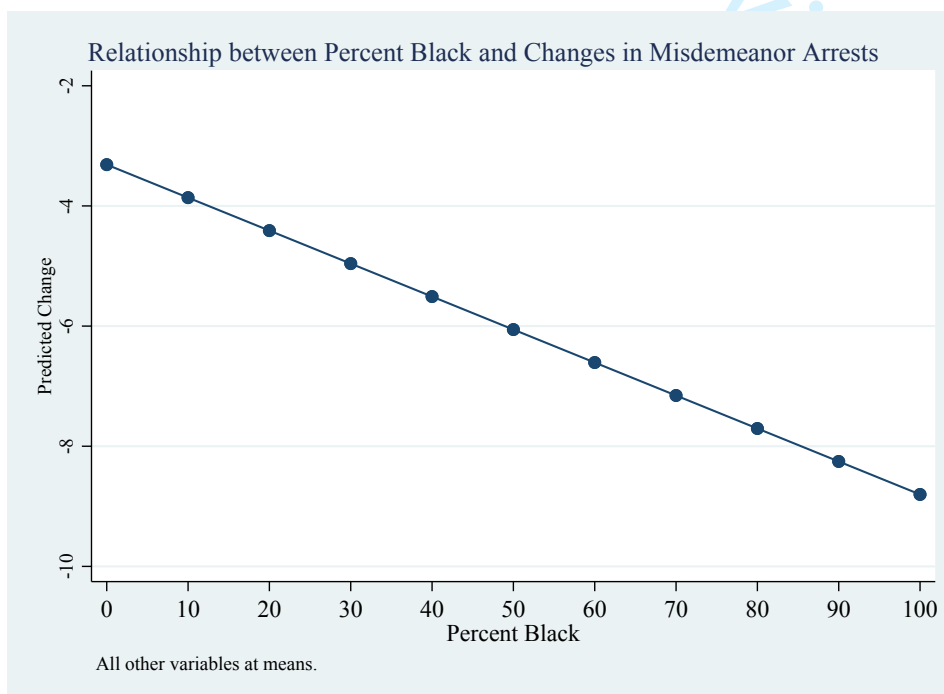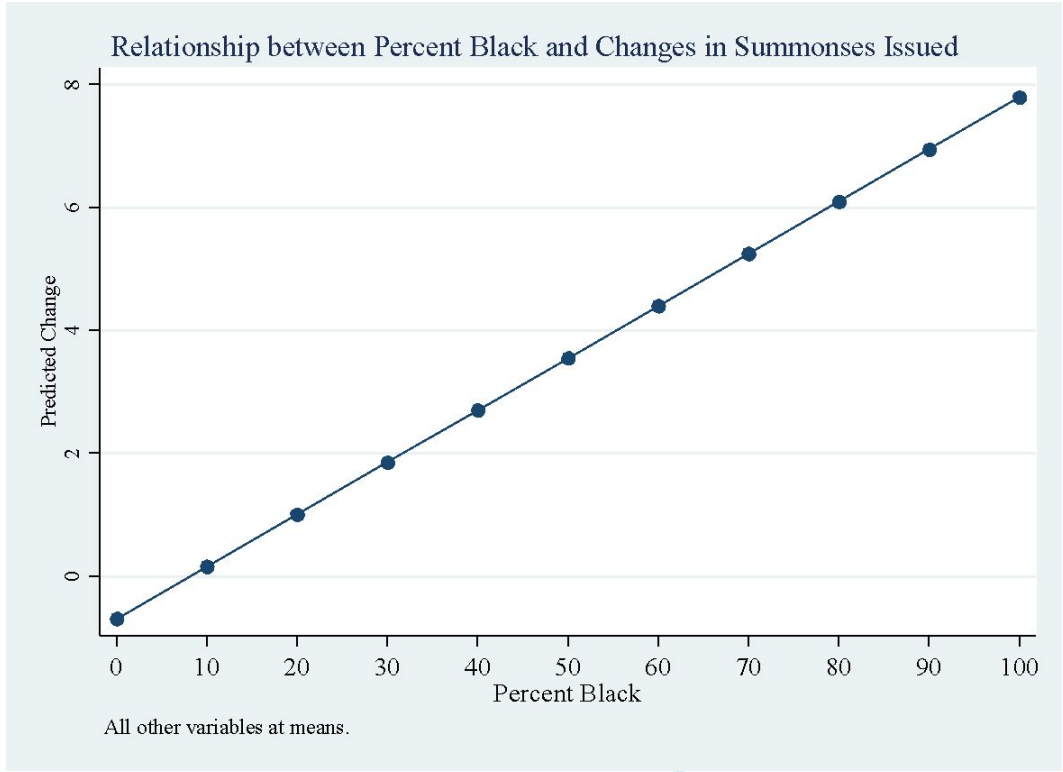Panel B. Predicted Change in Misdemeanor Arrests at Varying Levels of Percent Black

Figure 7. Predicted Change in Criminal Summonses at Varying Levels of Percent Black (N = 358)

Relationship between Percent Black and Changes in Summonses Issued

All other variables at means.

Table 1. Block-Group Characteristics ($N = 358$)

Variable	Mean	SD	Minimum	Maximum
Change in municipal arrests	-6.27	9.17	-66.67	48.33
Change in misdemeanor arrests	-6.11	7.28	-50.67	7.00
Change in felony arrests	-3.61	8.90	-51.33	34.33
Change in bench warrant arrests	-13.99	14.91	-96.33	32.67
Change in criminal summonses	0.91	22.63	-62.00	195.67
Economic disadvantage	0.00	1.00	-3.03	2.52
% 15 - 19 years old	24.86	10.96	0.00	81.11
% Black	51.01	38.09	0.00	100.00
% owner occupied houses	48.69	22.25	0.00	100.00
% families with children	44.92	19.54	0.00	100.00
% household in same house 5 years ago	78.65	13.05	30.79	100.00
Population	886.03	356.06	239.00	2397.00
Located downtown	0.01		0.00	1.00
Change in citizen calls for police service	-125.45	178.67	-972.67	743.00
Spatial lag - change in citizen calls for police service	-121.16	37.48	-202.60	-45.93

Note. SD = standard deviation

Table 2. Regression of changes in enforcement on block groups characteristics ($N = 358$)

Variable	Municipal Arrests		Misdemeanor Arrests		Felony Arrests	
	Model 1 Coef./(SE)	Model 2 Coef./(SE)	Model 3 Coef./(SE)	Model 4 Coef./(SE)	Model 5 Coef./(SE)	Model 6 Coef./(SE)
Disadvantage	-2.276***	-2.149***	-1.671***	-1.605***	-1.030†	-1.131*
	(0.667)	(0.626)	(0.475)	(0.466)	(0.614)	(0.544)
% 15 - 19 years old	0.089†	0.053	-0.016	-0.030	-0.009	-0.025
	(0.049)	(0.046)	(0.034)	(0.033)	(0.043)	(0.039)
% Black	-0.008	0.013	-0.058**	-0.055**	-0.109***	-0.017000
	(0.016)	(0.019)	(0.019)	(0.019)	(0.014)	(0.022)
% owner occupied houses	0.031	0.036	-0.000	-0.003	-0.038	-0.031
	-0.027	(0.025)	(0.019)	(0.019)	(0.025)	(0.022)
% families with children	0.026	0.030	-0.019	-0.018	0.015	0.000
	(0.025)	(0.024)	(0.018)	(0.017)	(0.022)	(0.020)
% household in same house	0.040	0.044	-0.008	-0.012	-0.002	-0.011
	(0.042)	(0.039)	(0.028)	(0.028)	(0.036)	(0.033)
Population	-0.002	-0.001	-0.002*	-0.002†	-0.002	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Downtown	0.095	-2.483	-5.069†	-4.385	11.317**	9.157**
	(4.093)	(3.902)	(3.068)	(3.060)	(4.257)	(3.519)
Change in calls for service		0.022***		0.007***		0.024***
		(0.003)		(0.002)		(0.002)
Constant	-12.217**	-16.004***	0.648	-3.857	4.670	4.725
	(4.367)	(4.398)	(3.001)	(3.526)	(3.771)	(4.018)
Spatial lag change in calls for service		-0.040*		-0.045*		0.011
		(0.016)		(0.018)		(0.019)
Spatial error			3.641***	3.701**	3.162***	3.829***
			(0.984)	(1.265)	(0.906)	(1.017)

Note. Coef. = coefficient; SE = standard error

*p<.05; **p<.01; ***p<.001

Table 2 Continued. Regression of changes in enforcement on block groups characteristics ($N =$ 358)

Variable	Bench Warrant Arrests		Criminal Summonses	
	Model 7 Coef./(SE)	Model 8 Coef./(SE)	Model 9 Coef./(SE)	Model 10 Coef./(SE)
Disadvantage	-3.365***	-3.243***	0.190	-0.053
	(0.963)	(0.927)	(1.065)	(0.985)
% 15 - 19 years old	-0.043	-0.083	-0.025	-0.051
	(0.068)	(0.066)	(0.076)	(0.071)
% Black	-0.129***	-0.108**	0.0270	0.085*
	(0.035)	(0.037)	(0.043)	(0.039)
% owner occupied houses	-0.028	-0.031	-0.067	-0.068†
	(0.039)	(0.038)	(0.043)	(0.040)
% families with children	0.011	0.018	0.035	0.045
	(0.035)	(0.034)	(0.040)	(0.037)
% household in same house	-0.052	-0.053	0.001	0.019
	(0.057)	(0.055)	(0.064)	(0.060)
Population	-0.004*	-0.003	-0.001	0.000
	(0.002)	(0.002)	(0.002)	(0.002)
Downtown	-2.042	-3.303	143.995***	139.987***
	(6.307)	(6.108)	(6.812)	(6.237)
Change in calls for service		0.023***		0.026***
		(0.004)		(0.004)
Constant	1.501	-0.701	0.137	12.269†
	(6.020)	(6.942)	(6.754)	(7.394)
Spatial lag change in calls for service		-0.033		0.085*
		(0.037)		(0.039)
Spatial error	3.870***	3.687***	2.701**	1.219***
	(1.061)	(0.922)	(0.863)	(0.172)

Note. Coef. = coefficient; SE = standard error

*p<.05; **p<.01; ***p<.001