

Examining the Diffusion of Police Arrests across Urban Space:
Territoriality, the Police Role, and Isomorphism

by

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ABSTRACT

The effectiveness of police behavior on criminal activity has improved over the last thirty years. Yet, some police practices remain ineffective against crime. Because there is the potential for disconnect between their behavior and crime control, the police's legitimacy is threatened. Legitimacy is important because its acquisition is requisite for any organization to exist. Police therefore look to other sources of legitimacy, such as their institutional environment: The network of agencies who share similar challenges, and the collection of entities that influence the form and function of the police (e.g., sovereigns). When the police consider the practices and expectations of their institutional environment through the process of isomorphism, agencies resemble one another despite idiosyncratic exigencies. This process endows them with legitimacy. Largely studied at the interorganizational level, isomorphism can also apply at the intraorganizational level. This study considers the latter level of analysis. Because the study of isomorphism in policing has lacked empirical assessment, the current study borrowed from the field of spatial analysis. This is feasible insofar as police behavior can be understood territorially, including isomorphic processes. By controlling for the most pertinent territorial predictors of police behavior, spatial dependence can be understood as the manifestation of isomorphism. Further, local indicators of spatial autocorrelation in interaction with spatial dependence can be understood as the institutional influence of sovereigns. Considerable attention is spent elaborating these concepts. Across four dependent variables (juvenile arrests made by the District of Columbia Metropolitan Police Department for 2008 for

violent crime, property crime, drug crime, and gun crime), isomorphic processes were overwhelmed by ecological variables for three criteria. For juvenile drug arrests, the behavior of distinct areal units was influenced by several sovereign entities from within the police department. Methodologically, this study introduces a novel empirical way of exploring isomorphism. Theoretically, it enriches the study of isomorphism by introducing the importance of territoriality. In terms of police practice, it suggests an innovative method for police organizational change, a process that is typified by resistance. By engaging sovereign entities in the change process, this resistance can be overcome in a naturally occurring ecological phenomenon.

DEDICATION

I dedicate this dissertation to my son, Rowan St. James Cooper. I love you.

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Max Weber once remarked that he could have offered no contribution to the study of social economics were it not for the preceding works of Karl Marx and Frederick Nietzsche. This statement was made to a student. At the risk of delusion and self-aggrandizement, I, like Weber, am under no illusion that the completion of my dissertation, as my culminating experience after ten years of higher education, is anything less than the result of the support, guidance, inspiration, friendship, and patience of scores of individuals. To name only a few among the many:

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Chapter 1

PROBLEM STATEMENT

The etiology of police behavior is understatedly complex. At the individual level, we have an idea that departmental policy (Fyfe, 1982), personal background, and suspect demeanor (Smith, 1981), among others, have some impact on how an officer behaves. At higher levels of aggregation, such as the precinct or agency, we believe that the political climate of the city (Wilson, 1968; Chappell, 2006), demographic characteristics of their service area (Kane, 2002), and the areal based work group (Klinger, 1997) all influence police behavior. We have, therefore, a picture of how police act and why they act that way. This picture yet remains incomplete. Although we “know” and “understand” these things about police behavior, the fact remains that police often behave in ways that are not rationally connected to their ultimate goals of crime control and public safety. Indeed, the research just cited often suggests as much. Underlying this research on police behavior, therefore, is the question *why do police behave in ways that, for all intents and purposes, is detached from their goal?* This is the question with which, ultimately, this dissertation is concerned. A related question that also concerns the current investigation is *why is it that police appear similar, in form and function, despite idiosyncratic pressures that may lead to great variations in the ways in which they behave?*

For example, many rural police departments have paramilitary policing units yet lack the same exigencies faced by urban police agencies that justify such a force-oriented special operations unit (Kraska and Cubellis, 1997). To be sure,

such units often exist due to the availability of federal monies in support of their creation. But federal support for their creation suggests something about the way the American public perceive the police – and the way that police see themselves. As rural police agencies ask themselves “what does a cop look like, and what does a cop do?” they may look towards larger, big city police departments who have SWAT-like units. Or they may look towards other big city police agencies which have abandoned the class A uniform in favor of a more militarized cargo-pants and muscle shirt ensemble, where the vest is worn visibly on the outside of their clothing. In undertaking this observation, these rural agencies are answering their questions about what does a cop do and look like. And they are answering the real question, which is “what should *we* look like, and how should *we* behave?” So it is, without due regard to the connection between form and function with goals, that police departments begin to be more similar than different, despite unique local problems.

The concern over appropriate form and function is tied into a police agency’s desire and need to acquire and maintain legitimacy. A police agency’s legitimacy is its public recognition that it is a needed resource, worthy of funds from the public treasury, and necessary for the well-being of society. Legitimacy is therefore a commodity that is vital to an agency’s existence (Suchman, 1995). Legitimacy is most readily acquired through a rational connection between what an organization does and what it achieves: to the extent that an organization is able to demonstrate this connection, it is likely to obtain legitimacy, and maintain it (Weber, 1964). For the police, the connection between what they do and what

they achieve can be tenuous. That is, police are expected to control crime and their behavior and deployments are typically centered on achieving this goal. Yet the connection between police behavior and crime control is not always apparent, sometimes unfeasible, and typically difficult to realize within the constraints of resources and the rule of law. Thus, linking legitimacy to crime control outcomes (which encourages the liberal use of coercive behaviors) can therefore be a dangerous proposition, particularly with respect to the conventional mechanisms of police accountability.

Legitimacy can, however, be acquired through other means. Rather than looking inwardly at their behavior, police agencies may instead look *outwardly* to discover what other agencies are doing. Legitimacy can be acquired by modeling the behavior of other institutional actors who are already perceived as legitimate. This is a process termed *isomorphism* (Meyer & Rowan, 1977). Isomorphism explains how organizations from disparate environments who share some common challenges converge in form and function rather than remaining idiosyncratic: a few sovereign members of an institutional environment stand out as being legitimate, and the remaining members of the same institutional environment emulate the behaviors of sovereigns thought to achieve that legitimacy (DiMaggio & Powell, 1983). So it is that police departments share similar hierarchical organizations, nomenclatures, motivational tools, goals, and even special operations units (Crank, 2003). The same explanation applies at the meso-level for large police departments where each precinct (or equivalent) tends

to be more similar to its neighbors than what would be expected given the different pressures from each precinct's environment.

While a compelling proposition, isomorphism, and institutional theory more broadly, have been difficult to test empirically at any level of aggregation (Katz, Maguire, & Roncek, 2002). The territorial organization and nature of policing may provide an answer to this difficulty. The police behave within a territorial framework (Herbert, 2001; Rubinstein, 1973). It is within this framework that norms and standards for behavior are created and enforced (Klinger, 1997). In addition, police are held accountable for the state of their particular precinct (Reuss-Ianni, 1982; Rubinstein, 1973), suggesting that police legitimacy is earned and retained largely through the territorial behavior of the police. It is plausible, therefore, to explore the process of isomorphism not using standard social science regression models, but by borrowing from spatial analytic techniques.

All forms of spatial analysis rely on Tobler's (1970) first law of geography: "Everything is related to everything else, but near things are more related than distant things." Black (1976), in The Behavior of Law, unintentionally demonstrated that some aspects of the law behave according to Tobler's assertion, as well. For example: the nearness of the relationship between victim and offender is related to the extent to which the law is applied. Although Tobler was clearly speaking to geographic proximity, Black's observations open the door to using spatial techniques to tap into myriad "proximity" variables. Many criminal justice elements can be understood both in terms of the kind of

abstract proximity to which Black is alluding, as well as the geographic proximity on which Tobler is focusing. For example: the police. By design, the police behave territorially within their precincts. We should, therefore, be able to observe spatial processes at work at this level of aggregation. Precincts contiguous to one another should be more similar than distal precincts in terms of aggregate characteristics (e.g., racial and economic composition) and the standing patterns of behavior they support and/or foster. This similarity is often referred to as spatial autocorrelation: statistical “noise” caused by geographically proximate neighbors which share characteristics. I am proposing that we can treat the “noise” of spatial autocorrelation, and the existence of areal units with undue spatial influence (e.g., local indicators of spatial autocorrelation, LISA), as evidence of institutional processes¹.

Due to the territorial nature of policing, precincts may look towards their neighbors in order to better understand what their form and function should look like. If researchers can control for the most important predictors of police behavior, and neighboring precincts continue to have an effect on any given

¹ To be sure, although the theoretical framework presented here suggests that spatial autocorrelation can correctly be interpreted as institutional processes, competing explanations for autocorrelation may exist. It may, for example, represent a general application of a particular departmental policy (Fyfe, 1982). Were this the case, we would expect to see global spatial autocorrelation, but not necessarily LISA's. Additionally, similarities between PSA's may have more to do with shared environmental characteristics than with police behavior. As described, this is controlled for in terms of structural disadvantage. Perhaps most important, were a spatial error model found to be more appropriate than a spatial lag model (Anselin, 2003b), one might surmise that there are spatial processes at work, but that these processes are distinct from the dependent variable. That is, there is spatial dependence in the model wherein an independent variable is influenced by its neighbors, and this, in turn, is having an impact on the dependent variable. As this dissertation is only focusing on one element of the police institutional environment – namely, their peers – it may be the case that other sovereign actors (politicians, media, community leaders, or individual officers) are influencing police behavior, as well. As is discussed below, this possibility was checked for each dependent variable by examining the viability of a lag model over an error model.

precinct (ie., spatial autocorrelation and LISA), then they can theoretically suggest that this represents the institutional environment influencing that precinct. In other words, just as physicists can predict the location of an invisible planet based on that planet's gravitational impact on neighboring space stuff, this dissertation proposes that we can pinpoint institutional pressure by observing its spatial effects. Although a proxy for institutional processes, it is theoretically sound and allows a way for empirically observing what most organizational researchers have ideographically explored.

This project speaks directly to organizational change. Bureaucracies struggle with change, even when change can result in the furtherance of an organization's mission (Weber, 1964; Merton, 1957). Police, which have been bureaucratically organized since the first part of the 20th century, are not an exception. For example, the integration of community oriented policing is often held up as a poster-child for the difficulties inherent in organizational and behavioral change in police agencies. Even before Trojanowicz and Bucqueroux (1990) first fully articulated the idea of community policing as both a basic shift in policing form, function, and philosophy, such barriers were readily apparent in American policing. To wit, O.W. Wilson, policing reformer August Vollmer's protégé, though successful in reducing corruption among police officers in Wichita City, KS, was ultimately forced to resign as chief because of powerful political actors who did not appreciate his efforts. While this stands as an example of the resistance that efforts of change meet in the policing world, Wilson's failure to successfully adjust policing practices in the face of a racial crisis in

Chicago during the 1960's reflects the police agency's dilatoriness in innovatively responding to environmental changes (Walker, 1998).

The process of isomorphism is best understood as a process of change towards similarity. In other words: police agencies (or precincts within a police department) are more likely to change their behavior to match the behavior of other agencies whom they perceive as possessing legitimacy. Stated in theoretical terms: sovereigns can be catalysts for change. Administrators who are able to harness the cooperation of sovereign precincts, or police chiefs who can work with sovereign agencies in implementing changes, may better be able to create organizational and behavioral change with less resistance than has been experienced in the past. Theoretically, the findings from this dissertation add substance to the conversation surrounding institutional literature generally, and improve scholars' understanding of the causes (and consequences) of police behavior specifically.

This dissertation therefore sought to answer the following questions:

1. *Why do police behave similarly across spatial areas, despite measurable differences in environmental pressures across such areas?*
2. *Why do police behave spatially in ways that are seemingly unconnected to their goals?*

To answer these questions, I combined the following scientific propositions: First, institutional theory teaches that organizations behave similarly in a bid to acquire and maintain institutional legitimacy whenever the connection between what an organization does and what it achieves is tenuous. Second, the

police are unable to accomplish their goal of crime control to the complete satisfaction of their constituents. And third, police are organized and behave territorially. Briefly stated: Police behave in ways often unconnected to the goal of crime control because they are simply copying other agencies (or districts within the same agency) with perceived-legitimacy. We can explore this relationship through spatial analytic techniques.

Combining these three propositions into one theoretical whole provides not just an explanation of police behavior, but points in the direction of an analytic technique that is at once novel and useful. Importantly, this theoretical structure answers these questions (*why do police behave the same, despite differences in environmental pressures* and *why do police behave in ways that are seemingly unconnected to their goals*) which thus far have only been intimated in the literature. The data set (described in detail below), in tandem with the methodological approach espoused for this dissertation, allow the exploration of these research questions by testing the following general hypotheses: the arresting behavior of precincts abutting one another will be similar, with differences increasing with distance; those precincts closest to sovereign precincts should be most similar in terms of their arresting behavior than more distant precincts; and finally, the diffusion of arresting behavior should expand centrifugally from sovereign precincts, with behavioral similarities decreasing concomitantly with distance. These hypotheses will be expanded and discussed in more detail after the theoretical underpinnings are presented.

This dissertation proceeds in the following manner. In the next chapter, these three propositions will be discussed in detail. This will include an exhaustive overview of relevant literature. Chapter two will also include a discussion of how each of these propositions comes together to meaningfully answer questions that, without this theoretical structure, could not otherwise be answered. It will conclude with testable hypotheses. Chapter three explicates how spatial analysis will test these hypotheses. Specifically, it will outline the logical connection between the theory developed in chapter two and the use of spatial analytic techniques. It will also extend the dissertation into a more nuanced direction, where I not only discuss how to capture isomorphic processes empirically, but how to understand *why* it is going on where and when. Chapter three will also include a detailed overview of my unit of analysis (the Police Service Area of the Washington D.C. Metropolitan Police Department) and articulate how I constructed my data set and statistical models. These models are then presented in chapters 4 and 5, with analysis and discussion. The final chapter discusses limitations to the research design, general theoretical conclusions, policy implications, and directions for future research.

Chapter 2

THEORETICAL DEVELOPMENT

Introduction

All organizations require legitimacy in order to exist and operate (Suchman, 1995). As such, the acquisition and maintenance of legitimacy is an important research area. One way that organizations can acquire and hold on to legitimacy is by the efficient production of needed goods or services (Weber, 1947). This method is complicated for public sector organizations, however, such as the police. The police are faced with two dilemmas that limit the extent to which their legitimacy, as an organization, can be gained through the efficient production of a needed service. The first dilemma has to do with their public mandate. One public mandate the police must satisfy has been described as an “impossible mandate” (Manning, 1978). To wit, to fight crime². This mandate is, on the one hand, difficult to quantify, and, on the other hand, constantly being reinvented. As a nebulous goal and what amounts to a moving target, the police mandate does little in the way of allowing police agencies to evaluate the degree to which they are successfully providing a needed service. Even if the mandate were more concrete and static, police would still be hampered in their legitimacy-seeking efforts by the second dilemma: the tool provided for them to accomplish their mandate. However innovative police programs may appear, at their heart remains that aspect most associated with police presence: the power to arrest, and

² This study focused, essentially, on one part of the police mandate. This was not to suggest that it is the only mandate, only a driving mandate that is particularly focused in the minds of the public, from whom the police garner so much of their legitimacy.

its accompanying potential for the use of coercive force (Bittner, 1970). This tool puts police in a double bind. First, by using arrest and/or coercive force too little or too often, they risk losing legitimacy (Kane, 2003). Second, it is an inefficient, and in many ways an ineffective, method for “fighting crime” (Manning, 1978). The nebulous and transient nature of the police mandate, combined with the limiting tool at their disposal for accomplishing this mandate, place police at a serious disadvantage in terms of acquiring and maintaining organizational legitimacy.

Law enforcement agencies may therefore turn to a different source of legitimacy, namely the institutional environment. An organization’s institutional environment is composed of powerful sovereigns who dictate how an organization is to behave in both form and function (Suchman, 1995). For a police agency, sovereigns may include political actors, professional organizations, or even other influential police agencies or individual officers within an agency. By conforming to the expectations of these sovereigns, an agency is able to hold on to legitimacy. This process is known as isomorphism. Police scholars have already explored these ideas (for an overview, see Crank & Langworthy, 1992), and many have found both anecdotal and empirical support for this institutional framework (Crank, 2003). In my dissertation, I contend that such research, while important and informative, is missing a vital element for understanding how isomorphic processes occur. More specifically, in understanding how police agencies seek to acquire and maintain legitimacy by conforming to institutional pressures, the territorial nature of police behavior must be taken into account.

Police agencies are organized around areal units, and these units have an impact on their behavior (Klinger, 1997; Rubinstein, 1973). Whereas the police mandate outlines the goals and directs the behavior of the police, it is within specific territories that this behavior takes place. By accounting for the territoriality of the police, researchers can better understand how isomorphism defuses behavior across police agencies.

I also explore the utility of this framework from an intraorganizational perspective. Despite researchers suggesting that isomorphism is both an intra- as well as an interorganizational phenomenon (Meyer & Rowan, 1977; Crank, 2003), most research on the police and isomorphism has taken place at the interorganizational level. Large police agencies are essentially composed of several smaller organizations, which are delineated along territorial lines. Just as some influential police agencies may stand out as sovereigns within their institutional environment, so too may some influential police precincts (or individual officers) act as sovereigns within their agency, with behavioral norms emanating out from them spatially across precincts in an isomorphic process.

This chapter will proceed in the following manner. The first two sections will discuss organizational legitimacy, the police mandate, and the territorial nature of the police. The third section will discuss isomorphism, and the fourth section will join the policing and isomorphism literature, and conclude with a discussion of extending the theory from the inter- to the intraorganizational plane. The guiding question for this dissertation is how do behavioral norms among police precincts, as understood as arresting behavior, defuse across police

precincts within an organization? As this chapter will demonstrate, the isomorphic literature, in tandem with a territorial understanding of police behavior, provide meaningful hypotheses towards the end of answering this question.

Organizational Legitimacy and the Police Mandate

Suchman (1995) defined legitimacy as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (p. 574). In this light, legitimacy is understood to be a normative concept that is contingent on cultural exigencies³. In discussing legitimacy, Weber (1964, p. 328) delineated the now well-known rational, traditional, and charismatic authorities. In addition, Weber also asserted that "[l]egitimacy may be ascribed to an order by those acting subject to it..." (p. 130). In synthesizing the literature since Weber, Suchman (1995) suggested three essential forms that legitimacy can take: pragmatic, moral, and cognitive. Pragmatic legitimacy "rests on the self-interested calculations of an organization's most immediate audiences" (p. 578), and subsumes Weber's rational authority. Moral legitimacy rests on the assumption that what an organization does is just, good, and right, and reflects Weber's emotional or affectual attitudes and traditional authority. Finally, Suchman's (1995) cognitive legitimacy explains that an organization is recognized

³ Tyler (2006) also discusses legitimacy in terms of the police. For Tyler, legitimacy is the result of police following due process and acting justly and fairly towards citizens. The result of perceived police legitimacy is citizen obedience to the law. For the institutional literature, police legitimacy is the result of a direct and demonstrable connection between their behavior and the fulfillment of their mandate - crime control, in short. It is important to note that this mandate comes, in part, from the public and their perceptions of police behavior. The result of police legitimacy is not obedience to the law, but rather the police organization's access to resources necessary for their survival.

as being necessary to the functioning of society, and corresponds with Weber's legal authority. That is, both cognitive and legal legitimacy assert that an organization's legitimacy stems from its value in maintaining some sort of *status quo* or, at minimum, from being an inevitable reality. Suchman (1995) suggests legitimacy becomes more difficult to obtain moving from pragmatic, to moral, to cognitive, but also becomes more powerful. Legitimacy is most powerful and unquestionable at the cognitive level, where it is simply taken-for-granted: when an organization has reached this level of legitimacy, the idea that society could exist without that organization is simply inconceivable.

Suchman's (1995) definition came after several generations of academic dialog. Initially, organizational theorists, drawing on the works of Weber's ideal bureaucratic model, focused on the concept that formal organizations were created out of a necessity to navigate complex social and commercial relationships. These theorists drew on Weber's (1964) arguments for a rational bureaucratic system, where the most successful organizations are those which are rationally organized around quantifiable results: their structure and behavior are geared towards the efficient achievement of output. To the extent that an organization was able to efficiently achieve such outputs it could acquire and maintain legitimacy. Stated otherwise, a rational organization's legitimacy rests on its ability to effectively accomplish its mandate (Suchman, 1995). Meyer and Rowan (1977) criticized this vein of thought by pointing out that institutional theorists had ignored another source of the legitimacy of complex organizations as posited by Weber. Weber (1964) wrote, "Action, especially social action which

involves social relationships, may be oriented by the actors to a belief (*Vorstellung*) in the existence of a 'legitimate order'" (p. 124). This posits that individuals and organizations behave according to shared beliefs as to what constitutes legitimacy that may or may not have anything to do with the efficient production of outputs. This shift changed the foundational understanding of organizational legitimacy from being the result of pure output oriented behavior to introducing social and cultural elements. It was now understood that there were multiple pathways to legitimacy, including the classic Weberian concept of a rational bureaucracy, but also including conforming behavior that matched with institutional expectations.

Legitimacy is important to understand because of what its acquisition means to an organization. As Blau and Meyer (1987) argue, legitimacy is tied to power, and power is tied to the acquisition of resources. Subsequently, legitimacy promotes organizational success and survival (Meyer & Rowan, 1977). All organizations that perform the same or similar functions compete for a number of resources, including revenue and customers. What is more, they compete for legitimacy (DiMaggio & Powell, 1983). To the degree that one organization acquires and maintains legitimacy while other organizations fail to do so, that organization will better succeed in the acquisition of all other resources. Suchman (1995), in summarizing the legitimacy literature, has pointed out that legitimacy brings stability, credibility, and support to an organization. In terms of support, an organization may acquire either active support or passive support (or both). Whereas active support refers to the actual and regular assistance from

institutional constituents in goal achievement, passive support only requires that an organization is simply let alone to do what it is that they do, *sans* interference. The assumption is that the organization is acting in good faith (Meyer & Rowan, 1977). This assumption is one of the fruits of organizational legitimacy. Overall, legitimacy is necessary for an organization to survive.

Applying Organizational Legitimacy to Police Legitimacy

The legitimacy of the police traditionally has been garnered through their impact on crime. Indeed, the focus of Peel's Metropolitan Police was crime prevention (Manning, 1978; Uchida, 2005). Although this focus crossed over the Atlantic to several early 19th century United States cities, starting in the early 20th century police impact on crime became operationalized in quantifiable terms such as arrest numbers, calls for service, or response times (Reiss & Bordua, 1967; Skolnick & Fyfe, 1993). This reflected a shift to Weber's rational order of legitimacy: by demonstrating that their behavior was arithmetically associated with quantifiable changes in crime, police could be seen as vital and necessary. This behavior also manifested itself in legitimacy seeking behavior in line with Weber's traditional authority. Herbert (1997), for example, suggested that the law, bureaucratic regulations, a guiding value of machismo, maintaining safety on the job, demonstrating competence worthy of respect, and upholding a morality of good versus evil, each guide how police officers behave – that is, that police behavior was influenced by the notion of “what a cop” looked like and did: fight crime and bravely protect the innocent. This behavior, however, must play out under the “number's game” (Skolnick & Fyfe, 1993): Writing about the

Philadelphia police, Rubinstein (1973) commented that "[t]he worth of a man to his platoon does not depend on his success in preventing crimes, arresting suspected felons, or even giving service without complaint or injury... 'Activity' is the internal product of police work. It is the statistical measure which the sergeant uses to judge the productivity of his men..." (pp. 43-44). Rubinstein continued: "Arrest activity is computed from what the patrolman 'puts on the books' and not by the disposition of his cases in court. Since activity is a measure of his work, his sergeant has no interest in what eventually happens to the cases" (pp. 44-45).

This system of assessment has at least two flaws. First, using arrest statistics as the primary example, they are artifacts of police behavior rather than of police impact (Manning, 1978). In most introductory criminal justice and methodology text books it is pointed out that *Crime in America* is often used as a measure of what police do as opposed to a measure of criminal activity (Lynch & Addington, 2007). This will most likely vary by type of crime. This means that as police increase their arresting behavior, the crime rate appears to increase, as well. This leads to calls for more arresting behavior. This pattern is subsumed by the second flaw, articulated by Manning (1978) as policing's impossible mandate: to engage in the "efficient, apolitical, and professional enforcement of the law" (p. 8).

The Police Mandate

Manning (1978) defines a *mandate* as an organization's right to define the parameters and technology of its occupation. He has argued that the police mandate is not, however, wholly in their hands. Rather, it is something thrust

upon them by public expectations and political deliberation. Because the police are part of the executive branch of government, both of these processes are ultimately beyond their purview. However, Manning (1978) reminds us that American police themselves have accepted and expanded (or, perhaps narrowed) this mandate to a professional status, despite that doing so can severely threaten the legitimacy of the police (see note 2). This mandate, again according to Manning (1978), is an impossible one. The mandate communicates to officers the expectation that they can and should have a meaningful impact on the amount of crime that occurs in cities. This mandate is impossible not because police have no impact on crime whatsoever, but, as Herbert (2001) pointed out "...on their own, police can do little to reduce crime" (p. 449) when relying on traditional law enforcement techniques (Klofas, Hipple, & McGarrell, 2010). What is more, although efforts are made to quantify the police mandate, it ultimately remains nebulous (Klockars, 1986), precluding any systematic analysis of the state of crime *then* versus the state of crime *now* (DiIulio, 1995). The thrust of Manning's (1978) argument was that the police had placed themselves in a very difficult spot: they had promised a product that they were unable to deliver.

Sources and Consequences of the Police Mandate

The model for American policing has its origins in Peel's London Metropolitan Police. Peel's vision for a unitary police force was transported across the Atlantic in piece-meal fashion in both form and function. For example, for Peel, the police prime directive was to prevent crime, and to do so avoiding legal sanctions and resorting to violence only in the most extreme of circumstances.

During the formative years of policing in the United States, the American model did resemble the British model in terms of crime prevention and social assistance, though the American police remained exceptionally decentralized and politicized. In many instances, this led to laziness and corruption (Strecher, 1991; Walker, 1998). Through two waves of reform (first towards the end of the 1800s by the Progressives and then at the start of the 1900s by reformist police chiefs), police agencies attempted to ameliorate these faults through a professionalization movement (Walker, 1998; White, 2007). Subsequently, American police rarely sought to prevent crime and, as the form of policing became more bureaucratized, came to rely extensively on legal sanctions and coercive force (Manning, 1977). This created a situation that stood in stark contrast to the British model.

Three changes to American policing accompanied this move to professionalize the police that would impact the mandate of police agencies (unless otherwise noted, this paragraph relies on Manning, 1977, pp. 97-98). The first change was the institutionalization of a national database of crime statistics. This effort was first spearheaded by the International Association of Chiefs of Police (IACP) and August Vollmer, and then taken up by the fledgling Federal Bureau of Investigation (Skolnick & Fyfe, 1993). Hoover employed the new crime statistics program (the Uniformed Crime Report or UCR, published as *Crime in America*) to highlight the FBI as *the* professional standard of crime fighting experts. Law enforcement agencies around the country took note of the FBI's new status, and soon began to emulate the FBI's training, techniques, and, most importantly, professional mandate. The second change came in how police

agencies used the data from the UCR: the crime rate became the measuring rod by which police success would be judged. This had the effect of quantifying the mandate. Finally, police began to focus on the technological tools they could use to be professional crime fighters, including patrol cars, two way radios, and latent fingerprint recognition. These tools symbolized the police agencies' role as professional crime fighters who were specially trained and equipped to protect society from crime (Manning, 1977).

These changes had the cumulative effect of focusing the police officer role on crime fighting through crime rate statistics. Since the inception of the UCR, police have been judged according to numerical standards. This has included, among other things, arrest rates and crime rates, but has also extended to calls for service and response time (Rubenstein, 1978; what Skolnick and Fyfe [1993] refer to as “the numbers game”). This has also resulted in police officers focusing less on whether they have achieved their goals and more on what they are doing towards those ends. In this situation, the police mandate has pushed agencies into a means/end syndrome where the means actually become the ends (Goldstein, 1979). Police were *crime fighting experts*, a mandate which said little about *crime preventing or reducing*. Whether intended or not, this has had the ultimate consequence that police behavior became focused on serving themselves rather than on serving the public (Reiss & Bordua, 1967; Manning, 1978).

This focus on crime statistics and the concomitant expectation that police can and should be able to do something about it immediately (Bittner, 1970) is reinforced from a myriad of sources that have taken on a life of their own. This is

to say that a citizen need not be aware of crime statistics as such to expect police to engage in crime fighting through crime rate statistics. The media play an important role in reifying myths about the police's role as the thin blue line between safety and anarchy (Manning, 1978; Potter & Kappeler, 2006). There is also evidence that this mandate is communicated vigorously from the political environment (Wilson, 1968) and the organizational environment (Slovak, 1987; Kappeler, Sluder, & Alpert, 1998; Manning & Van Maanen, 1978). As Kappeler and colleagues (1998) state, "[i]n essence, police are selected, socialized, and placed into a working environment that instills within them an ideology and shared culture that breeds unprecedented conformity to the traditional police norms and values" (p. 84). For the police, then, the impossible mandate is more than an occupational dictum: it is a moral calling filled with value-laden responsibility. This is a calling that many, if not most, police officers bring with them to the job (Raganella & White, 2004), and that police take very seriously (White, et al. 2010). This mandate guides the behavior of police officers and forms the goals to which their behavior is aimed. However, that behavior takes place within unique territories that also have an impact. The next section takes up this topic.

Territoriality and Policing

Since at least the beginning of the 20th Century, most (if not virtually all) American police departments have deployed patrol officers in local beat areas (Walker & Katz, 2007). Indeed, although this deployment paradigm originated as a way of holding police officers accountable to their desk sergeants in the absence

of portable radios (de Lint, 2000), assigning officers to local beats – often for months at a time – has had the perhaps unintended consequence of encouraging police work-groups to develop norms and occupational world views on the basis of territoriality (Klinger, 1997). Thus, while the external environment of the police organization requires them to adopt a crime-fighting mandate, it is through territoriality that local police work-groups apply their knowledge of their local working environments in ways that allow them to try to achieve the crime control goals.

Territoriality refers to "how people manage the location they own, occupy, or use for varying periods of time" (Taylor, 1988, p. 1). Territoriality can therefore be understood as a strategy of control. Sack (1986) elaborates on this idea in this way: "Territoriality [is] defined as the attempt by an individual or group to affect, influence, or control people, phenomena, and relationships, by delimiting and asserting control over a geographic area" (p. 19). Weber (1964) posited that states are essentially social aggregates commissioned to maintain political borders. That is, they are commissioned to maintain a politically defined territory. Within these borders, the state must also safeguard the well-being of the body politic. Weber (2004) distinguished the state from other social aggregates by pointing out that the state possessed a monopoly on the use of force. As Bittner (1970) argued forty years ago, the use of force in coercing compliance is the central role of police officers. Police can therefore be understood as the literal manifestation of the state's monopoly on the use of force. Indeed, individual police officers are "the most visible aspect" of the government and "that aspect

most likely to intervene directly" in the lives of citizens (Van Maanen, 1974, p. 84). In carrying out this role, the police organize and behave within territorial units (Herbert, 1997).

Large municipal police agencies typically divide their organizational hierarchy according to spatial units across the city. Precincts are supervised by mid-level managers; in turn, precincts comprise a collective of beats supervised by sergeants and patrolled by line officers. Throughout the United States there are variations on this organizational set up according to departmental size, geography, and the political environment, among other factors (Klinger, 1997), but the practice of organizing territorially is a constant across departments. The territories employed by police agencies are typically political rather than reflecting any organic sense of community as understood by citizens (Herbert, 2006; Klinger, 1997). The political boundaries layered over the municipal map become so important that officers may cease to understand the city in terms of neighborhoods or landmarks; instead, it becomes "a mosaic of linked districts" (Rubenstein, 1973, p. 26) to which the "patrolmen are tied inextricably" (Van Maanen, 1974, p. 113).

Social Ecology and Policing

In general, the goals of police behavior are provided by the police mandate. The behavior designed to achieve these goals takes place within a territory. The contents of that territory will bear directly on the behavior of police officers. Early on, Whyte (1943) found that there were different rules for how police were to behave according to the kind of neighborhood in which they were

patrolling. Smith (1986) was one of the first scholars to empirically document this phenomenon. Among his findings, police were most likely to initiate contact with suspects and suspicious persons in racially heterogeneous neighborhoods, but were less likely to do so in high crime areas. Similarly, he found that in lower-status neighborhoods, suspects were three times more likely to be arrested than in higher-status neighborhoods.

Klinger (1997), drawing on the negotiated order perspective, suggested that the degree to which officers invoke their law enforcement powers ultimately rests on a collection of formal and informal work rules that are common to all officers. These rules provide direction to officers in negotiating contacts with citizens, and arise because, first, line-level officers have a high level of autonomy, and second, labor is divided along territorial (that is, precinct and beat) lines. What is more, these two facets are influenced by the social environment of the precinct, the police organizational mandate, and a workload that cannot be ignored. Essentially, every precinct has a certain level of "normal deviance", and any crime that departs from this mean is considered deviant and treated more vigorously - that is, with more official action on the part of the officer. Klinger (1997) argued that as crime rates increase in a precinct, "work group rules will hold that deviant acts of a given level of seriousness should receive less vigorous police attention" (p. 296). Thus far, at least four studies that have explicitly tested Klinger's ecological framework have found significant support (Phillips & Sobol, 2010; Johnson & Olschansky, 2010; Sobol, 2010; Jackson & Boyd, 2005).

Kane's body of work has expanded this research agenda into other policing domains beyond the decision to arrest. For example, Kane (2002) found that police misconduct could be predicted by structural disadvantage, population mobility, and changes in the Latino population. In what can also be construed as a test of police territorial management, Kane (2005) found that, controlling for structural disadvantage, police were able to reduce rates in burglary and robbery, but, again, only up to a certain threshold. He also found that changes in Latino population were related to the allocation of police officers over time in New York City, but only up to a certain threshold (Kane, 2003). This finding is part of a larger literature that has consistently found similar racial and ethnic effects on police behavior. Drawing from a Weberian paradigm, Jacobs and O'Brien (1998) found that the police killings of Black citizens could be predicted, among other variables, by the economic inequality between Whites and Blacks. Jacobs and O'Brien (1998), as well as Kane (2002), suggest that one of the reasons that minority communities may be more vulnerable to police attention is because they lack the social capital necessary to muster resources against police violence. As Jacobs and O'Brien (1998) point out, without constraints, police violence is more probable than when under community constraints. It is important to note that these three studies (Kane, 2002, 2003; Jacobs and O'Brien, 1998) did control for a reactive hypothesis wherein police were simply responding to criminal activity within these communities.

Overall, literature in this domain has found that, without appropriate agency controls, minority communities are more prone to police violence

compared to majority communities (Fyfe, 1982; Meehan & Ponder, 2002). Tying all these studies together (Kane, 2002, 2003, 2006; Jacobs & O'Brien, 1998) is the idea that the police and the social environment in which they work are bound together in an ecology: just as the environment impacts police behavior, such as misconduct, so too can police behavior impact overall patterns of citizen behavior, such as burglary and robbery. Importantly, the social environment under scrutiny in these studies (and others, e.g., Sherman, 1986; Smith, 1986) were the politically created and enforced boundaries of the police precinct.

What goes on in an officer's territory therefore guides his behavior: sometimes liberating it (e.g., *in this neighborhood, it's ok to ...*), sometimes constraining it (e.g., *in this neighborhood, it's best not to ...*). For example: a precinct with a particularly high crime rate will result in high levels of arrest. In such a neighborhood, the means of fulfilling the police mandate - arrest - is the accepted law enforcement response to high crime. In a precinct with lower rates of crime, however, arresting behavior may vary, because the mandate is more nebulous: *The crime rate here is relatively low, so should I, as an officer, arrest this individual for something that in a high crime area I normally would, because that's what's expected of me there? Or can I let this slide?* The answer is: it depends on a number of situational factors (Terrill & Reisig, 2003), precinct-level elements (Klinger, 1997), and ecological covariates (Kane, 2002, 2003, 2005). The difference between the two scenarios is largely a matter of what extra-legal reasons can enter the decision making picture. I submit that one such predictor is to be found in the overall institutional environment.

Isomorphism and the Institutional Environment

According to Weber, one source of organizational legitimacy, which he coined *rational authority*, is drawn from an organization's ability to match its behavior to desired outcomes. Early theorists, therefore, argued that legitimacy was gained through the output-oriented success of organizations. The expansion of the bureaucratic model and the rational acquisition of legitimacy were first understood in terms of economic and international competition and the concomitant search for the efficient means of production. Organizational theorists argued that to the degree that what an organization did was rationally tied to its outcome, and that that outcome was achieved with maximal efficiency, it earned and maintained legitimacy. Many contemporary theorists suggest that the tie between what an organization does and its outcomes may have little or nothing to do with an organization's legitimacy. Rather, many modern organizational theorists argue that legitimacy is now less tied to efficiency and is more part of subordinating structure and operation to the institutional plane's *status quo* (DiMaggio & Powell, 1983). Just as Weber (1964) argued that bureaucracy was the inevitable iron cage of society, many modern organizational theorists suggest that the structure of organizations is inevitable because of the pressures exerted from the institutional environment (Meyer & Rowan, 1977; DiMaggio & Powell, 1983). Clarifying his definition of legitimacy, Suchman (1995) wrote: "...when one says that a certain pattern of behavior possesses legitimacy, one asserts that some group of observers, as a whole, accepts or supports what those observers perceive to be the behavioral pattern, as a whole" (p. 574).

This shift in understanding came about largely because researchers began to realize that a) not all organizations behaved according to their bureaucratic structure, and b) not all organizations had operational (that is, quantifiable and measurable) goals (Parsons, 1963; Meyer & Rowan, 1977; DiMaggio & Powell, 1983; Blau & Meyer, 1971). Yet, such organizations not only survived but in many cases thrived. Parsons (1963) offered one explanation for this paradox: He pointed out that society held intangible values that were reinforced by the political climate of that society. These values trickled down to organizations which ostensibly were set up to carry those values out. One problem with this process was, being intangible, the operationalization of these goals was *categorical* rather than *quantitative* (Meyer & Rowan, 1977). Unable to measure their goals, organizations were also unable to meet the bench-marks held up by a Weberian bureaucracy. This threatened their legitimacy, and hence their survival. Organizations, therefore, had to seek legitimacy elsewhere.

DiMaggio and Powell (1983) suggested that one way in which organizations acquire legitimacy is through isomorphism: "...[the] bureaucratization and other forms of organizational change [that] occur as the result of processes that make organizations more similar without necessarily making them more efficient" (p. 147). The point DiMaggio and Powell are making is that organizations copy one another not because another organization's operations or structures are seen as efficient means to a promising outcome, but simply because another organization may be perceived as legitimate. By copying it, an organization hopes to acquire legitimacy itself. In a very real sense,

institutional isomorphism is the organizational equivalent of peer pressure: organizations make structural and behavioral changes according to the demands of their institutional environment to conform.

DiMaggio and Powell (1983) outlined three mechanisms of isomorphic change. Coercive isomorphism occurs whenever powerful stakeholders put pressure on an organization to adopt or drop specific policies, practices, or organizational elements. For example: the adoption of mandatory arrest policies in cases of domestic violence during the 1970s and 1980s were largely in response to law suits and the activist behavior of women's advocacy groups (Sherman, Schmidt, & Rogan, 1992). Mimetic isomorphism occurs whenever, in a bid to acquire legitimacy, organizations adopt the practices of similarly purposed organizations which are already seen as legitimate. This form of isomorphism is most common when "organizational technologies are poorly understood...when goals are ambiguous, or when the environment creates symbolic uncertainty" (p. 151). For example, the presence of paramilitary units in small town police departments which have no need of them may reflect efforts to imitate the police agencies from larger cities (Kraska & Cubellis, 1997). Finally, normative isomorphism occurs as a result of an organization seeking to couch its purpose and methods within the broader institutional environment, generally via professionalization. For example: as COMPSTAT has come to be understood as an effective *crime fighting tool*, its adoption has spread throughout the United States (Willis, Mastrofski, & Weisburd, 2007).

For all forms of isomorphism, entities already possessing legitimacy or holding the power to define an organization's legitimacy are called sovereigns (Meyer & Rowan, 1977). Sovereigns include *inter alia* other organizations with the same or similar goals. Sovereigns may also include individuals (Katz, 2001). This may be the case when there is a particularly charismatic chief or sheriff, such as Bratton, Arpaio, or Bouza. Additionally, this may occur whenever an officer is seen as a stand-up cop who is able to effect change. This, for example, occurred in Katz's (2001) study where the commanding officer of a new gang unit was able to endow that unit with legitimacy. Any entity perceived as legitimate may be considered a sovereign insofar as its or his influence is unduly strong on the behavior of others or other institutional entities.

According to the institutional perspective, organizations vie for legitimacy in light of the demands of sovereigns in order to survive (DiMaggio & Powell, 1983). Failure to conform to institutional standards may result in the inability to acquire legitimacy, the loss of organizational relevance, and disbanding – without any regard for efficient productivity or the ties between practices and outcomes. Sovereigns exist because they are perceived to either have legitimacy, or because they have some resource-advantage over other units in the environment. Their legitimacy can come from tradition, a charismatic leader, or from the socio-legal environment of the society of which they are a part (Weber, 1964).

Suchman (1995) extends this line of thinking by pointing out that there are at least three ways that an organization can respond to isomorphic pressure. An

organization may simply conform to the expectations of their institutional environment. Or, they may select into another institutional environment more in line with the direction they want to take. Finally, an organization may attempt to manipulate their environment to ensure their own legitimacy and survival. In all three scenarios, *legitimacy* and its acquisition remain part of a socially constructed reality (Meyer & Rowan, 1977). This reality may have little or nothing to do with the efficient production of output-oriented goals. What matters is that organizations carry the appearance of conforming to the expectations of their institutional environment. Insofar as an organization successfully maintains the appearance of doing what is expected of it from the institutional environment, it can maintain legitimacy. This also has the effect of making organizations within the same institutional environment more similar to one another than different (DiMaggio and Powell, 1983).

Using Isomorphism to Explain Aggregate Police Behavior

This dissertation has thus far discussed four topics: organizational legitimacy, the police mandate, territoriality, and institutional isomorphism. The purpose of the current section is to explain how the organizational literature on legitimacy and institutional isomorphism can help us understand the territorial behavior of police given their mandate. Using institutional theory to study police agencies has an intuitive appeal. For one, police departments are by design highly bureaucratized (Roberg, Novak, & Cordner, 2005). Further, law enforcement agencies are attached to the executive branch of municipal, county, or state governments; as such, their organizational legitimacy is exposed to external

political pressures (Strecher, 1991). What is more, police administrators have historically and contemporaneously made a concerted effort to be aware of the practices of other agencies (Giblin & Burruss, 2009). This began as early as the creation of the IACP, an organization originally created in the 1890s to assist in apprehending cross-jurisdictional felons, and which has since evolved into an advocacy and professionalism group.

The articulation of policing through the institutional lens, however, was not fully undertaken until the early 1990s with the work of Crank and Langworthy (1992; see also Langworthy, 1986). Crank and Langworthy (1992) made the argument that police agencies, as highly institutionalized complex organizations, should be studied as such. They suggested that because the police are given a single tool - enforcement of the law via arrests, citations, etc. - to achieve a broad and nebulous mandate, their legitimacy is threatened. Institutional theory predicts that they will look to their institutional environment for cues on how to acquire legitimacy. The police are part of a value laden institutional environment which creates an image of *who the police are* and *what the police do*. Any one police department seeks to conform to the expectations of its institutional environment: "Institutional organizations operate in environments that are complex, with values. The organizations, to survive, turn their focus 'outward' to acknowledge influential constituencies and the values they represent" (Crank, 2003, p. 186). The sovereigns (Meyer & Scott, 1992) included in this environment are *inter alia* political parties and actors, media, citizen groups, and, especially, law enforcement professional associations and other law enforcement agencies and

influential officers (Giblin & Burrell, 2009; Katz, 2001; Crank & Langworthy, 1992). Crank (2003) explains:

Efficiency, however, occurs within a context in which fundamental values are rarely questioned. Put differently, efficiency considerations are always present in "means" considerations... But goals, organized and stated in terms of institutional values and taken for granted meanings, link the organization to its broader societal or community context. Institutional elements are fundamental to the social glue and foundational to interactional processes; thus, we rationally reaffirm our socially constructed and morally meaningful world on a daily basis (p. 204).

The police mandate is endorsed by the institutional environment of the police, including the media (Manning, 1978; Potter & Kappeler, 2006), the political environment (Wilson, 1968), other officers, and the organizational environment (Slovak, 1987; Kappeler, Sluder, & Alpert, 1998; Manning & Van Maanen, 1978). Indeed, the idea that police should not be out searching for villains and engaging in law enforcement to protect the innocent (Klockars, 1986), despite that this is a picture of what amounts to rare police activity (Manning, 1977; Klockars, 1986; Rubenstein, 1973; Wilson, 1968) is inconceivable to most segments of the American society - including the police themselves (White, et al. 2010). The police mandate is part of the overall social fabric that informs both politics and the institutional environment (Parsons, 1963). It has achieved that level of taken-for-grantedness that characterizes Suchman's (1995) cognitive order of legitimacy.

These and other discussions of institutional theory and policing behavior lack what I contend is the key element for understanding the isomorphic

framework, namely: territoriality. Territoriality can be used to explain how isomorphism occurs. The following section elaborates on this statement.

Isomorphic Effects on Police Territorial Behavior

Conforming to the expectations of the institutional environment may have several effects on the territorial behavior of the police. First, the mandate informs the goals of police agencies, and territoriality helps us understand the behavior that officers take to achieve these goals (Katz, 2001; Slovak, 1987). Giblin (2006) explains that the institutional environment constrains the choices an agency can make in response to specific environmental exigencies. Because police behave territorially, and because their behavior is guided by institutionally informed values, their actions in the areas for which they are responsible are constrained by what is institutionally allowed (Rubenstein, 1973). For example, the continuation of random patrol and a focus on rapid response time in the face of countervailing research are all the result of choices that agencies have made within the suite of options made available to them (Crank & Langworthy, 1992). Whatever their efficacy, these are activities the police are expected to engage in.

On the other hand, the ecology of a territory may also play an important role. When the problems of a territory clearly align with the police mandate, isomorphism may have less of an effect. When the problems do not necessarily align with the police mandate, isomorphism may have a stronger effect in informing officer behavior. From Klinger (1997) we learn that each precinct has a going-rate of crime that is deemed acceptable. This going rate is informed to a great degree by a number of social variables associated with the aggregate

attributes of the residents. So, too, from Kane (2002, 2003, 2005) we learn that the ecology of a neighborhood impacts police behavior net of the ecology of surrounding neighborhoods. What this means is that isomorphism may behave differentially according to the attributes of any given areal unit.

The third ramification has to do with the existence and influence of *sovereigns* as suggested by the institutional literature. Sovereigns define both the goals and the means to achieve those goals across organizations. They are powerful and influential actors within the institutional environment. For the police, sovereigns include special interest groups, media, citizens, other policing agencies, other officers, professional organizations, monies granting institutions, and various political units (Katz, 2001). Neighboring police agencies will often share similar crime problems and challenges, and may therefore look to the same set of sovereigns for guidance on how to maintain legitimacy. Isomorphic processes may therefore take place spatially, spreading out centrifugally from those agencies most proximate to sovereigns. This would predict that agencies closest to one another are most similar to one another, and that similarities decline between agencies and sovereigns concomitantly with distance. Additionally, this would predict that proximity to a sovereign predicts behavior.

The State of Institutional Research in Policing

Since Crank and Langworthy's (1992) piece, there have been approximately two dozen studies that have directly or indirectly used the institutional framework to understand police organization behavior, the majority of which have found support for it generally and, for those which have studied it

explicitly, for isomorphic pressures specifically (Crank, 2003). Isomorphism has been used to explain adopting specialized policing units (Katz, 2001; Giblin, 2006), disbanding of law enforcement agencies (King, 2009), implementing community policing (Giblin & Burruss, 2009) and COMPSTAT (Willis, Mastrofski, & Weisburd, 2007), and policing hate crimes (Jenness & Grattet, 2005). In general, these studies have used the isomorphic framework to explain organizational changes. Katz (2001), for example, found that a Midwestern police force created and maintained a specialized gang unit ultimately to please community stakeholders. Both the unit's creation and activities were aimed at maintaining the agency's legitimacy (Katz, 2001). On the other end of the spectrum, King (2009) found that agencies that either cannot change according to environmental demands or who change in ways that are displeasing to powerful actors who are exterior to the department risk losing legitimacy. As a consequence, many such agencies in King's sample were disbanded.

Recently, Giblin and Burruss (2009) have taken a first attempt at quantifying institutional processes in policing. This is an important step, as previous researchers have pointed out that "while institutional theory offers some compelling hypotheses about organizations, its propositions are not easily measurable and are therefore very difficult to test using macro-level survey research methods" (Katz, Maguire, & Roncek, 2002, p. 480). Giblin and Burruss (2009) were able to tease out three distinct institutional constructs: professionalization, publications, and mimesis. Each of these constructs bear directly on the topic of isomorphism insofar as they touch on the question of what

ways police activities are guided by non-rational principles which are influenced by the institutional environment. Despite Giblin and Burruss's (2009) efforts, however, the study of isomorphism in the realm of policing remains akin to the state of social disorganization prior to Sampson and Groves (1989) and Bursik & Grasmick (1993): the antecedent dependent variables are examined in relation to endogenous variables without empirically testing the intervening processes.

Theoretical Extension

Institutional theory revolves around the question of organizational behavior. It generally seeks to explain organizational behavior in terms of the pressures of the larger institutional environment. This environment is composed of sovereigns, among which are other organizations which work in the same milieu. From the discussion throughout this chapter, there is ample theoretical reason and empirical evidence to suggest that an attempt to understand police organization and behavior through an institutional lens has the potential to be fruitful (Crank, 2003). The bulk of research exploring isomorphism in policing has been inter-agency. It has asked the question to what extent can one agency's behavior be determined by the behavior of other agencies. There is also reason to expect that applying this framework to the intra-organization level may be fruitful, at least for larger police agencies. Large police agencies are essentially composed of several organizations, starting at the precinct level and even boiling down to the beat level. By extension, there may exist intra-agency isomorphic processes, where one precinct or one beat is influencing the behavior of other precincts or beats. This section will expand on this concept, discuss the

appropriate unit of analysis for isomorphic processes to most likely occur, and conclude with a discussion on the most appropriate dependent variable for a study of isomorphic effects on police behavior.

Isomorphism as an Intra-Agency Phenomenon

The idea that isomorphic processes may occur at the intra-organizational level as well as between organizations was suggested by Meyer and Rowan (1977) who wrote that "units within the organization use ceremonial assessments as accounts of their productive service to the organization. Their internal power rises with their performance on ceremonial measures" (p. 351). Regarding the police, Crank (2003) similarly suggested that isomorphic processes could be used to understand the behavior of the police within individual agencies. Large police organizations are typically composed of precincts which can be understood as sub-organizations drawn from the overall jurisdictional structure of the entire department (Klinger, 1997). These organizations within organizations can be analyzed using the isomorphic framework because all precincts need resources. To acquire these resources, they must maintain legitimacy; as the rational means of acquiring such legitimacy is impossible, each sub-organization must seek legitimacy through non-rational means. Specifically, by observing and mimicking the behavior of other sub-organizations with the same goals, similar problems, and similar challenges.

Katz (2001) demonstrated the reality of this process by documenting that the continual existence of a specialized gang unit in one police department depended less on what they accomplished and more on the extent to which the

rest of the police agency perceived its existence as necessary and legitimate. At first, the unit was perceived as nothing more than a public relations unit constituted with lazy police officers. To acquire legitimacy, the unit's supervisor changed its structure and the behavior of the officers assigned to the unit to something that aligned more closely with what other officers would understand to be "real" police work, and networked to ensure that all gang-related information came to the specialized gang unit. Because of these changes, the unit was seen as legitimate and necessary to the operation of the police agency. In this way, the unit was able to survive despite the lack of any real gang problem in their jurisdiction (Katz, 2001).

Precincts, of course, are not the only sub-organizations within a police department, because precincts are composed of beats. Nevertheless, the policing literature is consonant in asserting that *precincts* are the most appropriate territorial unit to study police behavior. Rubenstein (1973) pointed out forty years ago that the police are only concerned with what occurs within their sector (that is, their precinct). Klinger (1997) extended Rubenstein's line of thought and argued that, because ecological research is most concerned with community-level research, any researcher interested in studying the ecology of the police must answer what constitutes a police community. He concludes that for the police, the precinct is the appropriate analog to a citizen's community:

The shared responsibility within the exclusivity across jurisdictional and district boundaries create distinct systems of policing at the district and small jurisdictional level. Thus, while all jurisdictions, districts, and beats are delineated by geography, only the collections of beats that form small jurisdictions and districts of large ones have the social and territorial unit

character that defines *community* as human ecologists ... use the term (p. 282, emphasis in original).

Most of a patrol officer's time is spent surveying specific neighborhoods within his precinct (Rubinstein, 1973; Klinger, 1997). Although officers may work in other jurisdictions through calls for service, overtime, or temporary assignment, the bulk of their time and concern is spent within their precinct, as it is on this area that their legitimacy rests (Rubinstein, 1973; Wilson & Kelling, 1982; Klockars, 1986; Klinger, 1997). In some cases this focus is initiated by the patrol officer, while in others it is in direct response to a call for directed patrol (Sherman & Weisburd, 1995). Monthly or bi-weekly COMPSTAT meetings involve holding supervisors accountable for the geographic unit for which they are responsible; these accountability sessions trickle down to line officers (Walsh, 2001). Perhaps most importantly, the precinct house is the center for information exchange among officers, thus at once limiting their knowledge and informing it (Sherman, 1986).

Other theorists have also concluded that the police work group, which is integral to forming officer behavior, is developed and experienced at the precinct level (Kane, 2005; Herbert, 1997; Sherman, 1986; Klinger, 1997). What is more, due to the territorial nature of policing and the spatial distribution of criminal behavior, it is likely that precincts within close proximity of each other physically are likely to influence one another. For the Philadelphia officers from Rubenstein's (1973) study, their knowledge was essentially limited to their district (precinct), with the exception of officers who worked along the sectors (beats)

that bordered other districts: "If he is assigned to work a border sector, he may get to know several of the men who work opposite him; he may even share lunch with them occasionally. Otherwise, contacts across district lines are limited to chance encounters at local hospitals and occasional exchanges when the men come to each other's aid on assists" (p. 129). Therefore, the territorial organization of policing should constrain the effects of the institutional environment to those precincts within proximity of each other in a centrifugal pattern emanating from those precincts deemed to be sovereigns because of their perceived legitimacy.

The Place of Discretionary Arresting Behavior

It is submitted here that *arresting behavior* is the most appropriate unit of measurement for the theoretical framework that has been presented. Most observers have noted that police rarely invoke their full law enforcement power, and that a better description for what officers do is order maintenance (Wilson, 1968; Sykes, 1986; Klockars, 1986; Crank & Langworthy, 1992). This is the reality of police work, but it does not necessarily reflect the institutionally informed rhetoric of what police "ought" to be doing. Law enforcement, with its ever present threat of the use of force, is the most active image of the police that citizens have in mind when they think about what the police ought to be doing. Consider one of the most common responses to being pulled over: "Shouldn't you be somewhere catching the real criminals?" A quick look at the most recent *Crime in America* (Federal Bureau of Investigation, 2010) statistics on the clearance rate suggests that arrest is simply not an efficient or effective means of catching the villain: the highest clearance rate was for murder/nonnegligent manslaughter - a

crime that typically requires very little by way of police initiative for clearance purposes - at 66.6 percent, compared to the lowest, motor vehicle theft and burglary, at 12.4 and 12.5 percent, respectively. Despite its inefficiency, arresting criminals is what the police are expected to do.

It is because of this situation - that police are expected to fulfill their mandate of fighting crime through a less than efficient means - that Crank and Langworthy (1992) also submitted that arresting behavior was exceptionally susceptible to isomorphic pressures, "The elaborate organizational structure emphasizes law enforcement activities, reinforcing the police department's institutional image as a 'crime fighter,' in spite of inconsistencies between that image and the actual work of the department" (p. 344). This idea was reiterated by Chappell, MacDonald, and Manz (2006) who argued that arresting behavior was an appropriate measure of police activity because it was influenced by a variety of factors, including the political environment and the crime rate, and because it was influenced by "beliefs about justice in a particular area" (p. 293). That is, arresting behavior is particularly sensitive to the isomorphic processes within a given areal unit.

We will most likely be able to observe isomorphic trends in those areas where police have the most discretion. This is especially the case with juveniles and non-felony offenses. Research has consistently supported the notion that non-felony cases receive a wide latitude of police discretionary behavior (Walker, 1993; Skolnick, 1966) as does police treatment of juvenile offenders/delinquents

as compared with adult offenders (Piliavin & Briar, 1964)⁴. In general, the less serious the offense, the more discretion the police have. Kalven and Zeisel's (1966) liberation hypothesis also helps explain the discretionary behavior of the police. The liberation hypothesis indicates that for low-level crimes, where the appropriate action to take against such offenses is more or less ambiguous, justice actors are left to their own impressions in determining the best course of action. This hypothesis was tested and confirmed in 1991 by Spohn and Cederblom, who found, among other findings, that

In less serious cases...the appropriate sentence is not necessarily obvious; consequently judges are liberated from the constraints imposed by the law, by other members of the courtroom work group, and by public opinion, and are free to take into account extralegal considerations such as race (p. 323).

For lower level crimes where action is not clear, such as drug crimes (Lynch, et al. 2002), or property crimes when compared to violent crimes, or for juvenile crimes when compared to adult crimes, police are given more latitude in terms of how they behave.

4 Arresting behavior is only one aspect of what police do that represents formal social control associated with their mandate. Although the literature makes a strong argument that it is the most likely behavior to be influenced by isomorphic trends, it is certainly not the only formal police behavior subject to institutional pressures. Fyfe (1982) demonstrated that official policy can sway the behavior of police; it therefore stands to reason that anything that can come down the administrative pipe-line may be influenced by the policing institutional environment. For example: Efforts by the Arizona legislature to require police officers to check the citizenship status of individuals, during a lawful stop, for whom they have a reasonable suspicion that they lack official documentation has caught on in several other states, including at least South Carolina, Pennsylvania, Minnesota, Rhode Island and Michigan (Gorman, 2010). While the analyses in this dissertation will focus on arresting behavior, for the reasons presented above, other potential targets for institutional pressure to conformity will be revisited in the final chapter.

Synthesis and Research Hypotheses

Weber (2004) teaches us that for a state to exist, it must maintain its borders and the peace and order within those borders. Failure to do so threatens the legitimacy of a state, and subsequently its stability and existence. In the United States, as with most democratic countries, the task of maintaining peace, safety, and order within the borders of the country is assigned to the police, who are endowed with the awesome capacity to use deadly force (Bittner, 1970). In a very real sense, the police represent the state's obligations under the social contract (Hobbes, 2009; Locke, 1993; Rousseau, 1992). This obligation is articulated as a mandate for the police: to protect the innocent and capture the villain through the "efficient, apolitical, and professional enforcement of the law" (Manning, 1978, p. 8). However, the primary tool at the disposal of the police, law enforcement through arrest, is tenuously and irregularly associated with the goal – a goal which, while seemingly discrete is, in fact, nebulous (DiIulio, 1995). Given the disconnect between the *means* of law enforcement and the *goal* of law enforcement (Goldstein, 1979), the legitimacy of the police may be compromised.

For this reason, police agencies may look elsewhere for legitimacy. Organizational theory suggests that one such venue is within the institutional environment itself (Crank & Langworthy, 1992). By acceding to the demands of institutional sovereigns, and by becoming more similar to other agencies perceived as legitimate, police agencies a) maintain legitimacy while simultaneously b) diminishing organizational and behavioral variation across the

institutional environment. This process is known as isomorphism (Meyer & Rowan, 1977; DiMaggio & Powell, 1983).

Institutional theory has traditionally been applied to answer the question of why organizations are similar. It may also be applied to answer the question of why subunits *within* a complex organization are similar (Meyer & Rowan, 1977). This line of thought holds promise for the study of the precinct-level behavior of police agencies. Large municipal police departments (and some large county sheriff's offices) are organized along early 20th century bureaucratic models, including a scalar hierarchy and division of labor. Each subunit acts in relative autonomy from its counterparts, needing to answer only to higher level command staff. While specialized units are delineated according to a division of labor based on expertise (e.g., a homicide unit), patrol officers, the backbone of any police department and the bulk of its sworn employees, are not. Rather, patrol districts are allocated according to politically designated areal units. It is for this reason that policing scholarship suggests that policing behavior – particularly aggregate policing behavior – can gainfully be understood from a territorial perspective (Klinger, 1997; Rubinstein, 1973; Herbert, 1997). Indeed, research has consistently demonstrated that the territory in which police behave impacts *how* they behave in fulfilling their mandate (Kane, 2002, 2003, 2006; Jacobs & O'Brien, 1998; Klinger, 1997). Therefore, in order to understand how police precincts acquire and maintain legitimacy, it is important to start from a territorial framework.

To explore the role of isomorphism on the behavior of police precincts, I propose the following hypotheses:

1. Net of controls, the juvenile arresting behavior of police in any given PSA will be influenced by the juvenile arresting behavior of neighboring PSA's in a centrifugal pattern. This pattern will be strongest for crimes that allow for more discrimination.
 - a. Violent juvenile crimes will exhibit this pattern less so than other crimes, because violent crimes allow for less police officer discretion.
 - b. Similarly, juvenile property crime arrests will exhibit this pattern less so than the two remaining dependent variables: juvenile drug crime arrests and juvenile gun crime arrests.
 - c. Juvenile drug crime arrests will be especially prone to isomorphic influences, as they allow for more police officer discretion (Lynch, et al. 2002) than either juvenile property arrests or violent crime arrests. This will also be the case because the morality of drug crimes is not as explicit as that of violent, property, or gun crimes. This ambiguous morality will carry an equivocal meaning for the police mandate that will require PSA's to consider the behavior of their neighbors for insight on how to treat such crimes.
 - d. Juvenile gun crime arrests will also be prone to isomorphic influences; however, it is noted that this research took place during *District of Columbia v. Heller* (2008). Because of this

circumstance, juvenile gun crime arresting behavior will exhibit more spatial stability than juvenile drug crime arrests because of the political climate. This is to say that, because of the Supreme Court's finding in *DC v. Heller*, we should expect to see similar behavior in terms of juvenile gun crime arrests across the District.

2. The existence of sovereign precincts should be empirically observable. Again, for crimes with more discretion, we should see more of a sovereign effect insofar as the spatial dependency suggested in hypothesis 1 will have its effect ultimately through sovereign precincts.
 - a. For juvenile violent crime arrests, this effect will be the smallest when compared to property, drug, and gun crime arrests.
 - b. Juvenile property crime arrests will display this pattern more so than violent crime, but less so than the other arrest types.
 - c. Given the fluid nature of drug crime arrests, sovereigns will have a strong effect on juvenile drug crime arrests.
 - d. Sovereign effects may be noticeable for juvenile gun crime arrests, but ultimately, it will be a concerted agency-wide effect that we will witness, owing to the nature of the *Heller* case.
3. The research insists that the ecology of an area is highly influential on police arresting behavior, and we see no reason to think that this will not be the case in an institutional context. It is very plausible that a PSA's ecology can overwhelm any institutional effects. This is especially true in terms of the minority threat hypothesis and its relationship to serious

crime. Therefore, all arrest dependent variables will exhibit ecological and racial effects which will ultimately weaken institutional processes.

Ultimately, these hypotheses tie back into the core research questions of the current study: *why do police engage in behavior that, for all intents and purposes, is not associated with crime control*, and *why do police behave similarly, despite idiosyncratic exigencies*. The reason that their behavior does not result in crime control is because the tool of law enforcement does not necessarily lead to a reduction in crime. This threatens their legitimacy, and this is why they tend to behave and organize similarly: in an effort to claim legitimacy, they “copy” other agencies that appear to have acquired legitimacy. This theory can be drawn down to an inter-agency level: precincts should look and behave the same, despite different environmental pressures and despite a disconnect between what they do and what they achieve. These hypotheses test whether a) police agency subunits do, in fact, behave the same, and b) if this is so because they are copying each other’s arresting behavior.

Chapter 3

METHODOLOGY

Introduction

Katz, Maguire, and Roncek (2002) offer among the most thorough investigations of police organization behavior using an institutional framework, doing so from a qualitative standpoint. This was necessary largely because of how difficult it is to quantitatively observe and measure isomorphic processes (Katz, Maguire, & Roncek, 2002). In this section, I propose how isomorphism may be quantitatively investigated, approaching this challenge indirectly: rather than measuring isomorphism directly, I attempt to measure it by proxy. Physicists can know that a planet exists prior to actually seeing it by observing its gravitational pull, known as g , on surrounding space objects. In a similar fashion, I argue that we can tap into isomorphic processes in police organizations by observing the “pull” of one police precinct on another. That “pull” is an indication of mimetic processes at work: if, in controlling for variables relevant to police activity, we observe influence based on the behavior of neighboring precincts, theory suggests that the influence is due to institutional pressures to conform. In essence, the noise attributable to spatial autocorrelation becomes our invisible g . This chapter explains the research design used to accomplish this task.

Overview

Integral to this study’s methodology are the following components: territory, isomorphic processes, and sovereigns. In addition, other ecological factors associated with police behavior must be estimated, particularly those

developed under a social disorganization and minority threat framework (Kane, 2003, 2005). One of the challenges of empirically studying isomorphism has been the difficulty associated with measuring its processes, either directly or indirectly (Katz, Maguire, & Roncek, 2002). Drawing theoretically from the institutional literature, but methodologically from the recent work undertaken in the ecology of policing, this study attempts to capture isomorphic effects through a territorial framework by employing spatial analytic techniques.

Data for this study were acquired from an online clearinghouse hosted by the District of Columbia. Called the “Data Catalog”, the clearinghouse is a host of publicly available data including crime reports and juvenile arrests. Importantly, these data contain latitudinal and longitudinal coordinates of each incident, as well as a number of variables associated with the incident (e.g., type of weapon used), the offenders (e.g., race), and other areal properties (e.g., type of location, such as alleyway). In addition, data for the 2000 Census were merged with the data collected from the D.C. Data Catalog in an effort to account for ecological properties and processes not available from the D.C. data.

The Setting

The District of Columbia

The District of Columbia is unique in the United States as being a political entity set apart for the administration of governance (U.S. Const. art I. § 8). Its population therefore falls under the purview of the federal government, with relegated authority to a municipal mayor and council (only after achieving “home rule” in 1973). According to the US Census bureau, the population in 2010 was

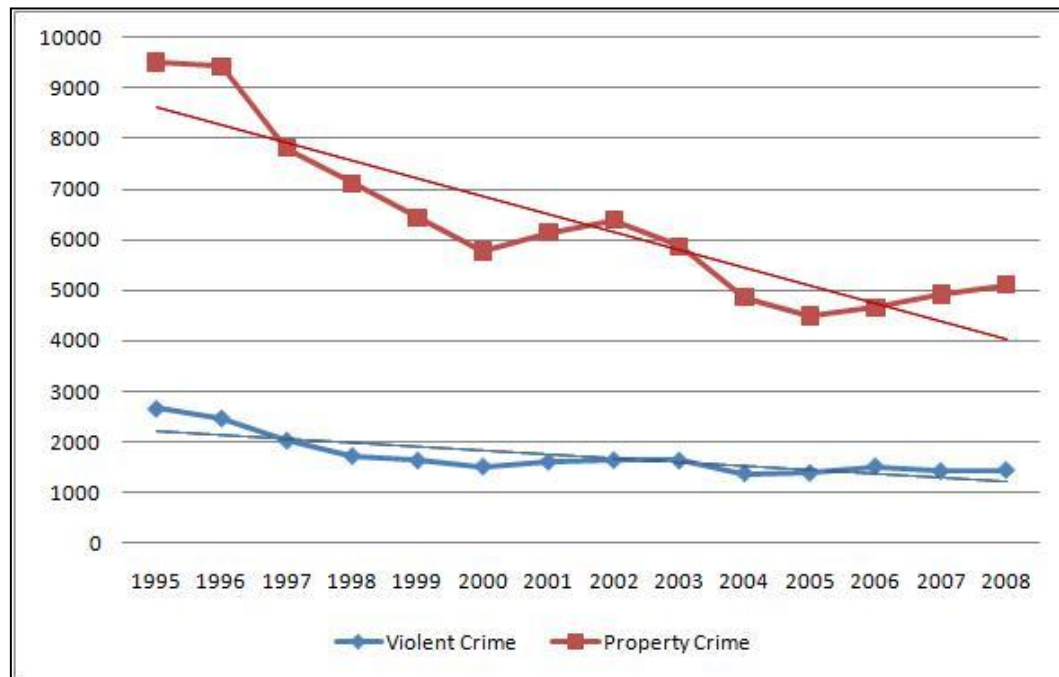
601,723, an increase of 5.2 percent from 2000 (572,059). Approximately 50 percent of the population is African American, and just over a third is White (approximately 38 percent). The District covers an area of 68.3 square miles and is surrounded on three sides by the State of Maryland, with the Commonwealth of Virginia abutting its southwestern border. The metropolitan area surrounding the District of Columbia is the seventh largest in the country, with over five million residents (US Census Bureau, 2010).

Concerning crime, in many ways, Washington, D.C. does not stand out from among other comparable cities in the United States. Looking at the UCR figures for available years suggests that, like the rest of the country, D.C. experienced a gradual post-World War II crime rate increase, punctuated by a sharp rise in crime in the 1980s. This was followed by an even sharper drop in crime during the 1990s (see Figure 1). D.C. is distinct as having had one of the highest numbers of murders during the 1980s and early 1990s, upwards of 400 a year. This compared to 186 in 2008. In 2008, there were 1,437.7 incidents of violent crime per 100,000 residents, and the property crime rate per 100,000 residents was 5,104.6 (all these figures rely on the FBI's Uniform Crime Reports, accessed via their website on June 1, 2011).

Washington, DC is also considered one of the most “over-policed” cities in the United States with at least four major police forces claiming jurisdiction in both distinct and overlapping physical locations (Kane & Cronin, 2011). These include the DC Metro Police, which functions as the municipal police force in DC, the U.S. Park Police, which has jurisdiction over all monuments and federal

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Figure 1. Washington, D.C. crime rate 1995-2008.



public spaces (and overlaps the most with the DC Metro), the Uniformed Division of the Secret Service, which patrols a broad perimeter around the White House, and the U.S. Capitol Police, which has jurisdiction around the Capitol Building and many other federal structures and institutions.

All of this suggests that Washington, D. C. is at once similar and dissimilar to other cities in the United States. This observation brings into question the external validity of the current project. If isomorphism is found to be

a unique force on police organization behavior, is this because of something idiosyncratic to Washington, D. C.? The threat to external validity is, however, mitigated by a number of other factors. First, although its municipal set up differs from other cities, it is yet organized similarly. In addition, there is no reason to expect that isomorphism is place-dependent: although it may manifest differently in different cities, its process will still be the same. For example, even though police may arrest at different rates in a rural town compared to an urban city, police in both cities are arresting. The process is the same, it is only the outcome that differs. Finally, despite the large degree of decentralization that has historically characterized American policing, police departments around the nation, even very large ones such as the New York Police Department or the MPD, are essentially organized along similar lines, and, indeed, behave along similar lines. Therefore, although external validity must be kept in mind throughout the presentation of research findings and subsequent discussion, there is reason to believe that DC is comparable to at least other similarly sized police agencies.

The Agency

The D.C. Metropolitan Police Department was created in 1861 at the behest of President Abraham Lincoln (MPDC, nd). Although there are several agencies responsible for the District of Columbia, the MPD is the largest both in terms of size and jurisdiction. The agency is divided into seven bureaus, and lead by a chief of police (currently Cathy L. Lanier). According to the BJS (Bureau of Justice Statistics, 2008), the agency is composed of over 4,400 members, over

three quarters of whom are sworn officers. Of these sworn officers, approximately 66 percent are African American and 28 percent are White. The department divides into 7 districts, which are further divided into Police Service Areas (PSA).

From the 2008 Annual Report (Metropolitan Police Department, 2009), it is evident that the MPD reflects the characteristics discussed above in the literature review chapter. Their mission statement, for example, reads “It is the mission of the Metropolitan Police Department to safeguard the District of Columbia and protect its residents and visitors” (p. 1). There is nothing uncommon to this mission statement (excepting, perhaps, the inclusion of “visitors”, which makes sense given the nature of Washington, D.C.) – which is, perhaps, the point of isomorphism. Further, under the mission statement are the Guiding Principles of Chief of Police Cathy L. Lanier. *Many* of these principles deal with community relations and interactions, innovative policing, and empowering line officers. The very first principle, however, is “Reduce crime and fear of crime in the community.” This statement clearly embraces the police mandate as explained above.

The first several pages of the Annual Report are narrative, describing the agency’s goals, programs, and efforts. But on the first descriptive page (7), the reader’s eyes are drawn to two blown up text boxes. One proclaiming “DC is no longer a city where one can get away with murder” and one titled “2008 Violent Crime Facts”. This latter box then lists reductions (by percentages) in overall violent crime, assaults involving guns, and robberies involving guns. Thus, while Chief Lanier can state in her opening message that “The officer who greets the

residents on her beat, listens to the concerns of her community members, runs towards the sound of gun fire, or thwarts a violent robbery is ‘just doing her job.’ These critical moments are not captured in the numbers...” (p. 5), the reader is then immediately inundated not with stories to this effect, but numbers. From page 16 on, for a total of 21 pages, the reader is exposed to tables and pie charts. Even in the narrative starting on page 7, whenever serious crime – the type of crime most people are not exposed to, but that crime of which we are most fearful – went down, this was highlighted. Beyond crime rates, the Annual Report also highlights response time: “In 2008, there was also a marked decrease in officers’ response time to calls for service” (p. 7). I state these things not to deride or chide the MPD’s efforts; rather, I point them out to demonstrate that the numbers game (Skolnick & Fyfe, 1993) and its relationship to the police mandate is still applicable to the police scene in Washington, D. C.

What is important to remember in this discussion is that the MPD are pulling these numbers because they demonstrate that they are *doing* something; that they are behaving like police are *supposed* to behave. Pages 7 through 10 discuss a number of programs that the MPD were engaging in in 2008, some innovative, some traditional. In almost all of them, however, is an explicit notion that the MPD are professional crime fighters. For example, their foot patrol program, Full Stride, “will also help MPD increase citizen participation by assisting MPD officers in preventing and solving crimes in the Nation’s Capital” (p. 7). Note that the focus is not on being co-producers of justice (DiIulio, 1995); it is, rather, on *assisting* the police in doing their job. Further, on page 9 we read:

Even as the Department's relationship with the community continues to grow through enhanced police visibility, outreach and collaboration, and our Homicide Task Force efforts, the MPD understands that some community members remain reluctant to come forward with vital crime information for a variety of reasons. As a result, additional ways for residents to reach out to the police anonymously have been created. Through the MPD's new toll-free crime tip line ... anyone who has information concerning a homicide, gangs, guns, or other violent offenses can report it anonymously. Additionally, community members can now provide the police with information...anonymously with the new Text Tip Line...

The subtitle for this section is "Community Support and Cooperation." The message is this: *we are the professional crime fighters, but we need your help to do your job. Your help is telling us when you see something.* This falls in line with the police mandate to be professional crime fighters.

In some ways, MPD is setting itself up as a sovereign agency: a police agency to which other police agencies look in order to better understand their proper form and function. Being a sovereign carries with it the weight of legitimacy: if you are able to convince others that you are this sovereign, then you *de facto* gain legitimacy. So we read that Chief Lanier's third principle is to "[p]osition the MPD to be viewed and respected nationally and internationally as a model for how it serves the community" (p. 1). MPD portrays itself as a sovereign, as having assumed the mantle of legitimacy: of being what a cop should be and doing what a cop should do. This is reinforced in their annual report for 2008 by the voluminous tables and pie charts that make up the bulk of the document. These characteristics coincide with the theory outlined above, and render the MPD an exemplary choice for the study of isomorphism.

Units of Analysis

Social ecological research typically takes the “neighborhood” as the most important “community” for analysis (Sampson, Raudenbush, & Earls, 1997). This can create a conundrum for ecological researchers insofar as they typically take administratively delineated areal units - such as census tracts or wards - as their units of analysis. Such units may or may not coincide with subjects’ own understanding of “neighborhood” or “community” (Sampson, 1997). As the research discussed above suggests, however, the most important “community” for police officers may not be the neighborhood. Rather, it is likely that areal unit which is most associated with their politically delineated territory. Put simply, the behavior under study (that of police) should determine the appropriate unit of analysis. This point was made both by Rubinstein (1973) and Klinger (1997) and reiterated empirically by Kane (2002). The *community* for a police officer is understood to be composed of the territory to which he is held accountable, a territory which is administratively defined. This definition, however, remains incomplete.

As Klinger (1997) has also argued, a police officer’s community is also composed of those elements of socialization most likely to shape his character and behavior, namely, the work group. It is through these socializing mechanisms that isomorphism is likely to have its effect. For the police, the work group has its formation and power within the meso-level aggregate of the department, between the beat and, depending on the size of the agency, either the department itself or

the precinct (Klinger, 1997; Kane, 2005). For the MPD, this meso-level aggregate is the Police Service Area, or PSA.

MPD PSA's are a collection of beats; a collection of PSA's make up a district, which is the first level of disaggregation in the MPD. There are 46 PSA's in the MPD. On average, each PSA hosts about 12,000 residents (median \approx 11,665; standard deviation \approx 822). This reflects the high population density characteristic of D.C. Reflective of the above description of Washington D.C. is the percentage of African American residents, with an average of 64.36 percent across PSA's and a relatively small standard deviation of 5.03 (although the range is about 4 percent to about 99 percent, the median of 77.07 percent is not too distant from the mean). In 2008, across PSA's there was a total of 3,453 juvenile arrests, with an average of 80.3 (median = 51) and a standard deviation of 117.72 (range = 740).

Data Sources

This study used two sources of data: the D.C. Crime Catalog and the U.S. Census. As already noted above, the D.C. Data Catalog contains a host of publicly available data, including crime data. This study made use of two samples: crime incidents and juvenile arrests. The Juvenile Arrests data set covers two years (2008 and 2009), and "contains a subset of juvenile arrest locations and attributes reported in the Criminal Justice Information System (CJIS) Arrest database by the District of Columbia Metropolitan Police Department (MPD)" (Data Catalog, 2011). These data are drawn directly from the MPD, who provide the same data

but only in tabular, PDF form. These data represent actual arrests, and were therefore used as a measure of police behavior (see below).

The Crime Incidents data set covers 5 years (2006 through 2010, inclusive), but only years 2008 and 2009 were used, as these years coincide with the juvenile arrest data. The crime incident data set “contains a subset of locations and attributes of incidents reported in the ASAP (Analytical Services Application) crime report database by the District of Columbia Metropolitan Police Department (MPD)” (Data Catalog, 2011). These data are drawn directly from the Metropolitan Police Department, but organized differently. Specifically: while the MPD provides the same data either by district or citywide, the D.C. Data Catalog allows downloading of single data files organized by year, with variables at the district level of aggregation with a variable assigning each incident’s PSA. The crime incidents data set is composed of reported crime, and was therefore used as a control for crime in the statistical models (see below). Both the Crime Incidents and Juvenile Arrests data sets are downloadable from the DC Data Catalog in spreadsheet form. In addition, the DC Data Catalog has available shape files of numerous areal units that were used to create spatial lag terms.

To retrieve the Census data, the American FactFinder online clearinghouse for the year 2000 was used to download data for the D.C. Metropolitan area at the tract level. (The variables downloaded are discussed below under “Variable Construction.”) Shape files from the D.C. Catalog for PSA and for tracts were also downloaded. Doing so allowed me to create the spatial lag variables (both

global and local) needed for analysis. These data sets were combined into one master data set.

Dependent Variable

The outcome that is of most interest to this study is *formalized police behavior*. As explained in chapter two, *arresting behavior* is one type of police behavior that theoretically is susceptible to isomorphic processes. To this end, this dissertation makes use of the juvenile arrest data set for the years 2008 and 2009. Juvenile arrests were used in lieu of adult arrests because it is here that isomorphic pressures are most likely to be experienced the strongest. As the seriousness of the offense diminishes, the discretion of the officer increases. If we understand isomorphism as a force guiding discretion, then it is reasonable to suspect that this force will be felt most acutely when discretion is at its apex. As the history and literature of policing indicate, juvenile offenders and delinquents are treated more leniently – that is, with more discretion – at the hands of the police than are adults⁵. Separate analyses were run for different categories of crime, specifically: juvenile violent, property, drug, and gun crime arrests. Certain crimes are more susceptible to officer discretion than others, and certain activities (e.g., felony arrests) are more valued by the organization than others, particularly in different places (e.g., Rubenstein, 1972; Klinger, 1997; Herbert, 1998). For example, violent arrests will almost universally be sought out by police officers

⁵ Using juvenile arrests begs the question if there are important differences between the isomorphic processes affecting it compared to those affecting the behavior of arresting adults. Theory would suggest that this would be a difference of degree, not of kind. That is, institutional pressure would still be exerted, and towards the same ends of crime control, but in a distinct fashion concomitant with how criminal justice actors generally approach juveniles, as compared with adults.

and would not be expected to be influenced by isomorphic processes; however, drug offenses may be more or less ignored by some officers in certain situations (Rosenfeld et al., 2007). Moreover, in certain communities, the police may place greater value on drug arrests, while in others they may engage in very little drug enforcement. Therefore, isomorphic processes may influence some arresting behavior differently than others. To this end, analyses were run for juvenile violent, property, drug, and gun arrests. Although arrest data, such as the UCR, are most often used as a measurement of crime, they are more validly employed as a measurement of what the police actually do (Lynch & Addington, 2007).

Key Independent Variable

The independent variable in which this dissertation is most interested is isomorphism. Capturing isomorphism in any quantitative fashion is a major hurdle of institutional research (Katz, Maguire, & Roncek, 2002). The territorial nature of policing, however, suggests a methodology for studying this phenomenon. As was explicated in chapter two, extant research and theory suggest that isomorphic processes extend spatially along adjacent PSA's: PSA's abutting one another are more likely to be similar in arrests than those further from one another, net of controls. Although the processes themselves are not measured directly, the theoretical framework developed here would suggest such an outcome. Therefore, the current study had to find a meaningful proxy for isomorphism. Further, given the importance of sovereigns to institutional research, it also had to find a way to distinguish sovereign PSA's from non-

sovereign PSA's. Both were accomplished by borrowing from spatial analytic techniques.

In any research employing data with pertinent spatial attributes, it is often necessary to control for spatial autocorrelation. In essence, spatial autocorrelation is the unaccounted for influence that neighboring areal units have on any given areal unit. This autocorrelation typically creates noise in regression models, resulting in Type I errors due to inaccurate standard errors and inflated t values (Ward & Gleditsch, 2008). Spatial lag terms are therefore exogenously included in the regression model in order to control for this noise. The use of spatial lag models, however, is not necessarily limited to controlling for this noise (Rey, 2004): it has been used effectively to explore the relationship between spatially proximate features and theoretically “close” relationships, such as between economically connected institutions that may, geographically, be quite distant (Beck, Gleditsch, & Beardsley, 2006; Elkins, Guzman, & Simmons, 2008). Because of the territorial nature of policing, the process of isomorphism may successfully be proxied by measuring spatial dependence relative to the dependent variables of arresting behavior.

It is important to distinguish between spatial autocorrelation and spatial dependence. Spatial dependence describes the phenomenon when the value of the dependent variable in one areal unit is influenced by (and influences) the value of the dependent variable in neighboring areal units. Spatial autocorrelation is the error that results when models employing spatial data do not control for spatial

dependence. In other words: the autocorrelation is error, while spatial dependence, in the form of a spatial lag term, is a measurable phenomenon.

The idea of using spatial dependence for something other than controlling residual error is not novel. Error terms caused by spatial autocorrelation, as with all error terms, are the sum of measurement error and unaccounted exogenous effects. In other words, in an error term there is inherent explaining power. This dissertation submits that we can tap into that explaining power in a theoretically meaningful way. Two seminal articles agree with this statement: the work of Gleditsch and Ward (2000) on democracy, war, and peace, and Anselin's (1995) ground-breaking article that outlined the different types of local indicators of spatial autocorrelation and their uses. In this piece, Anselin (1995) not only defined what a LISA statistic is, and its relationship to the global spatial environment, but also pointed out that LISA's represent *something* – that is, some phenomenon in the socio-spatial environment. Recall that a spatial lag term is *more* than error: it is the effect exerted on any given areal unit by its neighboring areal unit on the dependent variable. For example, if we are interested in police arresting behavior at the precinct level, and included a spatial lag term in our regression model, that term would indicate the degree to which a precinct's arresting behavior is influenced by the arresting behavior of its neighbors. That is an empirical statement: the why remains a theoretical question.

For an example, we turn to Gleditsch and Ward (2000). In this study, the authors were testing the degree to which stable and fragile democracies were more or less war prone. They note the following early in their methodology:

The role of geography has been widely ignored in studies addressing whether domestic regime characteristics help to understand international conflict behavior. Many studies have utilized geographical contiguity or distance between capital cities [e.g., spatial autocorrelation] as “control variables” in statistical models to indicate the “opportunity for conflict” between parties, and there have been several attempts to derive measures of geographical contiguity or proximity for contemporary and historical international systems. However, few *have exploited the information that geography provides as a principal determinant* of political relevance to *derive measures of the context of interaction* that a given polity faces (p. 6, emphasis added).

In this statement, Gleditsch and Ward (2000) are making the case that autocorrelation is substantively *more* than a control variable: it carries with it important theoretical meaning. The authors continue to endow spatial dependence with meaning throughout their article: “certain countries are connected to each other...and have an impact on each other” (p. 7), and “A country that experiences war, being located in a region of other countries also at war, is said to be influenced by the *local* spatial context of war” (p. 8, emphasis added). They then employ a LISA statistic to pinpoint such clustering of countries and its effect on democracy, war, and peace.

This is also not the first study to suggest that isomorphism can be expressed geographically: Leicht and Jenkins (1998), in a test of their proposed political resource theory, “attempt[ed] to take into account the embeddedness of subnational state governments by examining institutional isomorphism” (p. 1334). One of their measurements of isomorphism included what they called geographic mimetic pressure: the fact that neighboring states will mimic the behavior of their geographically proximate neighbors. This was measured by using a spatial lag term based on the inverse Euclidean distance between state capitals (a similar

methodology is used in this dissertation). Although their models indicated a nonsignificant lag term (yet other measures of isomorphism were statistically significant across their regression models), their study supports the current research's goal of using spatial analysis to measure isomorphic processes.

The spatial lag terms were calculated using the R package *spdep* (Anselin, 2003a, 2003b). Mathematically, spatial lags are the product of the dependent variable and a spatial weights matrix. A spatial weights matrix, or contingency matrix, expresses the potential influence between areal units based on some unit of distance or adjacency. The simplest forms of spatial weight matrices are calculated using adjacency: A given unit receives the score of 1 if it is adjacent to the target unit (or 1 divided by the number of adjacent units in row standardized matrices), and a 0 if it is not. A variation on this method is to use k nearest neighbors, where each target unit is assigned a total number of "adjacent" neighbors equaling k . Both of these methods lack validity in most settings. Concerning simple adjacency matrices, the problem arises in light of the so-called Tobler First Law of Geography: Everything is related to everything else, but near things are more related than distant things (Tobler, 1970). Adjacency matrices leave out any areal units that, while not imminently close to the target unit, are nevertheless important. Similarly, the k nearest neighbors approach projects a state of "neighborhoodness" on areal units that may not be connected - literally or figuratively - to the target unit, in the name of filling its k quota. For example, census tracts located across a river from each other without a connecting bridge are often counted as adjacent using a k nearest neighbors scheme (Rey, 2004). In

the case of DC, the large tracts of land that contain universities (at least five major universities are located in DC), national monuments, and federal complexes may give the illusion of adjacency, when in fact, such large clusters of land may represent “interruptions” -- or ecological barriers -- in the larger urban landscape (much like rivers without bridges).

A more nuanced and valid approach to estimating a spatial weights matrix is to use the inverse Euclidean distance between the centroids of areal units (Kane, 2005; Land & Deane, 1992). Doing so accurately reflects the fact that *distance* rather than *adjacency* determines importance as it relates to causal processes. Further, it more accurately models the centrifugal process of isomorphism espoused in the current study. To this end, isomorphism was captured by the spatial lag of juvenile arrests, using a spatial weights matrix calculated with the inverse Euclidean distance between PSA centroids. If police behave territorially, we would expect institutional pressure to be exerted along geographically defined boundaries - PSA's. Spatial analysis is designed to capture this process: insofar as the spatial diagnostic (known as Moran's *I*, and is explained in more detail below) is significant, we have evidence of spatial dependence.

Spatial analysis also suggests a means to empirically observing institutional (in this case, PSA) sovereigns. Areal characteristics are not always distributed normally within space. It is often the case that there are localized influences. These are captured in what are known as *local indicators of spatial autocorrelation*, or LISA (Ord & Getis, 1995). LISA statistics have been

interpreted as “hot spots” for various social and epidemiological phenomena, as well as a measure of the influence of idiosyncratic areal units on the global measure of spatial dependence (Anselin, 1995)⁶: “These indicators allow for the decomposition of global indicators...into the contribution of each individual observation” (p. 94). Anselin also states that “the LISA for each observation gives an indication of the extent of [statistically] significant spatial clustering of similar values around that observation” (p. 94). (For an example of the use of LISA as a means to effectively answer research questions concerning the undue influence of specific areal units, see Gleditsch and Ward, 2000 and Anselin, 1995, as well as the discussion above.) This is done by testing the null hypothesis for each areal unit that its values are not different from its surrounding neighbors (Messner & Anselin, 2004). Insofar as any PSA can be shown to have undue, localized, and statistically significant influence, it may reasonably be considered a sovereign. In other words, sovereigns should be observable as spatial outliers: they are PSA’s that exert undue influence on other PSA’s. PSA sovereigns will therefore be observed using the LISA analytical technique, the local Moran’s *I* (Anselin, 1995).

Control Variables

In order to capture effects associated with structural disadvantage, US Census data from 2000 were also be used. It is important to include variables

⁶ Technically, there are two types of LISA statistics: Local Moran’s *I* and *G*. The former is best articulated by Anselin (1995), while the latter is best articulated by Ord and Getis (1995). They each behave differently, while typically returning similar results. *G* is an indicator of “hot spot” activity, whereas local *I* is a disaggregation of the global environment. Because this study is interested in the effect of sovereigns on the global environment, we employed local *I* over *G*.

associated with structural disadvantage for at least two reasons. First, because of confounding effects associated with crime rates. And second, because it stands in as proxy for a community's level of informal social control, and its subsequent capacity to control the police (Bursik & Grasmick, 1993; Kane, 2003; Kane & Cronin, 2009). The following variables were used to create a factor score (or scores) for each precinct: percent foreign born, percent households under the poverty line, percent of persons 25 years or older without a high school degree or equivalent, population mobility (measured as the percent of persons who have lived at the same address for less than five years), the percent of persons under the age of 18, the percent of female headed households with children, the percent of households on public assistance, and the adult male unemployment rate. These variables have been employed in previous studies to capture structural elements associated with the ecology of both crime and police behavior (Land , McCal, & Cohen, 1990; Morenoff & Sampson, 1997; Sampson, 1997; Wilson, 1987; Kane, 2002). These variables were submitted to a principle component analysis using an orthogonal rotation; it was expected, based on prior research that two factors would emerge: one for structural disadvantage and one for population mobility (Kane, 2011). As described in chapter 4, this was the case.

Another important variable that must be controlled for is race and ethnicity. As Kane (2003) discovered, it is possible - and theoretically feasible - to see a nonlinear relationship between race/ethnicity and police deployment. Percent black per PSA was therefore controlled for, due to the demographic make-up of Washington, D.C., which is approximately 50 percent black.

Although this variable may be confounded with the structural disadvantage variable, it is theoretically important to analyze it separately in terms of the threat hypothesis (Blalock, 1967; Kane, 2003; Jackson, 1989; Chambliss & Seidman, 1982). For the same reasons, the Hispanic population was also controlled for in initial models. As discussed below, however, for reasons concerning model fit, Hispanic population was not included in the final models.

The most robust predictor of any police behavior is arrestable crime. Crime may result in arrests because it provides police with the licit opportunity to seize a citizen and limit their behavior. Crime also may result in arrests because it can lead to increased deployment and/or attention on the part of a police department, which then may lead to more arrests (Kane, 2003). The relationship between crime and arrest may be nonlinear, however, depending upon other neighborhood characteristics, such as race and structural disadvantage. Klinger (1997) has pointed out that certain areas have a distinct allowance when it comes to crime; it is only when something changes in that neighborhood or when criminal behavior “crosses the line” that arrests may be invoked. Similarly, Kane (2003) has demonstrated that, depending on the racial composition of a neighborhood, arrest may be invoked more or less often, as certain groups are perceived as a threat. Whereas before a given group was seen as little more than a nuisance, as it grows in population it may be seen as threatening, thus receiving more police attention. As this group’s population numbers reach a tipping point where it is seen as normal and part of the typical social fabric, police may reduce the focus of their arresting powers from this group. In order to capture the amount

of crime in a PSA, the data from the crime incident data set were used. Although practically impossible to truly measure the amount of crime anywhere at any time, crime reports, such as those contained in the crime incident data set, provide a good proxy for criminal activity (Kane, 2003; Lynch & Addington, 2007).

Finally, since the amount of police activity is also proportional to the number of police officers in a given area, I also controlled for police presence. This was controlled for in two distinct ways: by including district dummies, but also via the crime reports data. This is discussed in more detail in the next chapter.

Analytic Strategy

Once the variables were constructed, frequency statistics and correlation matrices were run in order to observe the nature of the data and of potential relationships. After this, I followed the methodology outlined by Ward and Gleditsch (2008). Namely, to map the data in order to get a handle on the spatial nature of the dependent and key independent variables. Next, in order to determine the existence of global spatial dependence, I employed the Moran's *I* statistic. Then, I created the spatial lag variables and ran regression models, analyzing each model's residuals. These regression models explore institutional isomorphism generally. Finally, I repeated the last two steps, but focused instead on local indicators of spatial dependence, rather than global, using the local Moran's *I*. These models explore the specific influence of institutional sovereigns on the organizational environment of the MPD at the PSA level. The following sections detail these steps, beginning with data mapping.

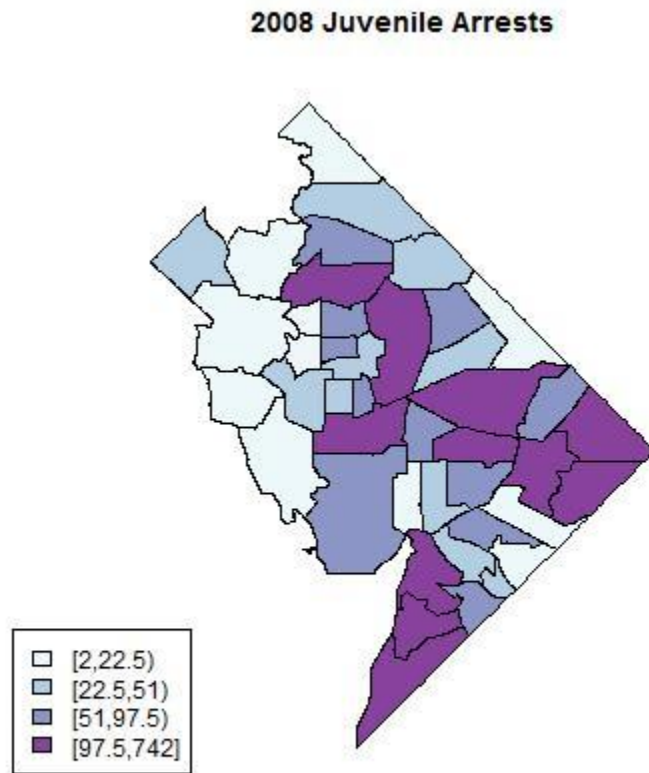
Mapping

In spatial analysis, *maps* are the basic “frequency statistic” employed to learn about the nature and behavior of the data, and to begin teasing out theoretically important relationships. To this end, choropleth maps were created for the dependent variables. In a choropleth map, statistical information is displayed visually; the statistic used can be changed according to what the researcher is interested in. Quartile maps were used for the current study. What we were looking for in these maps is *evidence of similarity among abutting PSAs*, where similarity progresses in a centrifugal manner. Considering figure 2, there is some evidence of this occurring: the darker areas give way to lighter areas concentrically, and PSA’s closer to one another are more often the same color than PSA’s that are distant from each other.

Global Spatial Dependency

Although there are several methods for estimating spatial dependency, the most conventional is the Moran’s *I* statistic (Anselin, 1988). The Moran’s *I* statistic allows us to discern meaningful patterns of spatial dependency - that is, it tells us if the spatial patterns we see in choropleth maps are statistically significant, or a fluke (Ward & Gleditsch, 2008). Understood in its most general form, the Moran’s *I* is a cross-product of spatial proximity and a measure of the similarity of a specific attribute. The sum of these cross-products is the Moran’s *I*. Calculating the Moran’s *I* is useful for the following additional reasons: First, it calculates the summed cross-product term and provides the resulting significance level. Second, it provides for visualization of the Moran’s *I* in the form of

Figure 2.



scatterplots. If the Moran's I were statistically significant, this would lend support to what we can see in figure 2: there is some spatial dependency among MPD PSA's. If this were the case, we would be one step closer to finding empirical support for the theoretical framework used in this study.

Spatial Lag Models

Once the presence of spatial dependency had been established, a series of regression models were estimated to test the research hypotheses. First, a standard regression model was run that included all of the variables except the spatial lag

of the criterion. The residuals were then scrutinized to determine if heteroscedasticity was a problem. This included the use of Breusch-Pagen test for heteroscedasticity. Assuming the Moran's I was found to be significant, it is most likely that heteroscedasticity would be a problem, owing to spatial autocorrelation (although this is not necessarily the case, see Ward & Gleditsch, 2008). Once this has been established, then the full spatial lag model was run. Because models using spatial lags typically employ maximum likelihood methods, model fit was established by observing the likelihood ratio, and the Akaike information criterion [AIC; equal to $2k - 2\ln(L)$, where k is the number of parameters in the model and L is the maximum value of the likelihood function of the model] (Long, 1997). To further ensure the accuracy of the model fit of the spatial lag model, the LeGrange Multiplier was calculated. If the LaGrange multiplier was significant, this would add to our confidence in the model fit of the spatial lag model as opposed to a spatial error model (Anselin, 1988).

The results of these initial analyses would suggest the degree to which the outcome in the dependent variable could be explained by the value of the dependent variable of its neighbors. If the spatial lag term was significant in a model, net of controls, this suggested an isomorphic process at work. The magnitude of that affect could also be measured and compared to the model's control variables. Because the dependent variable has several iterations – e.g., drug related arrests, etc. - I was also able to compare the impact of isomorphic processes on different police behavior. This is only the first step in understanding the nature of isomorphism on police behavior; using these same techniques, or

variations on these techniques, I was further able to tease out sovereigns and the effects of proximity to sovereigns on arresting behavior.

LISA Analysis

This series of analyses followed the steps outlined above for general spatial dependence, but with the following important distinctions. First, I used local Moran's *I* rather than the general Moran's *I* to test for spatial clustering (Anselin, 1995). All PSAs which had a statistically significant local Moran's *I* were considered sovereign PSA's. Note that the local Moran's *I* is interpreted in the following manner: if it is positive, it suggests that surrounding areal units are similar on an attributional value; if it is negative, it suggests that surrounding areal units are dissimilar on an attributional value. There are four types of LISA units: high-high, low-low, high-low, and low-high. These designations refer to what the particular areal unit is in terms of the mean of the dependent variable, and by what it is surrounded. Thus, a high-high areal unit would represent a unit that is significantly above the mean of the dependent variable, more than what chance would presume, surrounded by similarly high units. On the other hand, a low-high unit would represent one which is below the mean, yet surrounded by units that are above the mean. For example, if a PSA is high-high, the high volume of juvenile arrests in this unit would be exerting an undue influence on the (high) number of arrests in its neighboring units.

Given the theoretical framework of the current study, it was assumed that the LISA's would go in the same direction. This is how sovereigns should, theoretically, behave: a high sovereign, where police are engaged in above

average arrests, should influence its neighboring PSA's to also invoke arrest an above average number of times. Conversely, a sovereign PSA that does not consider the arrest of misdemeanor crimes, for example, to be imperative may be surrounded by PSA's which, following its lead, rarely engage in arrests for non-felonies. On the other hand, although it is assumed that LISA's will either be high-high or low-low, according to the theoretical framework outlined above, it is still possible that low-high or high-low PSA's may exist, as well. It may be that such PSA's have territorial exigencies that are simply not in play with their neighbors (or lack the same exigencies displayed by its neighbors), or are "hold-outs" against whatever pressure is being exerted on them to conform to the expectations of the institutional environment.

LISA Regression

I used a series of LISA models that consider the effect of LISA's on the spatial environment. This is an appropriate tool for the current study because in arguing that the institutional environment of the police exerts pressures to conformity (e.g., isomorphism) geographically along territorially delineated avenues, I am essentially making an argument for spatial heterogeneity. The very idea of sovereigns assumes that some members of an institutional environment affect other units differentially. In a spatial environment, this is the same thing as saying that some areas affect others areas differentially, a concept known as spatial heterogeneity. We can use this concept to better observe the effect of sovereigns on the institutional environment.

For this analysis, I treated each LISA cluster as a dummy variable. A series of models for each measurement for the dependent variable were run using the dummy variables for that particular criterion. Each dummy variable was interacted with the spatial lag term. The resulting coefficient for the interaction term provides us with a more accurate measurement of the effects of sovereigns on the institutional environment than my previous analyses as it includes the variance associated specifically with each sovereign. In other words, this coefficient explains the strength of spatial dependence – that is, isomorphism - as expressed through sovereign PSA's.

What Makes a Sovereign a Sovereign

Being able to observe sovereigns and their influence on the institutional environment is important and theoretically relevant: but understanding why is an important next step. As this dissertation stands, I have used theory to propose how to predict the existence of sovereigns and measure their influence on the institutional environment. Theory can also help us in understanding why PSA's act as sovereigns – that is, why certain PSA's seem to have undue influence on the behavior of their neighboring PSA's. "Sovereigns are other actors whose views are significant, that is, they are entities that have the capacity to affect the fundamental well-being of a police organization" (Crank & Langworthy, 1992, p. 342). Sovereigns are sovereigns because they either hold some sway over other institutional actors (such as purse strings or constituents) or because they are perceived as already possessing legitimacy. It is in this latter reason that I propose peer PSA's will have their effect: those PSA's perceived to be legitimate will

exert isomorphic power, not so much because of what they do, but because of how others perceive the importance of what they do.

In order to understand why certain PSA's seem unduly influential at certain times, I followed what other researchers have done in isomorphism research and the justice system (e.g, Katz, Maguire, & Roncek, 2002), namely, asked questions of those at the ground level about what was going on in the agency at that time. To this end, as permitted, I spoke with representatives of the MPD to get their perspective on what (and even if) any particular PSA's were doing that made them so influential. These were unstructured interviews where the purpose was to elicit discussion from the respondent in order to construct a rich picture of the MPD's institutional environment (Cook & Campbell, 1979). In addition, in a supplementary and exploratory analysis, I ran a logit model in an effort to see any relationship between being a sovereign and the other covariates of this study.

The idea here is to combine what the quantitative analyses tell me – are there isomorphic effects among PSA's? If so, where? And how do sovereign PSA's influence neighboring PSA's? – with interview data to create a picture of how isomorphism is truly going on in the MPD during my study period. As with all triangulation approaches, the analyses are not to be interpreted as separate processes. They are, in fact, complimentary and informative of one another.

Recalling this dissertation's research hypotheses:

1. Net of controls, the juvenile arresting behavior of police in any given PSA will be influenced by the juvenile arresting behavior of neighboring PSA's

in a centrifugal pattern. This pattern will be strongest for crimes that allow for more discrimination.

- a. Violent juvenile crimes will exhibit this pattern less so than other crimes, because violent crimes allow for less police officer discretion.
- b. Similarly, juvenile property crime arrests will exhibit this pattern less so than the two remaining dependent variables: juvenile drug crime arrests and juvenile gun crime arrests.
- c. Juvenile drug crime arrests will be especially prone to isomorphic influences, as they allow for more police officer discretion (Lynch, et al. 2002) than either juvenile property arrests or violent crime arrests. This will also be the case because the morality of drug crimes is not as explicit as that of violent, property, or gun crimes. This ambiguous morality will carry an equivocal meaning for the police mandate that will require PSA's to consider the behavior of their neighbors for insight on how to treat such crimes.
- d. Juvenile gun crime arrests will also be prone to isomorphic influences; however, it is noted that this research took place during *District of Columbia v. Heller* (2008). Because of this circumstance, juvenile gun crime arresting behavior will exhibit more spatial stability than juvenile drug crime arrests because of the political climate. This is to say that, because of the Supreme

Court's finding in *DC v. Heller*, we should expect to see similar behavior in terms of juvenile gun crime arrests across the District.

2. The existence of sovereign precincts should be empirically observable.

Again, for crimes with more discretion, we should see more of a sovereign effect insofar as the spatial dependency suggested in hypothesis 1 will have its effect ultimately through sovereign precincts.

- a. For juvenile violent crime arrests, this effect will be the smallest when compared to property, drug, and gun crime arrests.
- b. Juvenile property crime arrests will display this pattern more so than violent crime, but less so than the other arrest types.
- c. Given the fluid nature of drug crime arrests, sovereigns will have a strong effect on juvenile drug crime arrests.
- d. Sovereign effects may be noticeable for juvenile gun crime arrests, but ultimately, it will be a concerted agency-wide effect that we will witness, owing to the nature of the *Heller* case.

3. The research insists that the ecology of an area is highly influential on police arresting behavior, and we see no reason to think that this will not be the case in an institutional context. It is very plausible that a PSA's ecology can overwhelm any institutional effects. This is especially true in terms of the minority threat hypothesis and its relationship to serious crime. Therefore, all arrest dependent variables will exhibit ecological and racial effects which will ultimately weaken institutional processes.

The methodology outlined in this chapter clearly speaks to each of these hypotheses: I am able to consider global spatial autocorrelation (hypothesis 1) while controlling for territorial characteristics (hypothesis 3). In addition, using LISA analysis, in conjunction with LISA dummy variable regression, I am able to observe and measure the distinct influence of sovereign PSA's (hypothesis 2).

Chapter 4

DATA MANAGEMENT AND BASIC STATISTICS

This chapter covers two major components: data management and basic frequency statistics. First, I will describe how census data were aggregated to the PSA level. This is an important process and deserves note because census tracts do not naturally aggregate to the PSA. Second, I will go over the important frequency statistics (mean, standard deviation, etc.) for the four dependent variables to present an idea of the general behavior of the data. I will proceed similarly with the control variables. This process will also include a series of choropleth maps with accompanying commentary.

Data management

Aggregating Census Data to PSA's

This dissertation uses three data sets and two polygon collections. Two of the data sets and the two polygon collections were downloaded directly from the D.C. Data Catalog as described above in the methodology chapter. The juvenile arrest and crime report data sets were combined to create new unique data sets: one for 2008 and the other for 2009. These were aggregated to the PSA level and joined to the PSA polygon map via *ArcGIS*.

Prior to constructing the control variables derived from the census, the tract polygon set had to be joined with the PSA polygon set. Because tracts do not naturally aggregate to the PSA level (tracts are geographically smaller than PSA's and are often dissected by PSA borders), areal weighting interpolation was used to estimate census data for the PSA's (Wang, 2006). The tract polygons were first

overlaid across the PSA polygons (after having projected the tract polygons to match that of the PSA's, namely "NAD 1983 StatePlane Maryland FIPS 1900"), creating an "intersect" polygon set. The area for these new polygons were calculated using the *calculate geometry* command in *ArcGIS*. The following formula was used to create a weight: *area of the intersect polygon/area of the original tract*. The census variables were then weighted by this quotient. Each PSA's census variables were then created by summing the scores for each intersect variable within its boundaries (Wang, 2006).

Missing Data and Data Set Integrity

As data construction and analysis progressed, it became evident that the integrity of the 2009 data were not that of the 2008 data. First, it was noted that there were more data missing from 2009 than 2008 (24 percent in 2009 compared to 22 percent in 2008)⁷. In addition, coefficients often behaved irregularly and unexpectedly - for example, *crimes reported to the police* was found to be negatively associated with juvenile arrests for violent crime in 2009. This finding, in and of itself, is not necessarily a "red flag": a common complaint among minority communities is that they are *under-policed*. This would be the case if we were to see a pattern within the extant literature where highly reported crime was inversely related to a juvenile arrest rate. In the current context, however, this finding is suspect. First, no prior research (e.g. Kane, Gustafson, & Bruell, 2011) has seen a similar pattern in D.C. Second, this is not a pattern one would expect to

⁷ The missing data is complicated by another factor, as well. My "22 percent" came from the data downloaded directly from the DC Data Catalog. However, when we consult the 2008 Annual Report (Metropolitan Police Department, 2008), this percentage is reduced to 7.9 percent. It is, then, perhaps safest to say that, as with all agency data, reliability is a concern (Jacob, 1984).

find on a city-wide context. Rather, it is something we would expect to see in interaction with community-level measurements.

A third reason why the 2009 data are not reliable for areal analyses is that the change in coefficient magnitude between 2008 and 2009 was often too drastic than what could reasonably be expected. Assuming, for example, that the negative association between reported crime and juvenile arrests for violent crime can be explained as miscoding, this does not adequately explain a 2008 coefficient of 0.85 ($p < 0.001$) compared to a 2009 coefficient of -0.34 ($p < 0.05$). Indeed, it is somewhat doubtful that it would have gone from a positive to an inverse change between 2008 and 2009. This was also seen in the Moran's I values. For example, the Moran's I for 2008 total drug crime was 0.461 ($p < 0.001$), compared to the 2009 coefficient of 0.178 ($p < 0.05$). Indeed, while exploring Moran's I and LISA coefficients for a number of possible dependent variables, several that showed up significant and robust in 2008 failed to reach significance or be of meaningful magnitude in 2009. For these reasons, the data for 2009 was deemed untenable for analysis.

The pattern of missing areal information just described follows a general pattern in the DC Data Catalog where less juvenile data each year are being processed areally. In 2010, 32 percent of juvenile arrests were missing areal information, compared to the astounding 99.6 percent of 2011. Note that this pattern is not as pronounced for the reported crime data sets, where, in 2008, 0.4 percent of cases were missing PSA information, and in 2009 0.0037 percent of cases were missing PSA information. This pattern is confusing, equally to the

research analysts at the MPD Research and Analysis Branch with whom I spoke concerning this. A related issue is the absence of *any* juvenile arrest information for three PSA's: 201, 205, and 707. The MPD Research and Analysis Branch pointed out that PSA 707 is a military base, and as such, juvenile arrests do not come to the MPD. As with the missing areal information, however, the analysts were at a loss as to the other two missing PSA's.

Missing data is a concern with all agency reported data: any study that employs such data risks less than ideal specificity (Jacob, 1984). It is a special case when it comes to areal data. Interpolating to which areal unit a piece of datum belongs, though feasible, is not always desirable or necessary. First, even if data are missing at random, it does not mean that they are missing at random spatially. Indeed, one of the things that criminologists have known since Park and Burgess (1967) is that crime is *not* randomly distributed in space. This is particularly the case for both census data and crime data, which often go under observed (in terms of data collection) in inner-cities (Haining, 2003). It is initially doubtful, therefore, whether the data missing areal information are doing so at random. The spatial patterns of juvenile arrest from the current data, however, do follow the same pattern observed in previous studies (Kane, 2011). It is reasonable, then, to assume that these missing data do not pose a considerable threat to model behavior.

Regarding the three missing PSA's, one is a military base (707), so we can more accurately describe this situation as two missing PSA's: 201 and 205. While imputing missing areal units is feasible (but speculative; see Haining, 2003), it is

also unnecessary in the current situation. First, given the nature of spatial data, the spatial processes from PSA's 201 and 205 are being captured by their neighbors (indeed, the analysis below will bear this out). As Haining (2003) points out, "...the presence of spatial correlation in attribution values means that neighbouring attribute values provide an information source for missing-data prediction" (p. 155). In other words, any spatial effect PSA's 201 and 205 (and, ostensibly, 707) exert will be observable in the spatial environment. (In some ways, this is wrapped up with an important limitation of the current study: PSA's that border Maryland and Virginia are not directly measuring the effects of these states. However, as will be demonstrated with the local Moran's *I* statistics and LISA coefficients, there is substantial autocorrelation - both local and global - across dependent variables, such that PSA's 201 and 205 are most likely behaving as their neighbors behave.) In analytical terms, their neighbors act as the missing PSA's' proxies. Data imputation was therefore avoided because a) it was unnecessary; b) it is, in many respects, speculative, given the spatial nature of the data; and c) to assure more conservative model estimates. Data imputation can push data sets towards analytical consensus, inflating the risk of Type I errors.

Basic Frequency Statistics

Four dependent variables were chosen for the current study: juvenile arrests for violent, property, drug, and gun crimes. These four were chosen based on two considerations. First, in terms of discretion, we typically see violent crimes receiving less discretion than property crimes, which, in turn, receive less discretion than drug crimes, etc. Despite the war on drugs, how police handle less

serious, but more popular drugs, is not always consistent (law enforcement behavior during prohibition being an excellent example [Walker, 1998]; see also Brooks, 2005). Gun crimes were chosen purposely because of Washington D.C.'s unique gun laws: at the start of 2008, all firearms had to be registered, and private citizens could not own handguns. This policy was struck down in 2008 by the U.S. Supreme Court (*District of Columbia v. Heller*). Choosing these four criteria, therefore, provide us with a wide range of discretionary behavior among law enforcement officers, and a special case of gun laws in the United States.

Table 1. Descriptive statistics for dependent variables (per PSA).

	<i>mean</i>	<i>median</i>	<i>SD</i>	<i>range</i>
Violent crime arrests	22.28	18	17.99	59
Property crime arrests	10.84	6	13.74	78
Drug crime arrests	7.77	5	8.56	33
Gun crime arrests	5.05	3	5.69	26

Table 1 presents parametric descriptive statistics for each dependent variable for 2008. As expected with arrest data, each variable is heavily skewed to the right. For example, on average, there were 22.28 violent juvenile arrests in each PSA for 2008. However, this is within a range of 59. Given a median of 18, it is clear that some PSA's are outliers. Although the standard deviation for property crime arrests is less pronounced, the range is wider. Both drug crime arrests and gun crime arrests follow similar patterns, with more truncated ranges and smaller means (ranges of 33 and 26 respectively, with means of 7.77 and 5.05). These numbers indicate that some PSA's are much higher than others in these juvenile arrest categories. Table 2 presents the total number of arrests per crime type per PSA. It is noted that there are several cells with values of 0. As

will be discussed below, this reality resulted in the use of count-models that use either a Poisson distribution or a negative-binomial distribution (Long, 1997).

Figure 3 presents each PSA by quartile for juvenile violent crime arrests. From this map, it is clear that violent crime arrests are concentrated in the southeast and central areas of D.C. What this map implies is more spatial stability in the northwest. Arrests for juvenile violent crime does display a spatial pattern, increasing in numbers from the northwest to the southeast.

Figure 3.

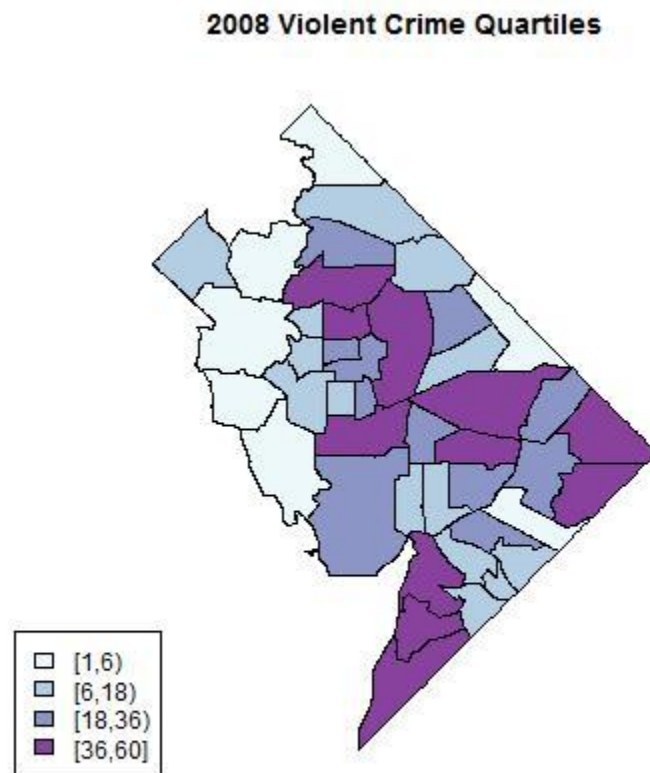


Table 2. Distribution of dependent variables.

<i>PSA</i>	violent	property	drug	gun
101	40	23	14	9
102	21	16	0	3
103	46	14	13	9
104	32	6	24	6
105	6	3	0	0
106	6	1	13	1
107	26	8	2	5
202	6	6	1	0
203	3	0	0	0
204	2	1	0	0
206	2	5	0	0
207	1	0	0	0
208	7	12	0	2
301	6	0	6	2
302	43	9	6	16
303	8	1	3	2
304	34	3	5	2
305	20	3	1	3
307	13	2	4	2
308	19	4	8	1
401	1	1	0	0
402	12	13	1	2
403	27	3	8	3
404	37	11	16	7
405	14	4	1	2
501	60	32	14	11
502	18	6	5	4
503	2	0	4	0
504	46	16	27	15
505	13	13	5	3
601	19	7	12	5
602	59	78	30	15
603	35	19	9	4
604	40	34	22	8
605	2	2	1	1
606	6	4	3	1
607	30	5	3	6
701	13	7	6	1
702	17	8	6	10
703	38	16	11	12
704	14	18	10	4
705	54	29	7	14
706	60	23	33	26

Figure 4 presents the quartiles for property crime. As with violent crime, there are more property crime arrests for juveniles in the southeast than there are in the northwest. What is more, the change is more gradual than violent crime. Again, this suggests the presence of spatial processes.

Figure 4.

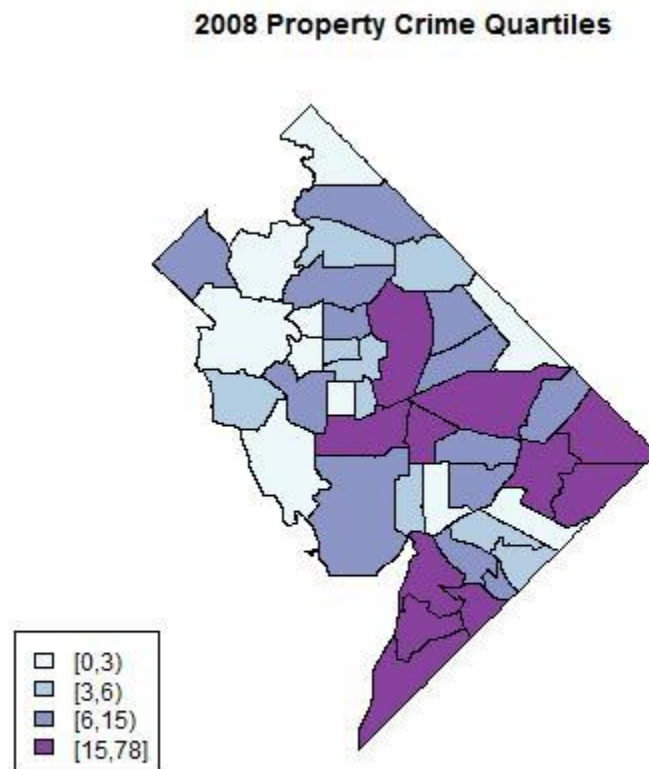
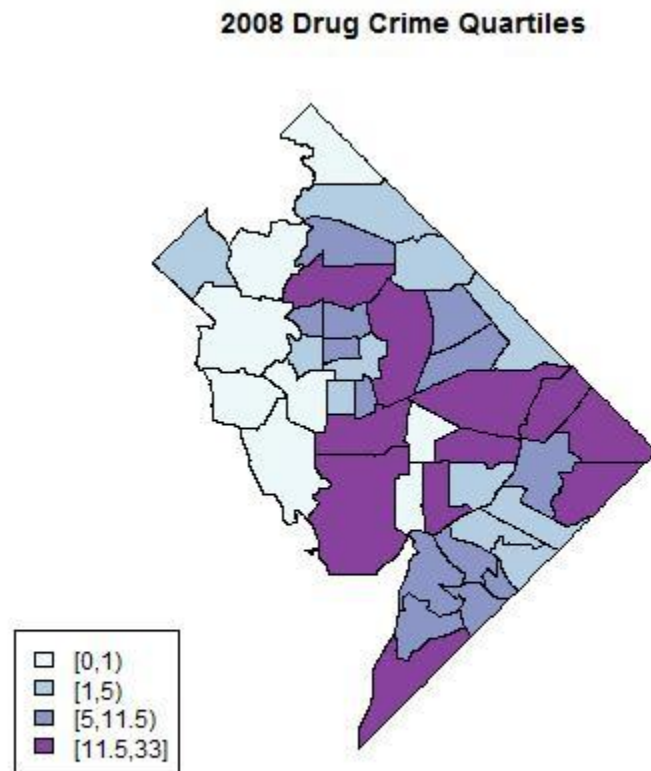


Figure 5 presents the quartile maps for juvenile drug arrests in 2008. Again, drug arrests are concentrated in the southeast. Further, there is less variation in this choropleth map than in the violent crime map, but more so than

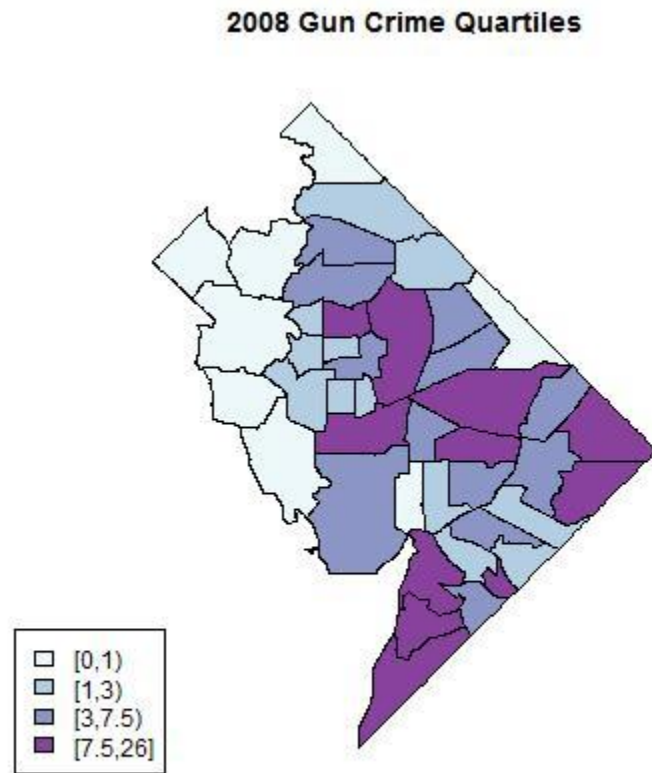
the property crime. Again, we expect to see global spatial dependence because of this pattern.

Figure 5.



Finally, the gun crime choropleth map seen in Figure 6, suggests a similar spatial pattern. As with property crime, there is relatively little variation, suggesting global institutional processes rather than spatial dependence.

Figure 6.



I used the variable *total crime reported* in an effort to control three processes: the dark figure of crime⁸; requests for police officer time; and as a proxy for number of police per PSA. We were unable to measure the number of police officers per PSA directly. There were two reasons for this. First, police are not strictly allocated according to PSA. Rather, they are assigned to districts. The

⁸ Although this is not an ideal measurement of the dark figure of crime, as many individuals do not report crime, it is better than arrest and provides an added check against our arrest rate.

number of police officers in each PSA can therefore *potentially* change from time to time. A small variation in police officer assignment is desired, because such activity is one avenue through which isomorphism may function. However, this same situation poses a potential threat to this study's validity insofar as it is difficult to claim a PSA is a sovereign when its contingent is constantly in flux. This is mediated, however, by at least two factors. First, the nature of each PSA can create its own culture, leading officers who may move in and out of the PSA to adopt the culture of that place, thus maintaining the normative productivity patterns. Such was the theoretical assertion posited by Klinger (1997) and supported by the literature (Phillips & Sobol, 2010; Johnson & Olschansky, 2010; Sobol, 2010; Jackson & Boyd, 2005).

Second, although the MPD does not permanently assign officers to PSA's in a strict sense, it is very unlikely that there is significant week-to-week, if not month-to-month, turnover in those areas. Rather, it is most likely the case that officers move between beats within PSA's, as was the case with the Philadelphia Police Department (Rubinstein, 1973). It is recalled that PSA's are not beats, but are instead *service areas*. As such, they are composed of several beats. With the possible exception of special assignments that require patrol officers to focus on different areas of a PSA – and even these are likely to come from within the same district-, it is most probable that patrol officers will work in the same PSA for several months at a time.

It is also noted that the MPD does not make publicly available the number of officers per district, and were not forthcoming with this information. Controlling

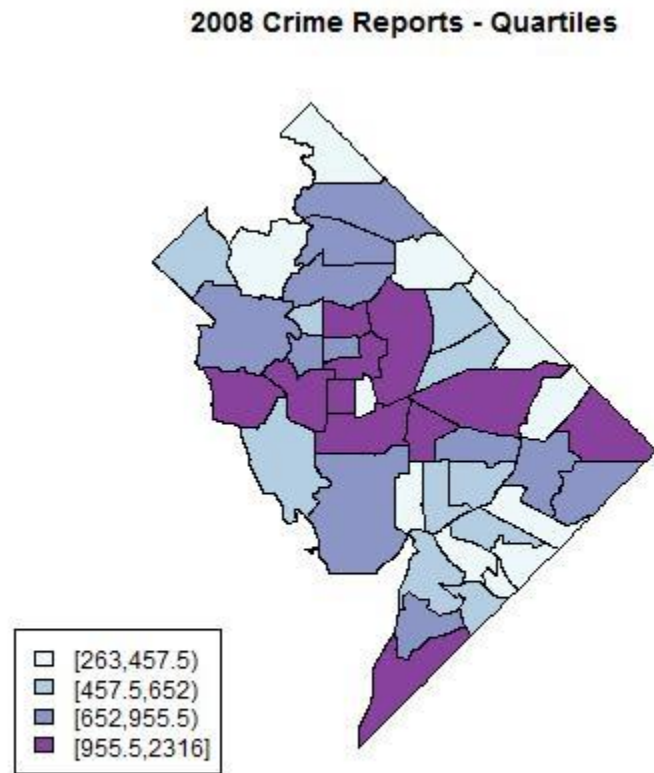
for the district, therefore, allows us to control for police population. Assuming that there is a nonzero difference between districts in terms of police population, the correlation between police population per district and district would be 1. Note that there were seven police districts in 2008. The first number in each PSA represents the district to which it belongs: thus PSA 201 is the first PSA of the second district.

We used reported crime as a general proxy for number of police officers because it gives us a snapshot of which officers were where in 2008 overall. Given the fluid nature of police officer allocation to PSA's, this was a reasonable attempt to control for police officer population. As indicated in Table 3, there was an average of 761.59 crimes reported across all PSA's in 2008. As with arrest data, report data were not normally distributed, with a median of 610 and a standard deviation of 495.28, across a range of 2296. Figure 7 below indicates the quartiles for crime reports; the map suggests some variation across space.

Table 3. Descriptive statistics for crime reports.

	<i>Mean</i>	<i>Standard Deviation</i>	<i>Median</i>	<i>Range</i>
Assault with a deadly weapon	62.02	48.61	46	178
Arson	1.02	1.31	1	6
Burglary	81.61	50.37	78	240
Homicide	4.04	4.42	2	17
Robbery	95.48	69.74	75	328
Sex Abuse	8.98	7.72	7	32
Stolen Auto	115.13	79.02	102	391
Theft	198.63	193.80	163	959
Theft from Auto	194.67	157.54	147	764
Total crime reported	761.59	495.28	610	2296

Figure 7.



Ecological Variables

Structural disadvantage, population mobility, and race variables were created using the resulting data set from the areal weighting interpolation process described above. Percent foreign born, percent households on public assistance, percent households under the poverty line, percent persons 25 years or older without a high school degree or equivalent, percent persons living in the same household for five years or less, percent under the age of 18, percent female headed household, and the male unemployment rate were all submitted to a

principal components analysis with varimax rotation. As Table 4 indicates, two components were extracted accounting for 70.89 percent of the variance.

Table 4. Component loadings for structural disadvantage and population mobility*

<i>Eigenvalue</i>	4.33	1.34
Percent variance explained	54.12	16.76
Percent foreign born		-0.741
Percent in same house \leq 5 yrs		0.923
Percent households on assistance	0.899	
Percent households below poverty line	0.954	
Percent persons (25+) with no HSD/E	0.74	
Percent persons under the age of 18	0.803	
Percent female headed household	0.72	
Male unemployment rate	0.581	

* Varimax rotation.

One component, on which percent in the same household for five years or less ($b = 0.923$) and percent foreign born ($b = 0.741$) loaded strongly, represents population mobility. The other variables loaded strongly on another component, and represent structural disadvantage. A PCA was run for both components separately to create component scores using the regression method. Tables 5 and 6 present the loadings for these components. These components correlate at -0.394 ($p < 0.01$), and this reflects the patterns in the choropleth maps below (Figures 12 and 13).

Table 5. Component loadings for population mobility

<i>Eigenvalue</i>	1.48
Percent variance explained	74.17
Percent foreign born	0.861
Percent in same house \leq 5 yrs	0.861

Table 6. Component loadings for structural disadvantage

<i>Eigenvalue</i>	3.937
Percent variance explained	65.61
Percent households on assistance	0.917
Percent households below poverty line	0.905
Percent persons (25+) with no HSD/E	0.771
Percent persons under the age of 18	0.884
Percent female headed household	0.749
Male unemployment rate	0.583

Structural disadvantage ranges from a score of -1.77 to 2.45, while population mobility scores range from -1.41 to 2.48. The average percent of Blacks across PSA's was 64.8 percent (compared to the District's average of 60 percent). The average percent of Hispanics across PSA's was 6.62 percent (compared to 7.9 percent across the District). Hispanic demographics were included initially in all models, especially given encroachment trends suggested in Kane and colleagues (2011). However, for 2008 and at the PSA-aggregate, there was no observable Hispanic affect at the bivariate level, except for property crime. It seems likely that this is due to a shared covariation with population mobility ($r = 0.74, p < 0.05$) and the issue of aggregating from census tracts to PSA's. Hispanic population measurements are therefore not included in subsequent models. Choropleth maps for these variables can be found in the Appendix.

Police Districts

Police districts were included as dummy variables for the following reasons. First, they serve to control for work group effects as described by Klinger (1996). This also served the dual purpose of approximating a two level model,

where level 1 is the PSA and level 2 is the district. While we did observe some district effects (see below), a hierarchical model was not feasible owing to data limitations. While statistical power was not comprised in any model, our n limited the suite of statistics available to us. Second, the police districts control for district-specific policies. Finally, district dummies control for police population. As mentioned, we were unable to attain accurate police population data. For all dummy districts, district 7 was chosen as the referent district because, in considering the choropleth maps, it is generally at the extreme end of arrests and crime variables.

Bivariate Relationships

Table 7 presents the zero-order correlations for all primary variables used in the study. Pearson's correlation coefficients are presented in the lower triangle, while exact p values are presented in the upper triangle. In addition, for ease of interpretation, relationships significant at $p < 0.05$ are in bold. Regarding the four criteria, relationships are in expected directions and magnitude for both structural disadvantage and reported crime. The variable for drug arrests is an exception here, displaying a null relationship with structural disadvantage. Why this is is not immediately clear. The regression models for drug crime arrests reflect this relationship, and also add light to its explanation.

		<i>I.</i>	<i>II.</i>	<i>III.</i>	<i>IV.</i>	<i>V.</i>	<i>VI.</i>	<i>VII.</i>	<i>VIII.</i>	<i>IX.</i>	<i>X.</i>	<i>XI.</i>	<i>XII.</i>	<i>XIII.</i>	<i>XIV.</i>	<i>XV.</i>	<i>XVI.</i>
I.	Violent arrests	1.000	0.000	0.000	0.000	0.000	0.953	0.000	0.244	0.004	0.400	0.000	0.714	0.705	0.680	0.516	0.126
II.	Property arrests	0.780	1.000	0.000	0.000	0.000	0.027	0.000	0.006	0.000	0.640	0.047	0.040	0.664	0.624	0.144	0.042
III.	Drug arrests	0.740	0.540	1.000	0.000	0.000	0.685	0.000	0.128	0.195	0.806	0.000	0.979	0.417	0.209	0.223	0.076
IV.	Gun arrests	0.900	0.760	0.750	1.000	0.000	0.753	0.000	0.187	0.002	0.763	0.000	0.858	0.524	0.515	0.391	0.019
V.	Black population	0.580	0.550	0.610	0.600	1.000	0.006	0.000	0.000	0.754	0.656	0.000	0.106	0.478	0.114	0.010	0.015
VI.	Hispanic population	-0.010	-0.340	-0.060	-0.050	-0.410	1.000	0.146	0.000	0.230	0.234	0.984	0.000	0.281	0.241	0.046	0.062
VII.	Structural disadvantage	0.620	0.530	0.570	0.620	0.740	-0.230	1.000	0.007	0.758	0.820	0.000	0.864	0.457	0.625	0.023	0.003
VIII.	Population mobility	-0.180	-0.420	-0.240	-0.210	-0.730	0.740	-0.400	1.000	0.125	0.798	0.005	0.000	0.467	0.015	0.019	0.103
IX.	Reported crime	0.430	0.520	0.200	0.470	-0.050	0.190	0.050	0.240	1.000	0.512	0.658	0.495	0.553	0.988	0.509	0.547
X.	District 1	0.130	0.070	0.040	0.050	-0.070	-0.190	0.040	-0.040	0.100	1.000	0.255	0.212	0.306	0.306	0.212	0.255
XI.	District 2	-0.550	-0.300	-0.580	-0.520	-0.770	0.000	-0.640	0.420	0.070	-0.180	1.000	0.255	0.350	0.350	0.255	0.299
XII.	District 3	0.060	-0.310	0.000	-0.030	-0.250	0.780	-0.030	0.660	0.110	-0.190	-0.180	1.000	0.306	0.306	0.212	0.255
XIII.	District 4	-0.060	-0.070	-0.130	-0.100	0.110	0.170	-0.120	-0.110	-0.090	-0.160	-0.150	-0.160	1.000	0.400	0.306	0.350
XIV.	District 5	0.060	0.080	0.200	0.100	0.240	-0.180	-0.080	-0.370	0.000	-0.160	-0.150	-0.160	-0.130	1.000	0.306	0.350
XV.	District 6	0.100	0.230	0.190	0.130	0.390	-0.310	0.350	-0.360	-0.100	-0.190	-0.180	-0.190	-0.160	-0.160	1.000	0.255
XVI.	District 7	0.240	0.310	0.270	0.360	0.370	-0.290	0.440	-0.250	-0.090	-0.180	-0.160	-0.180	-0.150	-0.150	-0.180	1.000

[†] Dependent variables are transformed (natural log) to induce normality. Racial/ethnic populations are presented as rates.

NOTE: Statistically significant correlation coefficients ($p < 0.05$) are in bold. The lower triangle presents coefficients, while the upper triangle presents exact p values.

The inverse relationship with population mobility is explained by referring to the maps in the Appendix, for Figures 2A and 4A: both lower crime (including district 2) and high population mobility are found in the northwest of the District. This pattern is explained largely by the nature of the population who reside here, which includes college students and those attached to the national politics surrounding Washington, D.C. These are individuals and families who will be changing residences more often than is typical of most Americans, but who are less likely to commit the kind of street crimes being explored in this study.

It is noteworthy that there are very few district effects for the dependent variables. Although district 2 is consistently influential, and districts 7 and 3 are also impactful at some point, most districts are not. This suggests that the territorial behavior of the police is not being expressed at this level of aggregation consistently (that is, at the district level), and what district behavior we are seeing is more the exception than the rule. Geographically, these exceptions make sense: districts 2 and 3 are located in the north and experience less crime than district 7 in the south.

From an analytic stand point, the high correlation coefficient between certain control variables raises concerns for multicollinearity. Specifically, the relationship between structural disadvantage and the Black population, and Population mobility with the Black and Hispanic populations rise above the traditionally accepted threshold of $r = 0.70$. As will be addressed in the multivariate models in the following chapter, this does not become a diagnostic

problem for the Black population; it does, however, become so for the Hispanic population. Given the general pattern of correlations in Table 7, this does not come as a surprise. Instead, the Hispanic effect seems to have its influence through population mobility, with which it is highly correlated ($r = 0.74$). Given what recent work on racial/ethnic encroachment in DC has suggested (Kane, Gustafson, & Bruell, 2011), this is also not surprising. Given this, and in consideration of model fit, Hispanic population was removed from subsequent models.

The correlation values of districts 2 and 3 with Black population and Structural disadvantage, respectively, also raise concerns over multicollinearity. This played out in several of the regression models, with VIF's exceeding values of 10. In addition, for the most part, the correlations between the dependent variables and the district dummy variables is scant, being observed mostly in districts 2 and 7. This was also revealed in the regression models, where district effects rarely surfaced, with few exceptions, which are noted. This is, in part, due to the modifiable areal unit problem, where processes behave differently given different levels of aggregation. In addition, this suggests that police population, in terms of where it is concentrated, is as much a product of structural disadvantage as it is of district location. This is supported by research from the minority threat family of theories that explain police presence in terms of extra-legal factors associated with "unwanted" populations, including structural disadvantage (Jacobs & O'Brien, 1998; Kane, 2003). Districts were therefore not included in

most of the regression models, except where noted. Police population was mostly proxied by reported crime. Where districts are included in the regression models, a note about VIF's is included in the discussion.

Summary

This chapter described how data sets were carefully merged and variables were created. In addition, it presented basic frequency statistics of all variables and gave an overview of their significance, and began the process of spatially analyzing the data. In addition, we began to explore the relationship between variables by considering their bivariate correlations. Thus far, there is clear evidence of spatial processes across all four criteria. Therefore, hypothesis 1 is tentatively supported. However, the sub-hypotheses were not fully supported; instead of seeing a pattern where violent crime exhibits less spatial dependence than property crime, which in turn exhibits less spatial dependence than either drug or gun crime arrests, we saw quite the opposite. The reason will be revealed in detail below, but it is tied up in hypothesis 3: The spatial dependence being exhibited by violent and property crime arrests are accounting for variance that is actually being exerted by ecological and racial/ethnic variables. The next chapter will discuss these relationships further using multivariate and spatial statistics, allowing us to control not just for global versus localized spatial effects, but also to assess the effects of these processes in light of other pertinent variables.

Chapter 5

MULTIVARIATE ANALYSIS

Introduction

In this section, we test for global environmental effects from the institution as well as test for sovereign effects. Recall that global spatial dependence, net of controls, is assumed to be a sign of the effect of the entire institutional environment on individual PSA's. To this end, Moran's *I* statistics are presented along with a series of scatterplots and maps. Then, count models are run without spatial lags to check for heteroskedasticity. This is followed by a series of LeGrange Multiplier tests looking for the potential effects of both spatial lag and spatial error models. Finally, where appropriate, a spatial lag model is executed. Model fit and diagnostics are considered for each model. For those models expressing potential sovereign effects, a further regression model is run using an interaction term of the spatial lag X LISA dummies.

Spatial Nature of the Data

The spatial nature of the data will be explored by employing the Moran's *I* statistic and its LISA equivalent (Anselin, 1995). The coefficients are interpreted essentially in the same way as a Pearson's correlation coefficient, such that a negative number suggests a negative association with one's neighbors on the same attributional variable, and a positive number suggests a positive association with one's neighbors on the same attributional variable. Additionally, the further away from 0 the coefficient is, the more substantial the effect is.

Recall that the Moran's I is a global indicator of spatial autocorrelation in the same sense that Pearson's r considers all sources of variation shared between two variables. We will therefore also explore Local Moran's I coefficients. The LISA statistic disaggregates the global spatial dependence into its component parts and tests each to see if they are statistically above the influence of their neighbors (Anselin, 1993). In other words, they indicate the presence of spatial outliers. These coefficients are presented in conjunction with LISA maps. Note that both Moran's I and local Moran's I require a normally distributed variable; given the skewed nature of the four dependent variables, normality was induced via a naturally logged rate.

Hypothesis Tests

For all multivariate models, count models were employed, either using a Poisson or a negative-binomial distribution. Count models were necessary because of the skewed nature of the data (Long, 1997). Whether a Poisson or a negative-binomial model were used depended on the nature of the dependent variable, as well: if the dispersion parameter indicated that the data were over-dispersed, a negative-binomial model was used. Otherwise, a Poisson model was employed.

Juvenile Violent Crime Arrests

Hypothesis 1a states:

1. Net of controls, the juvenile arresting behavior of police in any given PSA will be influenced by the juvenile arresting behavior of neighboring PSA's in a

centrifugal pattern. This pattern will be strongest for crimes that allow for more discrimination.

a. Violent juvenile crimes will exhibit this pattern less so than other crimes, because violent crimes allow for less police officer discretion.

This hypothesis is now tested. The Moran's I for juvenile violent crime arrests is statistically significant at $p < 0.001$, with a value of 0.461. This supports the pattern displayed in Figure 3. Combined, the map and Moran's I suggest the presence of spatial dependence: juvenile violent crime arrests in one PSA are affecting the number of violent crime arrests in neighboring PSA's. In addition, this effect is exerted centrifugally, waning with distance. Thus far, there is evidence in support of hypothesis 1.

To create a baseline, we ran a count regression model without a spatial lag term. This model is presented in Table 8. This model suggests that total crime reported and the total black population are statistically significant at the 0.001 level. The coefficient for total crime reported is 0.85, or an odds ratio of 2.35. Similarly, the coefficient for the total black population is 0.71, or an odds ratio of 2.04. Both of these variables are, therefore, highly predictive of juvenile violent crime arrests. Neither structural disadvantage nor population mobility reach statistical significance in this model.

Next, we introduced a lag term into the model. A LeGrange multiplier test suggested that this may not, however, be necessary. Recall that the LeGrange

Table 8. Count model for juvenile violent crime arrests

	<i>b</i>	<i>SE</i>	<i>z</i>	<i>p</i>
Crime reported [†]	0.85	0.15	5.79	0.00
Structural disadvantage	0.20	0.12	1.64	0.10
Population mobility	0.10	0.11	0.99	0.32
Black population [†]	0.71	0.17	4.08	0.00
Constant	-7.25	1.44	-5.05	0.00

AIC = 314.62, *-2LL* = 302.624, dispersion parameter = 5.29 ($p < 0.01$)

[†]Natural log was used.

multiplier test indicates whether or not the extant spatial dependence must be modeled in order to reduce heteroskedasticity. A LeGrange multiplier test is a statistical tool that helps us know if we need a spatial lag; it says nothing, however, for theory. That is, a spatial lag term may not be important in terms of model fit; it may, however, still provide us with meaningful information about the relationship between one areal unit and its neighbors. For juvenile violent crime arrests, the LeGrange multiplier tests did not indicate the need to include a spatial lag term in the regression model: neither the LeGrange multiplier test for the lag nor for the error models suggested this need (0.004 at $p = 0.953$ and 2.574 at $p = 0.109$, respectively). This is not surprising, as a Breusch-Pagan test suggested that heteroskedacity was not a problem ($BP = 7.59$, $p = 0.093$). (The robust LeGrange multipliers, however, did suggest that an error model may be necessary [5.619 at $p < 0.05$]. This is explored in more detail below.] The count model, with a lag term, is presented in Table 9⁹. The lag term is denoted with the Greek letter *rho*.

⁹ When using a count model, the lag term is the product of the fitted values from the baseline count model and the weights matrix (Kubrin, 2003; Kane, Gustafson, Bruell, 2011).

Table 9. Count model for juvenile violent crime arrests with lag

	<i>b</i>	<i>SE</i>	<i>z</i>	<i>p</i>
Crime reported [†]	0.85	0.15	5.76	0.00
Structural disadvantage	0.19	0.13	1.56	0.12
Population mobility	0.10	0.11	0.94	0.35
Black population [†]	0.71	0.18	3.83	0.00
ρ	0.00	0.01	0.17	0.87
Constant	-7.21	1.44	-4.99	0.00

$AIC = 316.59$, $-2LL = 302.594$, dispersion parameter = 5.32 ($p < 0.01$)

[†]Natural log was used.

Comparing this model with the first count model, there is almost no change in coefficient behavior: total crime reported (0.85) and the total black population (0.71) remain unchanged in both magnitude and significance, while structural disadvantage and population mobility remain statistically non-significant. In addition, the lag term, ρ , does not reach significance. Its value, listed as 0.00 in the table, is actually 0.001916, an odds ratio of 1.001918. Further, the model fit for the count model with the lag term is only nominally better than that of the model without the lag term: a change in AIC from 314.62 to 316.59. This is essentially no change at all. For juvenile violent crime arrests, therefore, neighboring PSA's do not appear, statistically, to be influencing the behavior of one another.

This disconfirms hypothesis 1. It disconfirms the general hypothesis insofar as, net of controls, PSA's do *not* seem to be influencing the arresting behavior of their neighbors. This predicted institutional effect is diluted by the seriousness of the crime: violent juvenile crimes. Admittedly, however, "diluted"

appears too weak of a word to describe the relationship between violent juvenile arrests in one PSA and those in a neighboring PSA. A more accurate description would be *of null effect*. This is discussed further below. Now, we explore the second hypothesis for juvenile violent arrests:

2. The existence of sovereign precincts should be empirically observable.

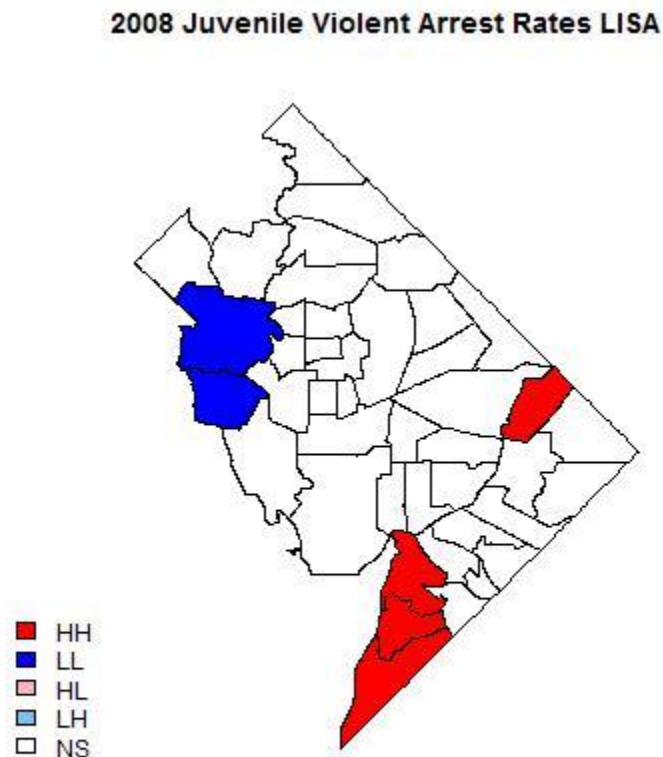
Again, for crimes with more discretion, we should see more of a sovereign effect insofar as the spatial dependency suggested in hypothesis 1 will have its effect ultimately through sovereign precincts.

- a. For juvenile violent crime arrests, this effect will be the smallest when compared to property, drug, and gun crime arrests.

Although the general, global institutional environment does not seem to matter for juvenile violent crime arrests, it is possible that *sovereigns* may be mediating this relationship. To this end, we run another count model, interacting the presence of LISA's as sovereigns with the spatial lag term. First, testing for LISA clusters (see Figure 8 below and Table 1A in the appendix) suggests PSA's 706, 705, 703 compose a High-High cluster, PSA's 204 and 206 are a LL cluster in the northeast of D.C., and PSA 601 as a HH cluster in the east. The PSA's located in district 7 (706, 705, and 703) are located just south of Anacostia Naval Station and Boiling Air Force base. The MPD has essentially no activity on the military base. However, the remainder of district 7 – which includes, for these PSA's, the neighborhoods of Bellevue, Congress Heights, Saint Elizabeths, Barry Farm, Douglass, Washington Highlands, and Shipley Terrace – is a hot bed of

activity for the MPD. Similarly, PSA 601 also receives a great deal of attention, being located around the National Arboretum and Kenilworth Aquatic Gardens, areas characterized by high-rise and low-income housing. PSA's 206 and 204, however, are located in the more affluent Georgetown and Woodley Park, and see less police activity.

Figure 8.



There is potential, therefore, for localized spatial effects, that is, for sovereign effects. Table 10 explores this in a multivariate count model, where the lag term is interacted with a dummy variable, where 1 = a sovereign cluster.

Despite the presence of LISA clusters, this model suggests that, for violent juvenile crime arrests, sovereigns do not have an effect: neither the LISA variable

Table 10. Count model for juvenile violent crime arrests with LISA dummies

	<i>b</i>	<i>SE</i>	<i>z</i>	<i>p</i>
Crime reported [†]	0.88	0.15	6.05	0.00
Structural disadvantage	0.14	0.13	1.06	0.29
Population mobility	0.14	0.11	1.27	0.20
Black population [†]	0.78	0.21	3.79	0.00
ρ	-0.01	0.01	-0.64	0.52
<i>LISA</i>	-0.40	0.69	-0.58	0.56
$\rho \times LISA$	0.02	0.02	1.07	0.29
Constant	-7.66	1.53	-5.01	0.00

AIC = 318.27, *-2LL* = 300.266, dispersion parameter = 5.63 ($p < 0.01$)

[†]Natural log was used.

nor the interaction of *rho* X LISA were statistically significant. Indeed, the magnitude of *rho* X LISA was nominal at 0.02 (odds ratio of 1.02). Otherwise, there was no substantive change between variables in terms of magnitude (that is, between total crime reported [at 0.88] and total black population [at 0.78]), nor was there any identifiable improvement over model fit (*AIC* moved from 314.62 from the base model to 318.27). In short, hypothesis 2, like hypothesis 1, was disconfirmed. However, this was somewhat anticipated for juvenile violent crime arrests, as there is less discretion for these types of crime. But again, as with hypothesis 1, to suggest that “this effect will be small” is somewhat of an understatement: sovereigns and institutional effects generally, for juvenile violent crimes, had a null effect for these 2008 data.

Juvenile Property Crime Arrests

Hypothesis 1b states:

1. Net of controls, the juvenile arresting behavior of police in any given PSA will be influenced by the juvenile arresting behavior of neighboring PSA's in a centrifugal pattern. This pattern will be strongest for crimes that allow for more discrimination.
 - b. ... juvenile property crime arrests will exhibit this pattern less so than the two remaining dependent variables: juvenile drug crime arrests and juvenile gun crime arrests.

In other words, juvenile property crime, because it allows police officers more discretion than violent crime, yet less than the other two categories of crime, should display some isomorphism, but not as much as we anticipate for drug and gun crime arrests. This hypothesis is now tested. The Moran's I for juvenile property crime arrests is statistically significant at $p < 0.001$, with a value of 0.347. This supports the pattern displayed in Figure 4. Combined, the map and Moran's I suggest the presence of spatial dependence: juvenile property crime arrests in one PSA are affecting the number of property crime arrests in neighboring PSA's. In addition, this effect is exerted centrifugally, waning with distance. Thus far, there is evidence in support of hypothesis 1.

To create a baseline, we run a count regression model without a spatial lag term. This model is presented in Table 11. For this model, it was necessary to model a curvilinear relationship with the total black population. For this model,

the total crime reported, population mobility, and total black population and its squared term were each significant at $p < 0.05$. As expected, the most powerful predictor was total crime reported, with an odds ratio of 4.07. The nonlinear relationship between property crime and the total black population is also clearly modeled. Non-linear relationships are difficult to interpret, no less so in a count model. One way of understanding this relationship is that, initially, the black population variable does not fully engage the police in terms of juvenile property arrests. This is seen in the first order term where the odds ratio is 0.008. At some point, as the black population increases, more police turn their attention to juvenile property crimes. This is seen in the quadratic term where the odds ratio is 1.59. Note that structural disadvantage is not statistically significant for juvenile property crime arrests.

Table 11. Count model for juvenile property crime arrests

	<i>b</i>	<i>SE</i>	<i>z</i>	<i>p</i>
Crime reported [†]	1.40	0.17	8.12	0.00
Structural disadvantage	0.24	0.15	1.60	0.11
Population mobility	-0.36	0.16	-2.22	0.03
Black population [†]	-4.85	1.96	-2.47	0.01
Black population ²	0.46	0.19	2.47	0.01
Constant	4.48	4.95	0.91	0.37

$AIC = 247.57$, $-2LL = 233.569$, dispersion parameter = 5.54 ($p < 0.01$)

[†]Natural log was used.

Next, we introduced a lag term into the model. A LeGrange multiplier test suggested that this may not, however, be necessary. For juvenile property crime arrests, the LeGrange multiplier tests suggested neither a lag (0.4797, $p = 0.4886$)

nor an error model (0.3238, $p = 0.5693$) were necessary to control for autocorrelation. Indeed, a Breusch-Pagan test indicated that the model was homoscedastic (3.7879, $p = 0.5803$). Nevertheless, the robust LeGrange tests indicated a preference for a lag model (5.7474, $p = 0.0165$) over an error model (5.5915, $p = 0.0181$). The count model, with a lag term, is presented in Table 12.

The lag term is denoted with the Greek letter ρ .

Table 12. Count model for juvenile property crime arrests with lag

	b	SE	z	p
Crime reported [†]	1.38	0.17	8.30	0.00
Structural disadvantage	0.18	0.15	1.20	0.23
Population mobility	-0.34	0.16	-2.14	0.03
Black population [†]	-4.58	1.93	-2.38	0.02
Black population ²	0.44	0.18	2.37	0.02
ρ	0.02	0.01	1.31	0.19
Constant	3.80	4.86	0.78	0.44

$AIC = 248.04$, $-2LL = 232.059$, dispersion parameter = 6.12 ($p < 0.01$)

[†]Natural log was used.

Comparing this model with the previous one, there is minute change in coefficient behavior. Most of the significant predictors decrease in magnitude while remaining statistically significant. To wit: both total reported crime (1.38) and population mobility (-0.34) each are marginally reduced in magnitude. Both terms for total black population remain statistically significant and follow the same pattern as in the previous table. Additionally, ρ did not reach significance ($p = 0.19$) nor was its effect size impressive ($b = 0.02$, odds ratio = 1.024). Further, model fit was not improved when the lag term was introduced, with practically no change in AIC between the two models (247.57 to 248.04). For juvenile property

crime arrests, therefore, neighboring PSA's do not appear, statistically, to be influencing the behavior of one another.

This disconfirms hypothesis 1. It disconfirms the general hypothesis insofar as, net of controls, PSA's do *not* seem to be influencing the arresting behavior of their neighbors. Again, the effect appears to be null. This is discussed further below. Now, we explore the second hypothesis for juvenile violent arrests:

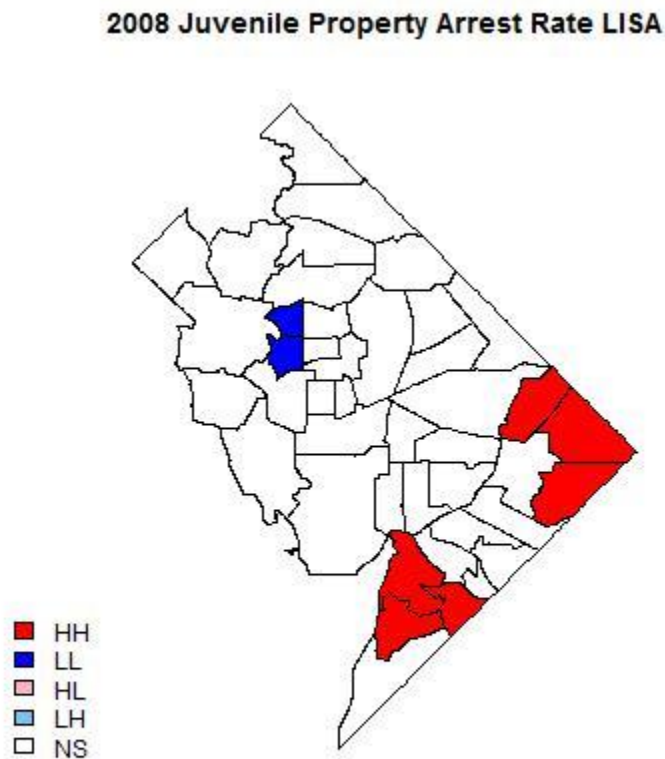
2. The existence of sovereign precincts should be empirically observable. Again, for crimes with more discretion, we should see more of a sovereign effect insofar as the spatial dependency suggested in hypothesis 1 will have its effect ultimately through sovereign precincts.

b. Juvenile property crime arrests will display this pattern more so than violent crime, but less so than the other arrest types.

As with violent crime arrests, so too with juvenile property crime arrests: the global institutional environment does not seem to matter. Yet it is possible that *sovereigns* may be mediating this relationship. To this end, we run another count model, interacting the presence of LISA's as sovereigns with the spatial lag term. First, testing for LISA clusters (Figure 9, and see Table 2A in the appendix) suggests PSA's 703, 705, and 704 in the southwest of D.C. and PSA's 602, 604, and 601 in the east of D.C. each compose a pair of High-high clusters, while PSA's 303 and 301 in the northwest represent a Low-low cluster. The High-high clusters correspond with those for the juvenile violent crime arrests, and are located in and around the same neighborhoods. PSA's 303 and 301, located in

district 3, however, are unique to this model. These are around the Adams Morgan and Mount Pleasant neighborhoods of D.C, which have, over the past two decades, seen a number of revitalization efforts, and are populated by young, upwardly mobile adults.

Figure 9.



There is potential, therefore, for localized spatial effects, that is, for sovereign effects. Table 13 explores this in a multivariate count model, where the lag term is interacted with a dummy variable, where 1 = a sovereign cluster. As with the previous model, there was no appreciable difference in this model in terms of total

crime reported ($b = 1.35$) and population mobility ($b = -0.33$). The black population remains nonlinear (-4.14 and 0.40). Neither ρ , the LISA dummy, nor the interaction term were statistically significant. Although there is again no considerable change in the AIC (from 248.04 to 248.19), the log likelihood

Table 13. Count model for juvenile property crime arrests with LISA dummies

	b	SE	z	p
Crime reported [†]	1.35	0.15	9.04	0.00
Structural disadvantage	0.07	0.14	0.51	0.61
Population mobility	-0.33	0.15	-2.23	0.03
Black population [†]	-4.14	1.78	-2.33	0.02
Black population ²	0.40	0.17	2.38	0.02
ρ	0.00	0.02	0.23	0.82
LISA	0.36	0.46	0.80	0.43
$\rho \times LISA$	0.01	0.03	0.31	0.75
Constant	2.64	4.49	0.59	0.56

$AIC = 248.19$, $-2LL = 228.194$, dispersion parameter = 9.10 ($p < 0.01$)

[†]Natural log was used.

consistently decreases across models: 233.569, 232.059, 228.194. Therefore, despite the suggestion of spatial dependence and the presence of sovereign LISA clusters, the multivariate model suggests that there are no sovereign influences in terms of juvenile property arrests.

In short, hypothesis 2, like hypothesis 1, was ultimately disconfirmed. For juvenile property crime arrests, there was no indication of sovereign effects, thus disconfirming the hypothesis. However, this was anticipated for juvenile property crime arrests, as there is less discretion for these types of crime than others explored in this dissertation. But again, as with hypothesis 1, to suggest that “this

effect will be small” is an understatement: sovereigns and institutional effects generally, for juvenile property crime arrests, had a null effect.

Analysis and discussion. The findings for juvenile violent and property crime arrests do not support the theory presented in this dissertation. This was not unanticipated, however. As explained in the literature review, there is less discretion allowed for these crimes than for drug or gun crimes. In addition, there is evidence from previous research that such crimes are very susceptible to ecological and demographic variables. Such was the case in the current study: the ecology and racial demography of the PSA may have simply overwhelmed any institutional processes that were going on for these crimes.

For property crime arrests, population mobility played an important role. Indeed, with an odds ratio of 0.70, it was second only to total crime reported in predictive capacity (which had an odds ratio of 4.07) (ignoring, for the moment, the nonlinear relationship with total black population). For property crime arrests, population mobility continued to be statistically significant across all models, with very little change in magnitude (from an odds ratio of 0.70 to 0.71 to 0.72). This, despite the fact that property crime arrests suggested spatial dependence both through Moran’s I ’s and LISA maps. Structural disadvantage was not statistically significant, however. Structural disadvantage is highly correlated with the black population ($r = 0.740$); in this particular model, despite a lack of multicollinearity (VIFs for first order terms never rose above 10), it is most likely that black population is accounting for much of the variance in structural

disadvantage. A first order regression model without structural disadvantage indicates that the coefficients for the black population variables are -5.67 and 0.56 (first order and quadratic terms, respectively), both statistically significant at $p < 0.05$. When structural disadvantage is reentered into the equation, the magnitude is decreased somewhat for the black population to -4.85 and 0.46. However, when the reverse operation is done for structural disadvantage (removing total black population and its squared term from the regression equation and then re-entering them), the coefficient for structural disadvantage is reduced from 0.35 ($p < 0.05$) to 0.23 ($p = 0.11$)¹⁰.

There is also some indication that threat hypotheses are at work in these data. Specifically, for violent crime arrests, the total black population is significant across all models, with the largest effect size, second only to total reported crime. This effect size remains stable across the models where a lag term was introduced, moving from 2.04 to 2.03 to 2.17. Although bivariate scatterplots suggested a nonlinear relationship between the total black population and juvenile violent crime arrests, it was not necessary to model this relationship in the regression model. (This topic is taken up in much more detail below in the final chapter.) This non-linear pattern was especially evident for juvenile property arrests. As described above: initially, the total black population poses no “threat” at the PSA level. However, as the number of African Americans increases, the use of arrest against juvenile property crime also increases, net of controls. This study

¹⁰ Despite this, structural disadvantage is retained in order to avoid the pitfalls of step-wise regression.

therefore corroborates the role of threat, violent crime, and minority populations in police behavior (Jacobs & O'Brien, 1998) as well as the canon of work on police ecology (Kane, 2002) – but adds to this literature by exploring this ecology at the PSA level.

It is worth taking a moment to reflect on the LaGrange multiplier tests for the juvenile violent crime arrest models. While the non-robust tests indicated no need to employ a spatial lag or error term, the robust tests suggested an error term in preference to a lag term. An error model was therefore run to explore this (see Table 3A in the Appendix)¹¹. This model did not perform better than its non-error linear model with an *AIC* of 96.656 compared to 97.467. Total reported crime remained statistically significant (odds ratio of 2.70), as did the total black population (odds ratio of 1.26). These odds ratios are comparable to what was expressed in Table 8 for the initial first order model. In addition, structural disadvantage reached significance at $p < 0.05$ (odds ratio of 1.37). *Lambda*, the error coefficient, was 0.36 and significant at $p < 0.05$.

Spatial error models suggest that the residual errors of the regression model are correlated with one another, rather than spherical (Ward & Gleditsch, 2000). Typically, this suggests the presence of heteroskedasticity. Such was not the case with the current models, however, as neither residual plots nor Breusch-Pagan tests suggested as much. What the error model might be suggesting is that

¹¹ To my knowledge, there is no way to calculate an error model without a count distribution. Therefore, this exploratory model is calculated under a linear model, using Anselin's (2003) *R* package *spdep*, call *errorsarlm*. The dependent variable is the natural logarithm of the total number of violent crimes.

there is some unknown *spatial event* going on that we were unable to tap into with the current models. If the theoretical underpinnings of the current study are valid, then that missing “something” cannot be isomorphic pressures as here treated. They could, however, be other processes associated with institutional pressures.

DiMaggio and Powell (1983) pointed out that there are many forms of isomorphism coming from many sources. The current study only considered other PSA’s as a source of institutional pressure. As Katz (2001) pointed out, key political stakeholders may also be considered sovereigns. In addition, community organizers and leaders may also be part of the sovereignty. It is possible that these elements are impacting the territorial behavior of the police at the PSA level, and doing so in a spatial manner. In fact, it is quite plausible: serious crime is typically what is necessary for community organizers to organize and community actors to act. Given their voluminous homicide rate of the 1990s, the attention of D.C. residents to violent crime patterns may be aggrandized, and their ability to focus police efforts on such crimes well practiced. Perhaps, then, violent crime is not so far removed from the pressures of isomorphism; rather, we need to expand our scope of who is and can be a sovereign. This discussion is taken up in later chapters.

Juvenile Drug Crime Arrests

Hypothesis 1 states:

1. Net of controls, the juvenile arresting behavior of police in any given PSA will be influenced by the juvenile arresting behavior of neighboring PSA’s

in a centrifugal pattern. This pattern will be strongest for crimes that allow for more discrimination

c. Juvenile drug crime arrests will be especially prone to isomorphic influences, as they allow for more police officer discretion (Lynch, et al. 2002) than either juvenile property arrests or violent crime arrests. This will also be the case because the morality of drug crimes is not as explicit as that of violent, property, or gun crimes. This ambiguous morality will carry an equivocal meaning for the police mandate that will require PSA's to consider the behavior of their neighbors for insight on how to treat such crimes.

These hypotheses are now tested. The Moran's I for juvenile drug crime arrests is statistically significant at $p < 0.001$, with a value of 0.311. This supports the pattern displayed in figure 5. Combined, the map and Moran's I suggest the presence of spatial dependence: juvenile drug crime arrests in one PSA are affecting the number of property crime arrests in neighboring PSA's. In addition, this effect is exerted centrifugally, waning with distance. Thus far, there is evidence in support of hypothesis 1.

To create a baseline, the regression model for juvenile drug arrests is presented in Table 14. This model includes the district dummies as a test of work group norms, district-specific policies, and potential police presence. As already discussed, districts are highly collinear with the total black population, and were therefore not included in the violent and property crime arrest models. For this

model, however, VIF's did not rise above 6.443 for any variable¹². Districts were therefore retained (no threat to power was noticed, remaining near 0.80).

The negative binomial model suggests several interesting relationships. As expected, reported crime is significant at $p < 0.05$, with a coefficient of 0.71 (odds ratio of 2.04). Structural disadvantage, however, is not significant, and neither is total black population. It is likely that their effect is being swallowed up by the variation from the district dummy variables. Population mobility is significant ($b = 0.85$, $p < 0.01$, odds ratio = 2.34). The sign of population mobility is in a rather unexpected direction. This is discussed in detail below. In addition, districts 2 and 3 (in the northwest, $b = -4.38$ and -2.28 , respectively) are each statistically different from district 7 (in the south). It is possible that whatever spatial processes are occurring are doing so at the district level.

Next, we introduce the lag term into the model¹³. In the spatial model (Table 15, below), the lag term is represented by the Greek letter *rho*. Despite the

¹² According to Kennedy (2008), VIF's in excess of 10 when using standardized variables require attention to multicollinearity.

¹³ Thus far, we have employed negative-binomial models with a lag term based on the fitted values from a first-order count model. This is due in part to the nature of the data, and in part to the nature of the spatial lag term itself. First, the data are non-normally distributed with an over-dispersed Poisson distribution. This includes some zeros. Negative-binomial models are designed to handle this type of distribution without transforming in the dependent variable (Long, 1997). Second, regarding the lag term, it is a product based on the dependent variable, thus creating a problem for model behavior when entered into a regression equation. The spatial lag model suggested by Anselin (2007) inherently handles the endogeneity problem of introducing a lag term based on the dependent variable. To date, no such formula exists for the generalized linear model. Rather, researchers use the cross-product of a weights matrix and a first-order model's fitted values to estimate a spatial lag term that can then be used in the regression equation (Kubrin, 2003; Kane, Gustafson, & Bruell, 2011; Nielson, et al., 2009). For juvenile drug arrests, all models after the first order count model are linear, converting the dependent variable into a naturally logged rate. This decision was made for the following reason: the count model with the spatial lag, the LISA dummy, and the interaction term behaved exactly as the previous models with one important exception: the standard errors for a number of predictors exceeded the coefficient values by an exceptional amount. By itself, this pattern is not necessarily remarkable (some of the

Moran's I value, a Breusch-Pagan test indicated no heteroskedasticity (10.2933, $p = 0.4151$). LeGrange multipliers also did not suggest that an error model or spatial model would be necessary to accommodate for heteroskedasticity. (Spatial lag test = 0.7308, $p = 0.39$; spatial error test = 0.008, $p = 0.93$. There were no changes from these tests to the robust lag and error tests, except a reduction in p values.) As can be seen, this model behaves very similarly to the previous count model: total crime reported ($b = 0.50$) and population mobility ($b = 0.68$) remain statistically significant, as do districts 2 and 3. Districts 1 and 4 also reach significance in this model, after introducing the lag term, ρ . ρ itself is not statistically significant; although the coefficient sign is negative, its effective value is 0. It does not, therefore, appear that the arresting behavior for juvenile

coefficients in the models for the other criteria also have standard errors as much as twice as large as the coefficient itself – these are isolated, however, and did not reach the magnitude seen in this model). This pattern was seen throughout the juvenile drug arrest model and for the majority of non-significant variables. For example:

	b	SE
Structural disadvantage	0.04	0.24
District 5	-0.05	0.55
District 6	-0.15	0.43
ρ	-0.01	0.05
$LISA$	0.20	1.73
$\rho \times LISA$	0.03	0.15

This is a good indication of poor model fit. To mitigate this, a number of different variable transformations were tried. In each case, either model fit was unmitigated or decreased, standard errors increased, or, just as often, models failed to converge. Therefore, the linear model provided by Anselin (2007) via the command *lagsarlm* in the *R* package *spdep* was used. In many ways, this was preferable to the count models, insofar as the lag term was now based not on predicted values, but on actual values, thus minimizing model error. Importantly, a first-order OLS model (that is, without the lag terms) returned results comparable to the negative-binomial model reported above (see Table 4A in Appendix). In addition, linear models are more robust than count models. There is no reason, therefore, to suspect that linear spatial models reported here are in anyway different from a hypothetical count model.

Table 14. Count model for drug related crime.

	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Crime reported [†]	0.71	0.24	2.96	0.00
Structural disadvantage	0.06	0.24	0.27	0.79
Population mobility	0.85	0.29	2.89	0.00
Black population [†]	0.53	0.56	0.94	0.35
District 1 ^{††}	-0.55	0.50	-1.11	0.27
District 2	-4.38	1.67	-2.62	0.01
District 3	-2.28	0.79	-2.88	0.00
District 4	-1.05	0.55	-1.91	0.06
District 5	0.22	0.51	0.43	0.67
District 6	0.10	0.39	0.27	0.79
Constant	-5.44	3.78	-1.44	0.15

$AIC = 248.39$, $-2LL = 224.387$, dispersion parameter = 2.783 ($p < 0.01$)

[†]Natural log was used.

^{††} Referent group = district 7

drug crimes from nearby PSA's affect any given PSA's own juvenile arresting behavior. Rather, it appears to be a conflux of reported crime, population mobility, and district-effects, which may represent police presence, work-group norms, and district policies.

This evidence appears to disconfirm hypothesis 1. PSA's do not, generally, appear to be influencing each other's arresting behavior, and PSA's do not appear to be influencing each other's juvenile drug crime arresting behavior. Again, the effect appears to be null. This is discussed further below.

Now, we explore the second hypothesis for juvenile drug crime arrests:

2. The existence of sovereign precincts should be empirically observable.

Again, for crimes with more discretion, we should see more of a sovereign

effect insofar as the spatial dependency suggested in hypothesis 1 will have its effect ultimately through sovereign precincts.

c. Given the fluid nature of drug crime arrests, sovereigns will have a strong effect on juvenile drug crime arrests

Table 15. Spatial lag model for drug related crime.

	<i>b</i>	<i>SE</i>	<i>z</i>	<i>p</i>
Crime reported [†]	0.50	0.20	2.46	0.01
Structural disadvantage	0.21	0.20	1.05	0.29
Population mobility	0.68	0.24	2.86	0.00
Black population [†]	0.07	0.41	0.16	0.87
District 1 ^{††}	-1.02	0.46	-2.25	0.02
District 2	-3.10	1.16	-2.68	0.01
District 3	-2.18	0.68	-3.21	0.00
District 4	-1.18	0.48	-2.43	0.02
District 5	0.28	0.48	0.57	0.57
District 6	-0.06	0.38	-0.16	0.87
ρ	-0.18	0.16	-1.18	0.24
Constant	-0.63	2.76	-0.23	0.82

AIC = 113.34, *-2LL* = 87.332

[†]Natural log was used.

^{††} Referent group = district 7

Although the general, global institutional environment does not seem to matter for juvenile drug crime arrests, it is possible that *sovereigns* may be mediating this relationship. To this end, we run another count model, interacting the presence of LISA's as sovereigns with the spatial lag term. First, testing for LISA clusters (Figure 10, and see Table 5A in the Appendix) suggests PSA's 602 and 601 create a HH cluster in east D.C., along with PSA 504 (which extends outward from the National Arboretum into Galladuet, Trinidad, and Ivy City).

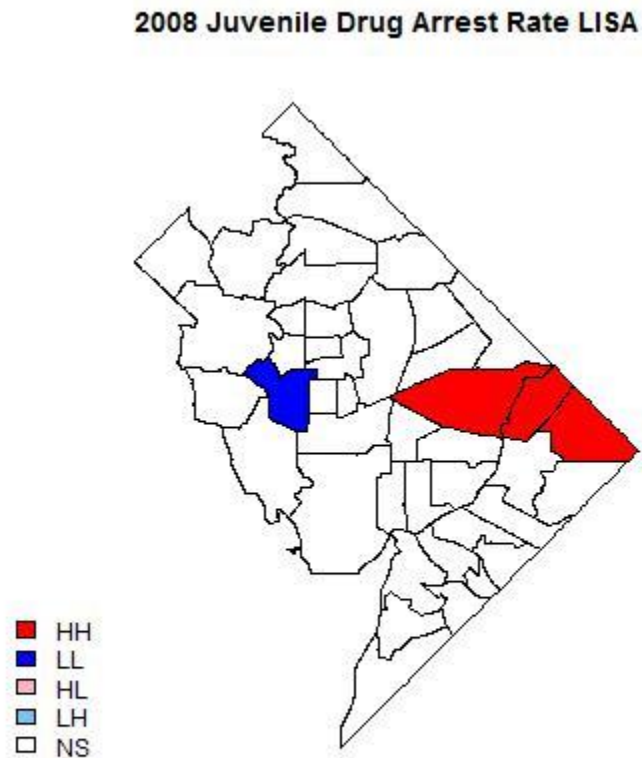
This is our first indication of an arrest pattern superseding districts, and thus gives

us the strongest evidence yet of sovereign effects at the PSA level. PSA 208 (around Dupont Circle) is also a LL cluster in the northeast of the District.

There is potential, therefore, for localized spatial effects, that is, for sovereign effects. Table 16 explores this in a multivariate count model, where the lag term is interacted with a dummy variable, where 1 = a sovereign cluster. This model behaves similarly to the previous model: total crime reported ($b = 0.62$) and population mobility ($b = 0.65$) remain statistically significant with comparable b values. In addition, districts 1 through 4 remain statistically significant. However, the magnitude of the coefficients for district 2 is reduced considerably, from -3.10 to -2.10. This is important, because it means that spatial processes are eating away at the variation otherwise observed in a specific district. Most importantly, ρ , the LISA dummy variable, and the interaction term of ρ X LISA dummy are each statistically significant.

Interpreting spatial lag terms beyond direction and magnitude is not a straight forward process (Ward & Gleditsch, 2002). No less in the current regression model. Both ρ and the LISA dummy are negative, suggesting that a) any given PSA's juvenile drug arresting behavior is *inverse* that of its neighbors; and b) being a LISA PSA, which I understand to be a sovereign PSA, means that your juvenile drug crime arresting behavior is *less* than all other PSA's. There are two processes at work here. First, in regards to the LISA dummy, this coefficient is being driven by PSA 208, a Low-low sovereign located in the northwest of

D.C. (this is also why district 2's coefficient is diminished, as PSA 208 is located in district 2)¹⁴. Second, in regards to the spatial lag term, a similar process is Figure 10.



occurring. By way of example: referring back to the map of 2008 juvenile drug crime (Figure 5), PSA 208 is abutted by PSA 101, which, in 2008 totaled 14 juvenile drug crime arrests, which is almost two standard deviations above PSA

¹⁴ In 2008, there were 0 juvenile drug crime arrests, compared to PSA's 602 (30), 601 (12), and 504 (27). When naturally logged, PSA 208 remains at 0, while the other PSA's change, respectively, to 3.43, 2.56, and 3.33.

208. Similarly, PSA 504, part of the High-high sovereign, abuts PSA 102, which, in 2008, totaled 0 drug arrests as well, compared to PSA 504's 27.

Table 16. LISA model for drug related crime.

	<i>b</i>	<i>SE</i>	<i>z</i>	<i>p</i>
Crime reported [†]	0.62	0.20	3.15	0.00
Structural disadvantage	0.07	0.19	0.39	0.70
Population mobility	0.65	0.22	2.90	0.00
Black population [†]	0.41	0.40	1.02	0.31
District 1 ^{††}	-1.08	0.41	-2.61	0.01
District 2	-2.43	1.12	-2.17	0.03
District 3	-2.10	0.62	-3.38	0.00
District 4	-1.35	0.44	-3.06	0.00
District 5	0.03	0.45	0.06	0.95
District 6	-0.45	0.38	-1.20	0.23
ρ	-0.30	0.15	-1.98	0.05
<i>LISA</i>	-3.09	1.35	-2.29	0.02
$\rho \times LISA$	1.47	0.53	2.75	0.01
Constant	-3.43	2.91	-1.18	0.24

AIC = 109.58, *-2LL* = 79.584

[†]Natural log was used.

^{††} Referent group = district 7

It is for these reasons that the coefficients are negative. *Rho* is a measurement of global spatial dependence. As with all omnibus tests, it is affected by outliers. In such situations, analysts will often remove outliers so that their data behave better. This presents a potential quandary for the current study: Because we are interested in sovereigns, we actually *want* outliers. As demonstrated in the above comments, a handful of outliers are pushing this effect (PSA's 208 and 504, for example). This can therefore be understood as a statistical artifact. What is important is how they behave when interacted with

one another. (It is also interesting to note that the lag term only reaches significance when the LISA dummies and the interaction term are introduced.) By interacting *rho* with the LISA dummies, we are no longer using an omnibus test; instead, we are partialing out the effects of the outliers on their own terms. The process is similar (analogously and mathematically) to running an ANOVA followed by *post-hoc* Bonferonni tests of multiple comparisons. ANOVA, as an omnibus test, tells us *if* the variation between groups is due to the random variation within groups or to the explicable variation between groups. It cannot, however, indicate which groups differ from which. Bonferonni tests do. Spatial lags (*rho*), for all intents and purposes, act like our omnibus ANOVA. By interacting it with LISA dummies – which are, after all, spatial outliers – we partial out the spatial effects of *rho* according to its geographic location, in a process like our *post-hoc* Bonferonni tests.

Interaction terms express the explanatory capacity of two events co-occurring. In probability, this is expressed as a product, or the joint-probability of two events. The interaction term of *rho* X LISA dummy can therefore be understood as the effect of the spatial lag as exerted through the dummy variables. Stated in terms of the current theoretical framework: the interaction term represents the effect of sovereigns on the institutional environment. The coefficient is significant ($p < 0.05$), and equals 1.47. Converted to an odds ratio, this is 4.35 – second only to being part of district 2 or district 3 in terms of predictive capacity. This coefficient can be understood to say that the sovereign

PSA's are influencing juvenile drug arrests: Being a sovereign PSA means that your juvenile drug arresting behavior is influencing other PSA's juvenile drug arresting behavior. Because our lag term is based on the inverse Euclidean distance, this influence extends outwardly, diminishing centrifugally. This finding is also supported both by the choropleth map for juvenile drug arrests and for its LISA map (see Figures and 10).

Thus presented, this model suggests that traditional ecological processes are occurring in the prediction of drug arrests when controlling for spatial processes, as well as important district effects, which may include police presence and district policies. Additionally, the final model suggests that the spatial dependence is expressed through these LISA clusters. In terms of the study: juvenile drug arrests are susceptible to the isomorphic pressures or influence from sovereign PSA's, net of controls. From this, we conclude that hypothesis 2 is supported.

Analysis and Discussion. Thus far, the juvenile drug arrest models stand out as the only models where spatial dependence remained apparent once entered into a regression equation. What is more, spatial dependence ultimately had its effects not globally, but locally via sovereign PSA's. By themselves, neither the sovereign LISA's nor the *rho* were statistically significant. Whereas for other criteria the sovereign effect was swept away by the presence of ecological and threat variables, for drug arrests the sovereign effect remained strong. This

finding was anticipated due in part due to the amount of discretion associated with drug arrests. There is yet, perhaps, more to the explanation.

First, different approaches are taken in different areas and according to different drugs. This is particularly the case for how drugs are trafficked and sold. For drugs that are sold indoors, police are less likely to have the opportunity to make arrests. PSA's that are characterized by drug sales that take place primarily out of doors may behave differently insofar as police will have different surveillance techniques and arrest opportunities (Walker & Katz, 2008; Eck, 1994). When it is unclear *how* to treat some drug offenses, yet clear for *other* drug offenses, there may be sovereign effects for one, but not the other. This is especially the case if certain drugs rise to the attention of commanding officers during COMPSTAT. Because MPD does not disaggregate their public data by drug type, this may be confounding any sovereign relationship for specific types of drugs. Another confounding effect may have to do with shifting drug markets (Walker & Katz, 2008). If this was the case, then "sovereignty" may have more to do with *where* the crime is at, rather than *how* the crime is dealt with. On the other hand, from an ecological perspective, we would expect areas characterized by traditional police activity – such as high crime, including drug crime – to be considered sovereigns insofar as other officers will look towards these areas as chances to do "real" police work.

Second, the "war on drugs" is relatively new - unlike other, more traditional crimes, such as homicide and robbery, which have been a consistent

concern of society for thousands of years (Walker, 2012). It is perhaps for this reason that the morality of using drugs is more ambiguous than, say, robbing someone. Depending on the audience, the officer, the drug, and the circumstances, substance possession may be construed as a *mala prohibita* offense or a *mala in se* offense. The implication for the police mandate, therefore, is potentially unclear: is enforcing drug laws part of capturing the bad guy and protecting the innocent? In some cases, the answer is most likely yes, particularly when drug dealers are perceived as taking over a neighborhood and corrupting younger kids. In other situations, such as the college student smoking marijuana, the connection to the police mandate may be less than clear. The meaning of drug possession and use for the police mandate may be further confounded when high-level and popular politicians, such as Marion Barry, Jr., current member of the D.C. Council for the 8th Ward, and the second and fourth mayor of the District of Columbia, are publicly known for hard drug use (Kappeler, Sluder, & Alpert, 1998).

With such an equivocal message concerning how to treat drug crimes, PSA's may not *know* how to respond to such crimes on a consistent basis, yet understand that they *must* respond if they are to maintain legitimacy. This is especially true for D.C., which, particularly throughout the 1990s, has had a history of narcotics trafficking recognized as a public problem (Kappeler, Sluder, & Alpert, 1998). It is here where the institutional environment may step in and have an effect. Recall that whenever a mandate is ambiguous or unobtainable via

rational mechanisms, an organization's legitimacy is threatened. In the case of drug arrests, the MPD may be faced with both scenarios. On the one hand, the war on drugs is, as with all wars against crime, "the wrong way to fight crime" (Walker, 2012, p. 20). As Walker also stated, "traditional police crackdowns will not reduce illegal drug use or serious crime associated with drugs" (p. 313). There is ambiguous evidence that police have any immediate, direct, or lasting impact on drug possession when left to their own devices (Walker, 2012; Lynch, et al. 2002). If legitimacy is garnered through the connection of what police do and the outcome of their actions, then the legitimacy of the MPD is in jeopardy when it comes to drug enforcement.

On the other hand, there is wide variation in how police officers treat drug arrests (Lynch, et al. 2002):

Drug arrests involve the greatest amount of police discretion because much of drug enforcement is not directly activated by citizen complaint the way violence is. Police target drug dealers and drug users and additional targets by putting pressure on the suspects in hand. Citizens have much less control over the invocation of coercion for drugs than they do for violence (p. 13).

Certainly, as the statutory or perceived seriousness of the drug in question increases, or the scope of the problem increases, discretion is likely to be diluted. As with most crimes, however, so too with drug offenses: the majority of possession charges are minor in nature and scope (Walker, 2012). Further, one reason so many of the interdiction and eradication efforts are "doomed to fail" is because the "20,000-mile border of the United States is too great, the possible methods of smuggling drugs too many, and the people engaged in the trade too

numerous” (Walker, 2012, p. 314). Stated otherwise, the “drug problem” in the United States is, itself, nebulous: at once localized, common, yet benign, and at the same time national, overwhelming, and frightening in its association with drug-cartels and violent crime. It presents law enforcement officers with an especially “gray-area” problem that traditional police actions have done little to solve. Again, this puts the legitimacy of the MPD in jeopardy.

Searching for any clue on how to treat drug arrests, PSA’s may look towards their institutional environment. The results found in Table 16 indicate that crime reports, social ecological variables, and minority threat concepts are all at work in explaining drug arresting behavior, particularly population mobility. (This latter finding may be explained in terms of the minority threat hypothesis and the Latino community, and is taken up below.) Above and beyond these findings, however, is the indication that the global, institutional environment is following the patterns exhibited by four sovereigns: PSA’s 208, 504, 601, and 602. There are several things that stand out concerning these PSA’s. First, although PSA 208 is a low low, while PSA’s 504, 601, and 602 are high high LISA’s, they are each positive in the direction of association. That is, they are unduly influential in the classical correlative sense of positive, where, as juvenile drug arrests move in one direction in each LISA, their neighbors move in that same direction. From our theoretical framework, this is what was expected. If low high or high low PSA’s were to be found, it was to be assumed that they were either waning sovereigns, or sovereigns in embryos. No such sovereigns were

found in the current study. Given the centrifugal behavior of juvenile drug arrests (see Figure 5), this pattern of positive association for each LISA will continue in an outward, concentric pattern.

Second, PSA's 504, 601, and 602 abut one another. In a sense, then, they form a single sovereign in the institutional environment for the MPD. This explanation is particularly compelling and suggestive of the internal validity of the theoretical model because these three PSA's span two districts: 5 and 6. If PSA LISA's were fully concentrated in districts, the explanation that similitude in behavior is due to district allocation would be more likely than institutional sovereigns. This is, however, not the case in the current study. Rather, there is evidence that sovereignty surpasses district norms, policies, and practices. Indeed, once identified as a sovereign, and introduced into the regression equation, PSA 208 reduced the effect of district 2. Furthermore, as indicated by Table 16, the sovereign effects remained even though several district dummy variables were significantly different than the referent variable, including district 2, but not including district 5 or 6 – of which PSA's 504, 601, and 602 are a part. These findings are further bolstered by chi-square results (found in Table 6A in the Appendix), which tests if LISA location and district are associated. Except for district 2, there is no indication that there is an association between MPD districts and PSA LISA's, and it is noteworthy that only one PSA in district 2 is a sovereign LISA. Taken together, the analyses for juvenile drug crime arrests support the current theoretical framework: when the police mandate is ambiguous,

and when traditional police activity does not result in the mandate's achievement, police may look towards institutional sovereigns for cues on how to behave.

Conversations with the MPD also highlighted why these PSA's may stand out as important when it comes to juvenile drug arrests. First, there is a possibility that the effect of PSA 504 is a social artifact. The juvenile processing center is located in this PSA, and it is often the case that, for custody orders, police indicate the juvenile processing center's address as the location of arrest. However, out of 104 juvenile arrests in PSA 504 in 2008, the most arrests that were at the same address across different days was 23. It is unlikely, therefore, that this LISA effect is a social artifact. More likely, it has something to do with the focus police have in this and the other two PSA's (601 and 602). For example, it was pointed out that Benning Road runs along the south border of 504, along which a number of public housing projects are located. As one MPD representative put it, it "comes up in a lot of conversations."

Indeed, for both PSA 504 and PSA's 601 and 602, public housing "came up a lot." Particularly in district 6, "crews" in public housing were perceived as a problem. Crews are distinct from gangs. As explained to me by representatives of the MPD, gangs can be understood as essentially hierarchical in their organization, and are therefore "easier" (*per se*) to deal with than crews, which are organized more laterally. Crews, essentially, are quasi-organized groups of juveniles who engage in delinquent activities. In the high-rise and public housing neighborhoods located in PSA's 601 and 602, crews are seen as a particular

challenge to law enforcement. It makes sense, then, that these PSA's would show up as sovereigns because of the drug-associated behavior of crews and gangs in general. Because these PSA's (504, 601, and 602) represent archetypical drug areas, police in surrounding PSA's may look towards them to get a handle on how to best deal with their own juvenile drug incidents.

PSA 208, on the other hand, was found to be a low-low sovereign PSA, meaning that not only was it statistically below the mean of juvenile arrests, but it unduly influenced its neighbors (again, recalling that "neighborliness" is measured in terms of distance, not adjacency). This area encompasses Dupont Circle. Dupont Circle is important insofar as it has been at the center of revitalization for the past 15 or so years, and has experienced incredible turn over in terms both of population and business. Whereas the southeast of D.C. can be characterized in terms of family units – and therefore, a larger juvenile population –, the northwest, and particularly the areas surrounding Dupont Circle and Adams Morgan, is characterized by "young, upwardly mobile professionals." There is, as one MPD representative continued, "an absence of a juvenile population" with which to occupy the police. The numbers bear this out, and suggest that the police in PSA's neighboring PSA 208, when faced with the prospect of *a juvenile drug arrest*, may look towards this area of revitalization to know how best to behave. This may be the case because of how rare the crime actually may be in the northeast: by virtue of how uncommon it is, police may not have a standard "going rate" (Walker, 2012) for juvenile drug offenses. This is no surprise, as the

frequency table demonstrates 0 cells for all of district 2. It is meaningful, however, that *only* PSA 208 was pinpointed as a sovereign. This suggests that there is some social process at work in PSA 208 such that it is impacting the arresting behavior of its neighbors, even those with (low) arrest numbers, such as can be found in district 3.

Juvenile Gun Crime Arrests

Hypothesis 1a states:

1. Net of controls, the juvenile arresting behavior of police in any given PSA will be influenced by the juvenile arresting behavior of neighboring PSA's in a centrifugal pattern. This pattern will be strongest for crimes that allow for more discrimination

- c. Juvenile gun crime arrests will also be prone to isomorphic influences; however, it is noted that this research took place during *District of Columbia v. Heller* (2008). Because of this circumstance, juvenile gun crime arresting behavior will exhibit more spatial stability than juvenile drug crime arrests because of the political climate. This is to say that, because of the Supreme Court's finding in *DC v. Heller*, we should expect to see similar behavior in terms of juvenile gun crime arrests across the District.

This hypothesis is now tested. The Moran's *I* for juvenile gun crime arrests is statistically significant at $p < 0.001$, with a value of 0.353. This supports the pattern displayed in Figure 6. Combined, the map and Moran's *I* suggest the presence of spatial dependence: juvenile gun crime arrests in one PSA are

affecting the number of gun crime arrests in neighboring PSA's. In addition, this effect is exerted centrifugally, waning with distance. Thus far, there is evidence in support of hypothesis 1.

To create a baseline, the regression model for juvenile drug arrests is presented in Table 17. Unlike the other models, the dependent variable was not overdispersed for juvenile gun crime arrests (dispersion parameter = 13, standard error = 10.5, $p > 0.05$). As such, a count model with a Poisson distribution was used. This model includes the district dummies as a test of work group norms, district-specific policies, and potential police presence. As already discussed, districts are highly collinear with the total black population. For this model, however, VIF's did not rise above 6.10 for any variable. Districts were therefore retained (no threat to power was noticed, remaining near 0.80). This model is presented in Table 17.

The count model indicates that total crime reported ($b = 1.08$), population mobility ($b = 0.67$), and total black population ($b = 1.11$) are all statistically significant at $p < 0.05$. The odds ratio for black population is a particularly compelling quotient at 3.021, suggesting that police juvenile arrests for gun related crimes are especially pronounced in PSA's with large black populations. Also of note is that every district is statistically significantly different from district 7: all coefficients are negative, which indicates that, as noted, district 7 is a hot-bed of arrests in general, and especially of gun related juvenile crimes. But this

finding also indicates a general district effect across D.C. when it comes to juvenile gun crimes.

Table 17. Count model for gun related crime.

	<i>b</i>	<i>SE</i>	<i>z</i>	<i>p</i>
Crime reported [†]	1.08	0.15	7.35	0.00
Structural disadvantage	-0.09	0.16	-0.58	0.56
Population mobility	0.67	0.20	3.26	0.00
Black population [†]	1.11	0.47	2.34	0.02
District 1 ^{††}	-1.32	0.30	-4.46	0.00
District 2	-2.74	1.20	-2.28	0.02
District 3	-2.01	0.49	-4.12	0.00
District 4	-1.52	0.37	-4.07	0.00
District 5	-0.53	0.28	-1.93	0.05
District 6	-0.56	0.21	-2.66	0.01
Constant	-11.78	3.17	-3.72	0.00

AIC = 194.05

[†]Natural log was used.

^{††} Referent group = district 7

Next, we introduce a lag term into the model. A LeGrange multiplier test suggests that this may not, however, be necessary, at least for controlling spatial autocorrelation. For juvenile gun crime arrests, the LeGrange multiplier tests did not indicate the need to include a spatial lag term in the regression model: neither the LeGrange multiplier test for the lag nor for the error models suggested this need (0.001 at $p = 0.978$ and 0.384 at $p = 0.536$, respectively). This is not surprising, as a Breusch-Pagan test suggested that heteroskedacity was not a problem ($BP = 17.275$, $p = 0.069$ – although this approaches the conventional alpha level of 0.05). The robust versions of the LeGrange tests were no different (robust lag model: 0.356, $p = 0.551$; robust error model: 0.739, $p = 0.390$). The

count model, with a lag term, is presented in Table 18. The lag term is denoted with the Greek letter *rho*.

Table 18. Count model for gun related crime with lag				
	<i>b</i>	<i>SE</i>	<i>z</i>	<i>p</i>
Crime reported [†]	1.03	0.15	7.07	0.00
Structural disadvantage	-0.08	0.16	-0.52	0.60
Population mobility	0.81	0.21	3.92	0.00
Black population [†]	1.15	0.48	2.42	0.02
District 1 ^{††}	-0.93	0.35	-2.68	0.01
District 2	-2.33	1.21	-1.92	0.05
District 3	-1.89	0.49	-3.85	0.00
District 4	-1.13	0.42	-2.70	0.01
District 5	-0.11	0.33	-0.34	0.74
District 6	-0.25	0.25	-0.99	0.32
ρ	0.07	0.03	2.22	0.03
Constant	-12.39	3.22	-3.85	0.00
<i>AIC</i> = 191.36				
[†] Natural log was used.				
^{††} Referent group = district 7				

Comparing this model with the previous count model, there are several important coefficient behavioral patterns to note. First, the fit of the model remains basically on par with the previous model (from an *AIC* of 194.05 to 191.36). Similarly, total crime reported ($b = 1.03$), population mobility ($b = 0.81$), and the total black population ($b = 1.15$) remain statistically significant and their effect sizes are not appreciably changed. Districts 5 and 6, however, drop from significance. Most importantly, *rho* is statistically significant at $p < 0.05$. The effect size, however, is quite nominal, at $b = 0.07$ and an odds ratio of 1.07. For juvenile drug crime arrests, therefore, neighboring PSA's *do* appear, statistically,

to be influencing the behavior of one another. The size of this effect, however, is not impressive.

These findings partially support hypothesis 1. Net of controls, PSA's do seem to be influencing the juvenile drug arresting behavior of their neighbors. This relationship, however, is weak – indeed, almost too weak to definitively aver a substantively important relationship. This is discussed further below. Now, we explore the second hypothesis for juvenile drug arrests:

2. The existence of sovereign precincts should be empirically observable.

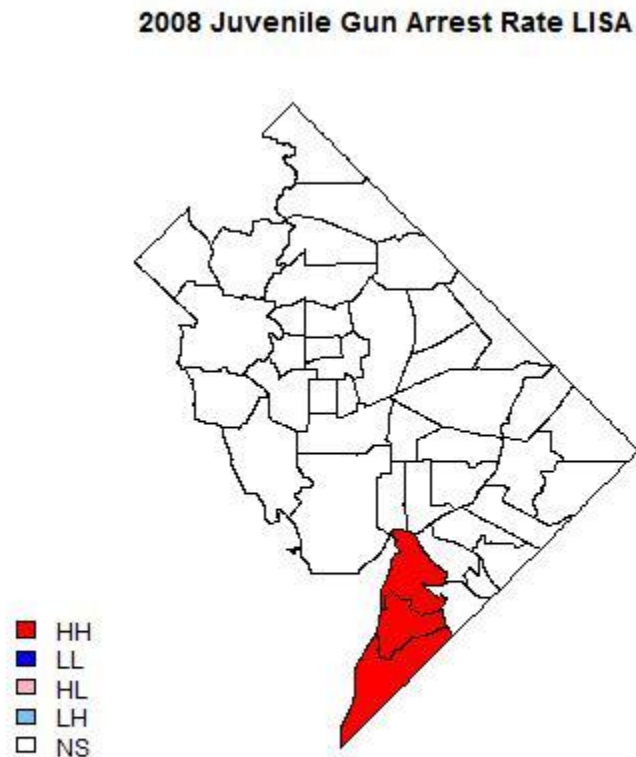
Again, for crimes with more discretion, we should see more of a sovereign effect insofar as the spatial dependency suggested in hypothesis 1 will have its effect ultimately through sovereign precincts.

- d. Sovereign effects may be noticeable for juvenile gun crime arrests, but ultimately, it will be a concerted agency-wide effect that we will witness, owing to the nature of the *Heller* case.

Although the general, global institutional environment does not seem to matter for juvenile gun crime arrests substantively, it is possible that *sovereigns* may be mediating this relationship, as we saw with juvenile drug crime arrests. To this end, we run another count model, interacting the presence of LISA's as sovereigns with the spatial lag term. First, testing for LISA clusters (Figure 11, and see Table 7A in the appendix) suggests PSA's 705, 706, and 703 compose High-high cluster in the southwest – similar to the neighborhoods discussed in the previous models.

There is potential, therefore, for localized spatial effects, that is, for sovereign effects. Table 19 explores this in a multivariate count model, where the lag term is interacted with a dummy variable, where 1 = a sovereign cluster.

Figure 11.



As can be seen in Table 19, this model does not behave much differently than previously models: crime reported ($b = 1.03$), population mobility ($b = 0.77$), and total black population ($b = 1.14$) remain statistically significant, as do districts 1 through 4. While districts 5 and 6 again fail to reach significance, it is important that all coefficients have a less likelihood than district 7 of seeing police presence

in regards to juvenile gun arrests. *Rho* drops from significance, and neither the LISA dummies nor the interaction term reach significance. In short, the hypothesis is ultimately disconfirmed: it does not appear that sovereigns have an effect on the institutional environment when it comes to juvenile gun crimes. Rather, it appears that ecological and district-related effects are at work for this dependent variable.

Analysis and Discussion. The models for juvenile gun arrests are some of the most unique across the dependent variables, insofar as there were clear district effects across *all* districts. In addition, all district coefficients were negative, suggesting that district 7 was a hot-bed of gun activity. Also interesting was that a Poisson distribution was necessary for model fit: in other words, the data were too skew to use a linear model without transformation, yet not skewed enough to employ a negative-binomial distribution.

As with the violent and property arrests, neither a lag model nor a LISA model was necessary to fit the data: sovereign pressures were not apparent, nor did isomorphism extend centrifugally according to geographic patterns (although statistically significant, the coefficient was too low to be of substantive value). Instead, the models indicate an institution-wide effort at juvenile gun arrests as suggested by the district effects. Additionally, these effects were strongly seen where population mobility was high, a variable highly correlated with the Latino population. This speaks most directly to the minority threat hypothesis: insofar as the traditionally White, affluent diplomats and government workers in the

northwest are concerned with the encroachment of Latinos (Kane, Gustafson, & Bruell, 2011), they may take actions to influence the police in focusing on crimes that are particularly frightening. In the United States, this is especially the case with gun crimes, which are so often tied to fatalities (Zimring & Hawkins, 1997).

Table 19. Count model for gun related crime with LISA dummies

	<i>b</i>	<i>SE</i>	<i>z</i>	<i>p</i>
Crime reported [†]	1.03	0.18	5.84	0.00
Structural disadvantage	-0.11	0.17	-0.62	0.53
Population mobility	0.77	0.22	3.42	0.00
Black population [†]	1.14	0.48	2.37	0.02
District 1 ^{††}	-0.84	0.40	-2.09	0.04
District 2	-2.24	1.26	-1.78	0.07
District 3	-1.77	0.57	-3.11	0.00
District 4	-1.06	0.45	-2.36	0.02
District 5	-0.07	0.39	-0.19	0.85
District 6	-0.20	0.32	-0.61	0.54
<i>ρ</i>	0.08	0.06	1.32	0.19
<i>LISA</i>	0.39	0.84	0.47	0.64
<i>ρ</i> X <i>LISA</i>	-0.03	0.09	-0.34	0.73
Constant	-12.45	3.20	-3.89	0.00

AIC = 195.12

[†]Natural log was used.

^{††} Referent group = district 7

Many arrests for gun crimes are discretionary because they are the result of pretextual stops or *Terry* pats (Roberg, Novak, & Cordner, 2005). This makes them ripe for isomorphism, as we see with juvenile drug arrests. The district wide effects, however, which sweep out any isomorphism, may be a result of the particular political climate of 2008. There were two phenomena in 2008 that may help to explain the juvenile gun crime arrest models. First, there was a concerted

focus on foot patrol and getting officers in neighborhoods. This was an agency-wide effort encapsulated in two programs, *All Hands on Deck* and *Full Stride*. As the 2008 Annual Report indicates (Metropolitan Police Department, 2009):

The total number of arrests and the total number of arrests for violent offenses during All Hands on Deck weekends have consistently and substantially increased. Since the start of the Full Stride foot patrol program, officers assigned to foot patrol alone, made over 1,000 arrests, recovered 22 guns, and distributed over 11,000 PSA flyers and 69,000 Full Stride cards. (p. 8)

Second, it was in 2008 that the United States Supreme Court ruled on *DC v Heller*, which, among other things, legalized hand gun possession in the United States and interpreted the second amendment to apply to gun ownership without regard to a “well organized militia.” This may have created a very tenuous time for MPD officers who, as a whole, and with or without agency support or direction, may have begun focusing efforts to get guns off of the street as soon as possible at the heels of this ruling.

The politics of a municipality do affect the behavior of the police. This was brought to light early in the career of James Q. Wilson (1968) who demonstrated that police behave differently according to the political disposition of their city. Zhao and Hassell (2005), in a test of Wilson’s hypotheses 30 years later, while finding little support for Wilson’s main hypotheses, concluded with the following:

Although we find that Wilson’s measure of local political culture no longer impacts police organizational behavior in quite the same way, we do not purport that police organizations are fully shielded from local politics. A substantial body of research demonstrates the powerful relationship between police organizations and their external environment...

Police organizations, as institutionalized organizations, must accommodate and adapt to the forceful demands of their environment (p. 426).

This is evidence of isomorphism at a level beyond the PSA and even outside of the police department, and therefore beyond the scope of this study. While it is speculative at best to suggest that this is *more* evidence for the current theoretical framework, it is at least promising that the results for gun crime make sense in light of current research and the political climate of 2008 Washington D.C., and that these studies, too, point towards institutional pressures towards conformity in proffering potential explanations for these findings.

Social Ecology and Demographics

This section discusses hypothesis 3, which states:

3. The research insists that the ecology of an area is highly influential on police arresting behavior, and we see no reason to think that this will not be the case in an institutional context. It is very plausible that a PSA's ecology can overwhelm any institutional effects. This is especially true in terms of the minority threat hypothesis and its relationship to serious crime. Therefore, all arrest dependent variables will exhibit ecological and racial effects which will ultimately weaken institutional processes.

This was certainly the case with the current data. Table 20 summarizes the results for all first order count models for the juvenile violent, property, and gun arrest outcomes. Structural disadvantage never reached significance in any of the models, largely because of its correlation with the total black population or with

geographic variables, including the spatial lag term and district dummies. (Indeed, the total black population remained statistically significant across each of these models. For property arrests, it was necessary to model a quadratic term to capture the nonlinear relationship between this variable and total juvenile property crime arrests.) Part of the reason is the nature of structural disadvantage in D.C., as well. As a representative from the MPD told me, PSA's in the southeast were fairly uniform in structural disadvantage, where "generally, neighborhoods were characterized by high crime and structural disadvantage." This is especially true for the neighborhoods of Anacostia and Washington Heights.

Table 20. Summary of ecological and demographic variables†.

	<i>violent (8)</i>	<i>property (11)</i>	<i>drug (14)</i>	<i>gun (17)</i>
Population mobility	-	-	+	+
Black population	+	-	-	+
Black population ²	n/a	+	n/a	n/a

† Numbers in parentheses indicate the associated table. Sign indicates direction of coefficient.

Population mobility was significant for both property and gun arrests, and, in the presence of multiple predictors, behaved in unanticipated yet explainable ways. Recall that Hispanic was not added to the models due to extreme multicollinearity with population mobility. Given that both population mobility and the Hispanic population are concentrated in the northwest, this is not a surprise. In fact, the northwest, in the past decade or so, has seen a shift in demographics such that one police officer can note that Columbia Heights used to be an African American neighborhood, and is not best portrayed as a Hispanic neighborhood. As population mobility is negatively associated with each

dependent variable, so too is the Hispanic population (see Table 7 for an overview). Additionally, it is correlated with population mobility at 0.740. At the PSA and bivariate level, then, Hispanic population does not seem to behave according to the threat hypothesis in the same manner as Black population. This appears to be at odds with Kane and colleagues (2011), who found that Hispanic populations predicted increased misdemeanor arrests in historically white neighborhoods in Washington, D. C.

Yet population mobility behaved very differently when entered into a multivariate regression equation with other variables: for property crime arrests, the coefficient for population mobility was negative and statistically significant, as expected. However, for drug and gun crimes, population mobility was significant and non-linearly associated with the criterion. This inherent nonlinearity was not necessary to model in the regression equations (that is, for the sake of model fit). For the sake of exploration, a model was run where *Hispanic* and *Hispanic*² were entered into the regression equation in lieu of population mobility for drug arrests (again using a negative binomial distribution). The results suggested that a higher concentration of Hispanic persons in a PSA results in more drug arrests, such that the first order term $b = -2.87$ ($p = 0.07$) and the squared term $b = 0.41$ ($p < 0.05$). The same pattern was exhibited for gun crimes ($b_{\text{Hispanic Population}} = -4.153$, $b_{\text{Hispanic Population}}^2 = 0.554$, both $p < 0.001$, using a Poisson distribution). Population mobility, and by extension, Hispanic population, behave differently (in terms of drug and gun arrests for

juveniles) when considering the entire complex social ecology of D.C. police services areas¹⁵. Additionally, their behavior falls in line with what we should expect from a threat perspective.

From this, it is concluded that hypothesis 3 is supported: the ecology, both structural and demographic, of a PSA not only impacts the behavior of the police in that PSA, but also impacts the nature of institutional processes. In most cases, it appears to overwhelm any spatial (e.g., institutional) processes we observe at the bivariate level. Such was the case for three of the four criteria: juvenile violent, property, and gun related crime arrests. For juvenile drug arrests, ecological variables remain significant and meaningful across all models, and it is only through sovereigns that the institutional environment appears to have any effect on juvenile drug arrests.

Summary and Conclusions

The multivariate models presented in this chapter, along with the bivariate correlation table from the preceding chapter, suggested the presence of both global institutional effects and more localized sovereign effects. However, the multivariate models were more equivocal. The models effectively controlled for the most pertinent territorial predictors of aggregate police behavior, including ecological variables (structural disadvantage and population mobility), district effects (policies and police population), and reported crime. Among these models, ecological variables seemed best to explain property and violent crime arrests, and

¹⁵ Population mobility was preferred over Hispanic as a control not to ignore this effect but to provide a parsimonious model.

district wide policies (and background political exigencies) seemed best poised to explain gun crime arrests. For juvenile drug crime arrests, however, there was indication of sovereign influence pushing the territorial arresting behavior of the police at the PSA level. From these findings, we conclude that there is partial support for hypotheses 1 and 2. Violent and property crime arrests do exhibit (considerably) less institutional and sovereign effects than drug and gun crime. In addition, gun crime arrests display behavior that suggests an organization-wide behavior that also takes precedence over isomorphic or sovereign processes. Further, there is ample support for hypothesis three: the ecology of a PSA matters for predicting police behavior as much as it does at the tract or beat level.

These findings shed much light on the theoretical outline developed in chapter two. First, it indicates that institutional pressures and their effects are more nuanced than perhaps anticipated. Again, we fall back on the premise that the etiology of police behavior is understatedly complex at all levels of analysis. Second, it supports a host of previous research in its efforts to explain police behavior. As noted, ecology, demographics, and reported crime continue to explain police behavior at aggregate levels. Additionally, the seriousness of the crime continues to predict levels of allowable discretion. Third, while equivocal, we can nonetheless conclude, confident in our models' behavior, that the methodological/theoretical framework guiding the current study can successfully a) pinpoint sovereigns and b) measure their effect or, in the case of three of the four models, non-effect. When spatial dependence is modeled it is no longer

noise: it is a measurable phenomenon. Perhaps *because* of Tobler's law, this phenomenon is typically treated as a given and provided almost no theoretical justification. This study asserts that spatial dependence holds theoretical meaning for the territorial study of the police: it is, in part, the institutional effect of sovereigns on other areal policing units. To the degree that we can pinpoint the origin of its effects (ie., sovereigns), we are in a better position for effecting organization-wide change (this is developed fully in chapter 6).

These findings, of course, beg the question, what makes a sovereign a sovereign? The short answer to this is *any PSA perceived as legitimately accomplishing the police mandate becomes a sovereign*. This explanation, however, is somewhat loaded and unsatisfying. What we really want to ask is, how do we empirically predict who is a sovereign? That is, how do we predict which PSA will show up as High-high or a Low-low LISA cluster?

Among our dependent variables, juvenile drug arrests indicated the potential for sovereign institutional effects. As a tertiary goal of this dissertation, we wanted to understand *why* these PSA's are sovereigns. For the sake of exploration, we employed logistic regression. The sample size is too small to use multinomial logit regression (Fox, 2008), and there are not enough "1" cells to use separate logit models for LL and HH sovereigns (assigning 1 to either HH or LL). Therefore, we use a logit model where 1 = sovereign and 0 = non-sovereign. We increase power by reducing the number of variables used in the model: rather than employing all district dummies, we remove them from the model. The

negative binomial and LISA regression models have already established that the sovereign effects supersede district effects. This is confirmed in Table 6A, which suggests that only district 2 has a relationship with the sovereign dummies. This is not surprising considering the consistent effect demonstrated by district 2 in the correlation tables and those regression models that use the district dummies. The results of the logit model are displayed below in Table 21.

Table 21. Generalized linear model (logit link) for sovereigns

	<i>b</i>	<i>SE</i>	<i>z</i>	<i>p</i>
Juvenile drug arrests [†]	0.77	0.82	0.94	0.35
Crime reported [†]	1.62	1.24	1.30	0.19
Structural disadvantage	-0.04	0.98	-0.04	0.97
Population mobility	-0.27	0.81	-0.33	0.74
Black population [†]	-0.70	1.21	-0.58	0.56
Constant	-10.28	11.01	-0.93	0.35

AIC = 32.44.

[†]Natural log was used.

As can be seen, no variables reach significance¹⁶. Similar results are reached if we run a linear model – the economist’s “bivariate regression” model. Ordinary least squares is more robust a model than that which uses a logit link. Nevertheless, even with the most robust multivariate statistic at our disposal, we fail to find any significant relationship between the covariates and being a sovereign for juvenile drug arrests. Regarding therefore the question what makes a sovereign a sovereign, we can only say *not these covariates with these data*. We

¹⁶ Juvenile drug arrests and the dependent variable are related: the local Moran’s *I* that we used to create the LISA dummy (described above) is a product of juvenile drug arrests and a weights matrix. However, there are enough mathematical steps involved in this process that entering juvenile drug arrests in the logit model does not raise endogeneity concerns.

can further only provide speculation at this point, based on theory and previous research. This topic is more fully revisited in the next and final chapter.

Chapter 6

DISCUSSION

Introduction

This chapter has two purposes. First: It presents a more detailed theoretical discussion of the findings presented in chapters 4 and 5, building on the limited remarks found in those chapters. Second, it presents summary and concluding remarks, including theoretical and policy implications, limitations to the research design, and ideas for future research. Ultimately, it suggests the following: That the theoretical framework outlined in chapter two is supported, but that this statement must be qualified. Police PSA's *do* behave both territorially and according to isomorphic pressures, at least with regard to certain types of arresting behavior. Such institutional effects compete with other meso-level processes, however, including those associated with the ecology of policing, such as structural covariates and variables typically associated with threat theory, and the general political climate of Washington, D.C. The study's theory was not, therefore, completely supported. It is, however, a starting point for understanding institutional processes empirically, and should be further extended by future research. In the end, this study underscores the driving theme behind its research questions: *The etiology of police behavior is understatedly complex.*

This study began with two related questions:

why do police behave in ways that, for all intents and purposes, are detached from their goal?

why is it that police appear similar, in form and function, despite idiosyncratic pressures that may lead to great variations in the ways in which they behave?

The connection between these two questions is explained by way of institutional theory: it is impossible (Mandate, 1979) left to their own traditional devices (e.g., arrest, see Herbert, 2001) for police to effectively control crime. But being unable to achieve one of their mandates threatens their legitimacy; therefore, they look towards sovereigns and each other to figure out “what a cop does” and “what a cop looks like”. Thus, they appear more similar than different, and engage in behavior that is loosely connected (Crank, 2003) to their ultimate goal of crime control. Although police can and do have an impact on the crime rate, relying solely on arrest is not very effective, if at all effective. To the extent that police rely on this form of social control, what they do is detached from what they are trying to accomplish, and their legitimacy is threatened.

For this study, there was reasonable support for some hypotheses, while others were disconfirmed. Juvenile arrests in a PSA were influenced by juvenile arrests in other PSA's, net of controls, but this pattern was specific to a particular crime – that is, drug crimes. For violent, property, and gun crimes the spatial effects were only apparent at the bivariate level. Ecological variables, such as population mobility or race, overwhelmed any spatial effects at the PSA level. This finding, in itself, supports the third hypothesis that the ecology of an area is highly influential on police behavior, as well as supports a host of literature on

both the ecology of policing (Kane, 2002) and the minority threat hypothesis (Jacobs & O'Brien, 1998). Finally, when spatial dependence was apparent, the second hypothesis was also supported because the influence of spatial processes, that is, of isomorphism, was seen *via* sovereign PSA's (but again, only for juvenile drug arrests). While tentative, this study has succeeded in its two overarching goals: providing a theoretical and analytic means of empirically pinpointing sovereigns and of observing their effects on the institutional environment in policing.

Limitations

There are noteworthy limitations to this study. Having only one year of usable data limits both external validity and our ability to make causal statements with any confidence. Although not ideal, given that one purpose of this study was to find a way to empirically observe isomorphism, this limitation is acceptable in the current setting. If isomorphism is found, future research can attempt to tease out causation with more robust research designs. As with all research involving agency data, there is a concern with the accuracy of the reporting process, particularly as it relates to reliability (Jacob, 1984). The poor quality of the 2009 data is witness to this problem. This limitation is associated with one of the most pressing disadvantages of the study: the missing data. This topic was already discussed in detail above in chapter 4. By way of summary: There are data

missing areal identifiers, and three PSA's that have no arrest reports¹⁷. While there are ways to interpolate missing spatial data (including entire areal units) (Haining, 2003), this was both undesirable and unnecessary in the current study. First, it was undesirable because there is no evidence that such data are either missing at random or not missing at random. Second, it was unnecessary because the influence of the missing PSA's is observable through their neighbors in the form of spatial dependence.

This situation, too, relates to another limitation: the fact that we are not controlling for neighbors outside of Washington, D.C. The District is surrounded by Maryland and Virginia. It is at once reasonable and theoretically feasible that the greater metropolitan area surrounding Washington D.C. is also having an effect on the arresting behavior of the PSA's which border Maryland and Virginia. In some respects, this is compensated for in the same manner as the missing PSA's: although unobserved, their effect is detectable through spatial dependence. A similar limitation is that we are only observing and measuring the arresting behavior of the MPD. While the MPD accounts for most municipal arrests in the District, it is only one of several law enforcement agencies (at both the municipal and federal level) responsible for police functions in D.C. Because the arresting behavior of these agencies was not controlled for, much of their variation will appear in this study's models or in the form of measurement error (for example, in the spatial error model for juvenile violent crime arrests).

¹⁷ In reality, there are only two: in discussion with the research arm of the MPD, it was clear that PSA 707, the military base, essentially does not experience arresting behavior at the hands of the MPD.

One particular concern deals with the PSA's encompassing the National Mall (the National Mall is spread across the first district). The National Mall is heavily policed, but particularly by *other* law enforcement agencies, such as the National Park Service and the police attached to the United States Supreme Court. If there were no MPD police activity there by design (e.g, not because there was no criminal activity but by administrative policy), this would constitute a spatial island: an area of null influence that would unduly influence the nature of the environment's spatial dependence. This potential turned out not to be such a concern. First, because we employed inverse-distance weights, rather than contiguity weights, as the multiplier for our weights matrix, the effect of other PSA's is not influenced by the presence of islands. It is for this reason why the relationship between PSA 706 and PSA 104 is not affected by the missing PSA 707: *relationship* is based on distance, not adjacency. Second, across all four dependent variables, PSA's in district 1 were represented, including PSA's 104 and 101, those most closely aligned with the National Mall. Indeed, one of the strongest indicators that the National Mall did not present an analytical problem is that, despite district 1 being quite high in total juvenile arrests (particularly PSA 101 with 742 in 2008), and consistently showing up as a potential LISA in Moran scatterplots for the dependent variables (which were not reported; rather, see LISA coefficient tables in the Appendix, which are more valid), the LISA statistics successfully indicated that, although high in crime and crime arrests, it was ultimately not "unduly" influential. This is what we would expect from an

organizational perspective: a sense among police officers that the National Mall was “different” and deserves its unique “going rate” of crime control (Klinger, 1997).

The limitation that demands the most attention from future studies is that the processes underlying isomorphism (that is, mimetic, coercive, and normative) were not measured. Rather, this study presented spatial dependence as a proxy for global institutional effects and local indicators of spatial dependence as proxies for sovereign effects. The empirical study of isomorphic processes at the meso-level of policing, as presented in this dissertation, finds itself in the same position as social disorganization prior to Sampson’s (Sampson & Groves, 1989) and Bursik’s (Bursik & Grasmick, 1993) pioneering work of the late 1980s and early 1990s: measuring the antecedent events and the outcome without directly observing the intervening processes. Although not ideal, this is acceptable because the current study’s purpose was to create both a theoretical and analytical framework for pinpointing institutional and sovereign effects in the police department empirically. Having accomplished this (at least with regards to juvenile drug arrests), the next important step is to find a way to meaningfully measure those processes described by the institutional literature as isomorphic.

A final limitation to consider is the low cell size apparent across PSA’s. Referring back to Table 1, for example, the average drug crime arrest per PSA is 7.77 and the average gun crime arrest is 5.05. In addition, the median for both is less than the mean (5 and 3, respectively). The ranges, however, are larger than

one might expect given their means: for drug arrests, the range is from 0 to 33, while for gun crime arrests, it is from 0 to 26. It is evident from Table 2 that some PSA's are far from these baselines. In terms of the regression models that were employed in this study, this does not present an analytical problem. Count models are expressly designed to use data with this sort of 0-heavy distribution¹⁸. For the drug arrest lag models, data were induced to normality using accepted methods (that is, the natural log) when it became clear that the count models were not behaving appropriately. The concern with the low cell-sizes, therefore, is one of theory and practicality. In effect, it forces us to ask the question: *can we reasonably conclude that sovereign effects exist when the phenomena under investigation are so scarce?*

The answer to this question is a qualified *yes*. The qualification comes from two sources: the nature of the crime and the nature of sovereigns. Regarding the former: it has been put forth in this study that sovereigns will have their strongest effect when two moments converge: a high level of discretion in tandem with a nebulous goal. As discussed above regarding drug crime, for example, it is not always clear *how* to treat certain drug offenses, considering the political climate of D.C. In addition, drug crimes receive more discretion than many other crimes. Both criteria are therefore met¹⁹. Such a situation can also produce wide

¹⁸ It is noted that tests for zero-inflated models (Long, 1997) were also run for all criteria. None of the criteria necessitated using a zero-inflated model.

¹⁹ What is more, some drug crimes receive more discretion than others: marijuana, for example, can be treated more leniently than methamphetamine. Given the nature of the MPD data, I was unable to delineate by drug crime type: these findings encapsulate all drug crimes across the entire discretion continuum. This, in and of itself, is a limitation.

variation between officers – and consequently between territorial units – in terms of arrests. One of the explanations for the distribution for drug crime arrests is therefore the nature of the crime itself, which concomitantly lends itself to sovereign effects.

The most compelling qualification has to do with the nature of sovereigns. This dissertation is a meso-level study; given these low-cell sizes, however, we are approaching individual-level research. Given that so many PSA's have so few arrests, it is possible that the arrests in these PSA's are being performed by only a handful of officers – or, just as reasonably, one officer. The nature of sovereigns may be understood not in terms of the PSA, *per se*, but in terms of individual officers who are able to endow their PSA with legitimacy. When neighboring PSA's pick up on this legitimacy, they may instinctively begin copying the behavior of that PSA, as well. This theme is discussed in more detail below. For the present, it suffices to point out that if this is the case, low cell sizes are no longer a significant theoretical problem; rather, they help point us in the direction of low-low sovereigns, as much as higher than average cell sizes point us in the direction of high-high sovereigns. In addition, it contributes to our overall theoretical model by requiring us to consider the individual-level effects of highly influential officers.

Theoretical Implications

Findings from this study suggest discussion for at least three major theoretical areas: the social ecology of policing, the minority threat and policing,

and isomorphism and the policing environment. Each of these three areas is enlightened (or bolstered) by the introduction of territoriality in the theoretical discussion. Recall that *territoriality* denotes a behavioral organizational framework: a police officer's conception of her job is defined by territorial exigencies (Herbert, 1997). How one's job is understood and carried out is organized according to the territory in which one is situated. For the police, territory comes with social ecological variables, such as racial make-up and population mobility, but is also laden with a political context. As the literal manifestation of the state's function to uphold its part of the social contract (Hobbes, 2009), the police are subject to unique political realities. The uniqueness of these political realities is to be found in the fact that they are coupled with the state-sanctioned capacity to take life (Bittner, 1970). Authors have recognized that these realities seep down to the line level and affect the behavior of patrol officers (Lipsky, 1980; Rubinstein, 1973; Wilson, 1968). Because police behavior is organized within a specific geographic context, this behavior plays out in a territorial fashion. While this study is focused on police territoriality and isomorphism, it is worthwhile to highlight some of the findings as they touch on the relationship between the social ecology of policing and the minority threat.

The Social Ecology of Policing

Much has been written and theorized about the social ecology of policing (e.g, Kane's body of work and Klinger's 1997 article). These articles have laid the foundation for understanding the police not only as individual officers working

within a bureaucracy, but as a complex collective of “street level bureaucrats” (Lipskey, 1980) who must negotiate achieving their mandate with limited resources in what amounts to a hostile environment. These contemporary studies reflect the findings of Whyte (1943) and Smith (1986) who found that police behave differently not only according to the demeanor of the suspect, but also according to the make-up of the neighborhood. As Kane (2002) found, the ecology of a neighborhood can predict not only licit police behavior, but also misconduct.

The current study replicates these earlier findings, and in doing so adds support to their theoretical underpinnings. For example, both juvenile drug arrests and juvenile gun crime arrests were predictable from the population mobility of the PSA. Not only do these findings corroborate earlier research, but they extend the research from the neighborhood, tract-level unit of analysis to the meso-level unit of a police organization. Remembering that PSA’s are composed of several sections of disparate tracts, it is noteworthy that the social ecology is yet predictive of police behavioral outcomes. These findings withstood the introduction of spatial lags and district-level variables, indicating a unique process at the PSA level. This finding is meaningful because, for all intents and purpose, the PSA is the ecological “neighborhood” most pertinent to the police.

It is interesting that for most of the models, despite exceptional Moran’s *I* coefficients, spatial dependency did not remain significant once entered into the regression equation. This does not follow the pattern demonstrated from previous

studies (e.g, Kane, 2003). Typically, at the tract level, spatial lags must be introduced into the regression model to reduce heteroskedasticity. This was not the case for the PSA level. While I will have more to say on this below under *Isomorphism and policing*, for the current topic, the finding that there is little spatial dependency for arresting behavior when ecological variables are introduced suggests the strength of the ecology in determining police behavior at the PSA level – a level analogous to *precincts* in other large police agencies.

Moran's *I*s for each dependent variable suggested evidence of spatial dependence for both structural disadvantage (0.577, $p < 0.001$) and population mobility (0.758, $p < 0.001$) that is larger in magnitude than any of the those for the dependent variables. As with the earlier models, however, if we entered lag terms based on structural disadvantage and population mobility into regression models, these lag terms did not reach significance or affect the models, except for property crime arrests and for structural disadvantage. Here, the coefficient for structural disadvantage was 6.584 ($p < 0.01$). Considering the earlier maps and discussion of structural disadvantage and population mobility, this makes sense. Population mobility is almost completely concentrated in the northwestern PSA's. This relates largely to the fluid movement of politically affiliated residents who live in this more affluent area of Washington, D. C. Population mobility is simply too concentrated to be have a spatial effect on neighboring PSA's.

Structural disadvantage, however, is less concentrated. While structural disadvantage is certainly focused in the southeast, there is more spatial variation

in it than in population mobility. For juvenile property crimes, at least, arresting behavior is influenced not only by the ecology of the PSA, but by the ecology of neighboring PSA's. This effect also may have something to do with the population make-up of structurally disadvantaged neighborhoods as compared to those with high rates of population mobility, a subject taken up in the next section.

In summary, the current study adds its voice to the corpus of research indicating that the ecological make-up of the police territory does influence their behavior. As this research has suggested, this may be because of a work-group impact that determines how police behave in specific neighborhood/PSA settings (Klinger, 1997; Phillips & Sobol, 2010; Johnson & Olschansky, 2010; Sobol, 2010; Jackson & Boyd, 2005) or it may have to do with the collective capacity of the PSA citizenry. PSA's with high population mobility may lack the necessary social capital to muster resources against police behavior - either in the form of police violence (Kane, 2002, 2003; Jacobs & O'Brien, 1998) or simply intense arresting behavior (that is, over-arresting). The fact that ecological variables remain significant in these models (as in the models from other studies - Kane, 2002, 2003; Jacobs & O'Brien, 1998) indicates that there is more at work here than police response to illicit juvenile behavior.

Minority Threat and Policing

While detaching minority threat completely from the subject of structural disadvantage is unnecessary and ultimately incorrect, it is done so here to

highlight the relationship between territorial police behavior at the PSA level, minority threat, and police behavior in Washington D.C. It is understood, however, that minority threat, and minority communities, are complexly associated with crime, arresting behavior, structural disadvantage, and population mobility at all levels of aggregation. In this study, the importance of the minority threat was seen across all models in one form or another. And as with social ecology, this was presaged by previous research.

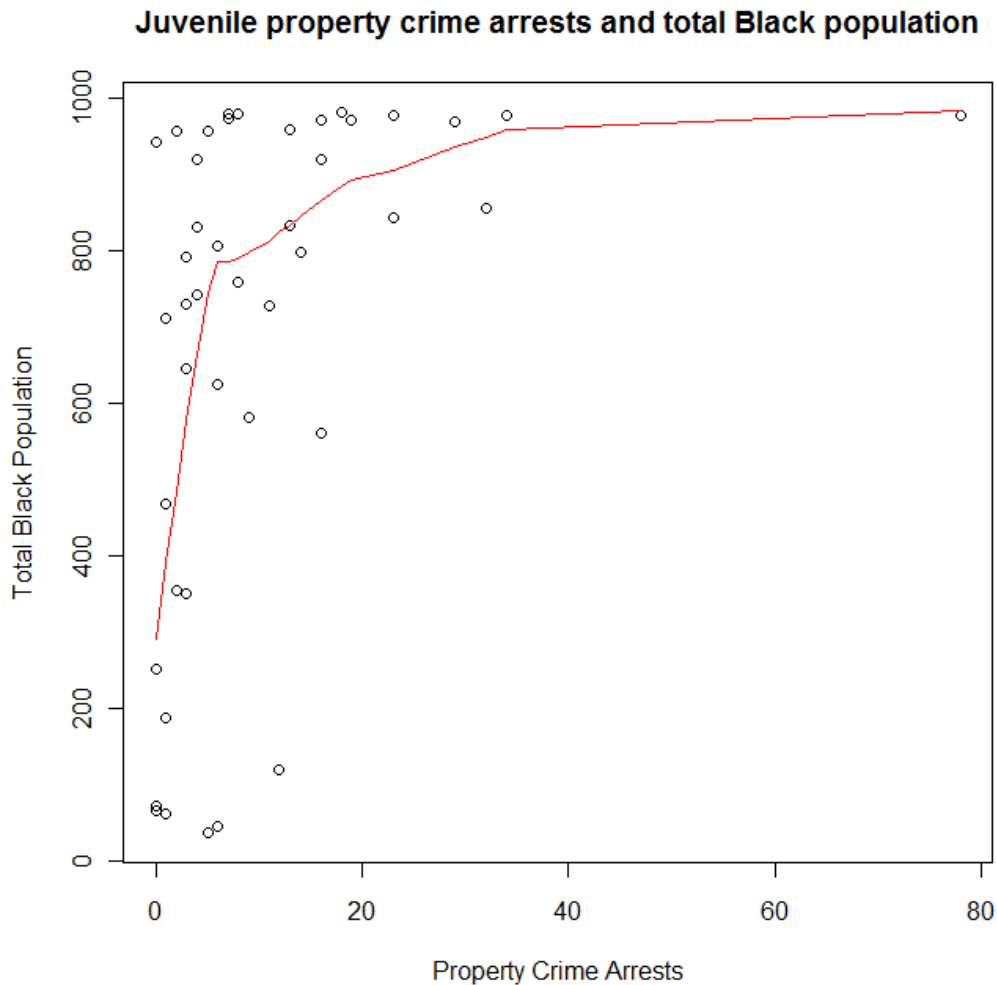
To underline the relationship with structural disadvantage, it is noted that Kane (2002, 2003) and Jacobs & O'Brien (1998), discussed in the previous section, both found important racial effects when it came to police covariates. Kane (2003), for example, found that changes in Latino population were related to the allocation of police officers over time in New York City, but only up to a certain threshold (Kane, 2003). Similarly, Jacobs and O'Brien (1998) found that the police killings of Black citizens could be predicted, among other variables, by the economic inequality between Whites and Blacks. The minority threat hypothesis, at its most essential, explains these patterns in terms of the perceived threat by the minority community posed to the majority community, and the use the police resources (including behavior) in suppressing this perceived threat (Blalock, 1967; Jackson, 1989). As noted by Kane (2003), the "threat" is not linear: small minority populations and larger minority populations do not necessarily pose a threat. Either they are seen as too insignificant to matter, or they are too ensconced in the political and social processes of the community to

be construed as a threat. It is, instead, the change that is predictive of threat and a concomitant increase in police resources. Stated empirically, the relationship between minority populations and police resources may be nonlinear.

This nonlinear pattern was most pronounced in the property related crime arrest models - although there was some indication of a nonlinear relationship between Black population and each dependent variable, it was only for property arrests that it became necessary to model. Note that the first order coefficient is negative, whereas the squared term is positive. Interpreting nonlinear relationships imposed on a linear model is inherently difficult. Therefore, figure 12 displays the relationship between property crimes arrests and the black population graphically. As can be seen, the relationship between the Black population and juvenile property crime is nonlinear such that there is a threshold effect. In other words, at some point, the Black population ceases to be perceived as a “threat”, and police activity vis-à-vis juvenile property crimes “winds down” accordingly. This is supported by the current body of research on urban minority threat (Kane, 2003).

Recall that total Hispanic population was not added to the models due to extreme multicollinearity with population mobility. Given that both population mobility and the Hispanic population are concentrated in the northwest, this is not a surprise (the correlation coefficient for the Hispanic population with population mobility at 0.740). The bivariate association with juvenile arrests appears to be negative, however. At the PSA and bivariate level, then, Hispanic population does

Figure 12.



not seem to behave according to the threat hypothesis in the same manner as Black population. This appears to be at odds with Kane and colleagues (2011), who found that Hispanic populations predicted increased misdemeanor arrests in historically white neighborhoods in Washington, D. C. Yet population mobility behaved very differently when entered into a multivariate regression equation with other variables: for drug and gun crime, the coefficient for population mobility was positive and statistically significant. As discussed above, this is

because of an inherent nonlinearity that, for the sake of model fit, was not necessary to model in the regression equations. When it was modeled, for the sake of exploration, it became clear that Hispanic population, as well, was nonlinearly related to juvenile arrests.

As with the Black population, this finding suggests another threshold effect. This relationship makes sense in light of the concept of racial/ethnic encroachment, as discussed by Kane, Gustafson, and Bruell (2011). An established and concentrated Hispanic population – such as in the southeast of Washington D.C. -- would not be perceived as a threat. It is, instead, the movement of Hispanic populations into traditional White neighborhoods in the northwest that is perceived as a threat. As Hispanics move into traditional white neighborhoods – even in small numbers – their behavior triggers a defended neighborhood response, and juvenile arrests increase in response. Recall the comment above from the MPD that one police officer can note that Columbia Heights, located in the Northwest, used to be an African American neighborhood, and is not best portrayed as a Hispanic neighborhood.

It is noted that there are important differences between this study and that done by Kane and colleagues (2011). The first are methodological: because of the modifiable areal unit problem, it is anticipated that results from Kane, Gustafson, and Bruell (2011) and the current study may differ: whereas they used tract level data, I use PSA data. The ecological fallacy directs us not to make conclusions between different levels of aggregations. In a similar vein, the dependent

variables from both studies differ: Kane and colleagues (2011) were focused on misdemeanor arrests; this study considers arrests using a different typology. In either case, comparing both studies directly is an apples-to-oranges dilemma.

In addition, Kane, Gustafson, and Bruell (2011) used a change score in order to tap into the effect of *minority population change* on misdemeanor arrests. It is therefore a more direct test of the minority threat hypothesis and defended neighborhoods. This study was only interested in controlling for such effects; as such, it only employed a static measure of population. Relatedly, Kane and colleagues' (2011) study used earlier data than that employed here. The change score they used measured the unaccounted for variation in minority population from 1990 to 2000. Just considering raw percentage changes from the U.S. Census bureau, from 1990 to 2000 this change was 2.5 percent (5.4 percent to 7.9 percent), compared to 2000 to 2010 (1.2 percent change to 9.1 percent). This change is even more impressive when we consider the raw count: from 1990 there were 32,710 Hispanics in D.C., compared to 44,953 in 2000 and 54,749 in 2010. This increase from 1990 to 2000 came at a time when the total population of D.C. actually decreased by about 6 percent, from 606,900 to 572,059, compared to an increase of about 5 percent between 2000 and 2010 (601,723). Note that the White, non-Hispanic population increased between 1990 to 2000 by only 1.2 percent, compared to the increase from 2000 to 2010 of 7.7 percent. In other words, in 2000 there was more of a "threat" perceived by the Hispanic population relative to the White population, compared to 2010.

Despite these differences, ultimately, both studies support the minority threat hypothesis, but at different levels of aggregation. For the current study, the minority threat was most pronounced for gun and drug related crimes. These crimes are among those which Americans fear the most and, indeed, represent one of the most unique features of American crime phenomena (Walker, 2012; Zimring & Hawkins, 1997). Within a Police Service Area, gun and drug crimes appear to be especially sensitive to threat circumstances.

In a related vein, this study also confirms Kalven and Zeisel's (1996) liberation hypothesis: the less serious the crime, the more discretion the police were given. Further, it lends support to Spohn and Cederblom's (1991) test of the liberation hypothesis. Spohn and Cederblom (1991) found that it was the interaction between race and crime variables that best predicted various sentencing outcomes: race only became a factor when it was coupled with less serious crimes. So, too, in the current study: race became a significant factor only for those crimes with more discretion, in areas characterized by structural disadvantage and population mobility. What is interesting is that these relationships held up for a very specific unit of analysis that lies somewhere between a police beat and a police district – the Police Service Area – and is, in many respects, independent of neighborhoods. As with the threat hypothesis, the liberation hypothesis therefore has meaningful theoretical extension into new territory.

Isomorphism and Policing

The key contribution of the current study is its integration of several disparate theoretical concepts that answer two important and related questions: *why do police behave in ways that, for all intents and purposes, are detached from their goal?* and *why is it that police appear similar, in form and function, despite idiosyncratic pressures that may lead to great variations in the ways in which they behave?* Essentially, I theorized that police behaved in this manner in an effort to fulfill their mandate of crime control - a mandate that, as Manning (1978) puts it, is impossible. Realizing that what they do (traditional arrest) is not necessarily tied in to what they must accomplish (crime control), police look for other ways to accomplish their mandate. One such way is to look to their institutional environment and ask themselves, “how are other police behaving? how are they responding to this problem?” and then to adjust their own behavior accordingly. Insofar as this can be done, they can preserve legitimacy and in so doing acquire important resources to exist. Failure to retain legitimacy can have dire organizational consequences, even up to being disbanded (King, 2009).

As was discussed in chapter 2, legitimacy is a societal purchase. That is, as Suchman (1995) explains, public institutions are essentially in the business of selling a public service commodity. As long as the public continues to purchase their commodity, public institutions continue to exist. However, once that commodity is seen as no longer necessary, or as a particular agency fails to provide the desired commodity, its existence becomes jeopardized. For the police,

because traditional law enforcement does not always result in a decrease in crime, and because this is so intimately tied into their legitimacy, they may attempt to copy the behavior of other agencies or police officers that they perceive to already have legitimacy. Doing so aids in procuring their own legitimacy. For example, one of the things that the gang unit described in Katz's (2001) research did in order to gain legitimacy was to avoid the appearance of "soft" police work and to instead engage in behavior more closely associated with what was perceived to be "real" police work. This image of real police work came, ultimately, from how other patrol officers and special units were behaving in the same agency.

Empirically, the search for isomorphic processes has been difficult. Most published work has remained theoretical (e.g., Crank, 2003) or qualitative (e.g., Katz, 2001). Those studies that have undertaken to empirically pinpoint the existence and effects of isomorphism have done so myopically, and have as a consequence missed the mark (e.g., Giblin & Burruss, 2009). It was necessary for this study to not only draw on the institutional literature, but also to creatively design an analytic method for studying the institutional behavior of the police. To this end, techniques were borrowed from spatial analysis. This was possible because police are at once organized and behave territorially (Rubinstein, 1973; Herbert, 1997). It was proposed that, net of controls, isomorphism would be expressed as spatial dependence at the PSA level, and that sovereign effects would be expressed as local indicators of spatial autocorrelation. Although not all of the dependent variables followed this pattern, there was much in the results that

informs the development of institutional theory and the use of spatial analysis in the study of policing.

Firstly, what does it mean that the theory was, ultimately, only supported for one dependent variable - juvenile drug arrests? It is noted that *all* of the criteria suggested spatial dependence at the bivariate level (ie., Moran's *I*). This relationship typically disappeared across all multivariate models. Partly, this was a methodological issue resulting from the modifiable areal unit problem: spatial autocorrelation at the tract level is readily apparent in almost any study of policing that employs areal units. This was not the case at the PSA level. It was also due in part to the dependent variables that were chosen: some were more susceptible to isomorphism (e.g., drugs) than others (e.g., violent crime). As discussed throughout this dissertation, this was anticipated. As contended early on in this dissertation, police behavior is understatedly complex: to assume that any variable will predict behavior uniformly across all possible outcomes and in tandem with other (equally complex) social processes is naive. As presented in this study, isomorphism is one more piece to the puzzle of the etiology of police behavior. It is, moreover, an important piece that cannot be ignored in future policing studies.

It was anticipated that isomorphic pressures would be weakest for violent and property crime. This hypothesis was not truly supported: They were indeed the "weakest": they were non-existent once controls were entered into the multivariate equation. As explicated in the above sections, there is ample reason

for this to be the case. Additionally, the district effects on juvenile gun arrests are explained in part by the political climate of the District in 2008 and new innovative police practices of the MPD. Drug crime arrests seemed to be in the best position, theoretically, to be explained by institutional pressures. Although such pressures were not observed globally, their effect was evident when considering the effects of sovereign (that is, LISA) PSA's. Theoretically, then, sovereigns do have a real influence, and analytically we can pinpoint who is a sovereign and measure their overall effect – for specific types of crime.

Given the small cell sizes in Table 2 regarding juvenile gun crime arrests, however, this begs the question about the source of arresting behavior for juvenile gun crimes. As discussed above under *Limitations*, there is justifiable reason to consider these effects as emanating not from the PSA as a whole, but rather from specific individual officers within the PSA. This again raises the idea that individual officers can themselves act as sovereigns, endowing their PSA with a source of otherwise missing legitimacy. This may especially be the case for crimes where the appropriate police response may be unknown, or, at best nebulous, such as for juvenile gun crimes. However, given the political climate of D.C. in the wake of *D.C. v Heller*, as well as the institution wide efforts at gun control described by the MPD 2008 Annual Report (MPD, 2009), these effects may also have come from individual officers regardless of their PSA. That is, given the agency-wide focus on gun crimes, police may have been more alert to the practices of individual officers throughout the department. Policing remains a

politically charged profession (Strecher, 1991), and one where the politics are felt as much at the line level as above (Wilson, 1968; Lipskey, 2010). These institution-wide effects, impacted as they were by the politics surrounding the District, may have been picked up and reacted to by individual officers, whose influence may have guided their fellow officer's behavior throughout the agency's entire jurisdiction.

In many respects, the idea that police are influenced by political and institutional pressure is nothing new, in terms of analytic explanations for behavior observed empirically. Indeed, the entire structure of my theoretical integration is built on a historic and contemporary body of research that suggests as much. More often than not, however, such explanations are not fully anticipated. Rather, they are provided *post-hoc* or simply in passing. For example, in discussing police discretion generally, Brooks (2005) notes that “[t]o understand the behavior of the police, we need to first clarify the functions of the police *or the police role in society*” (p. 92, emphasis added). A paragraph discussion on the scholarly take on the role of police in society then ensues.

Similarly, Hunt (1985) points out that individual officer decisions are highly influenced by a number of factors, particularly their training. She argues, “When recruits leave the formal world of the academy and are assigned to patrol a district, they are introduced to an informal world in which police recognize normal as well as legal and brutal force” (p. 341). Although Hunt explains that such behavior has its source in an image of how police ought to behave, the

discussion is never fully extended into a conversation about an “impossible police mandate” and how this mandate is tied into the geographic nature of a police officer’s job – in other words, to the source of this image. Even the monies provided by the Clinton administration in the 1990s (Walker, 1998, 2012) to hire more police officers and create specialized units were allocated under an idea of *what a police officer looks like and how an officer behaves*.

What these and other studies have in common is a taken-for-granted assumption that there is a normative police behavior scheme. Few studies go so far as to explain the etiology of this normative framework, settling for an explanation of what this normative behavior “is”. The current study finds this normative behavior rooted in the police mandate and the behavior of police as being explained by the nexus of territoriality and the acquisition of legitimacy. Of course, this is not the first study to consider these elements (e.g, Klinger, 1997, Crank, 2003). What is lacking is a theoretical picture that explicitly integrates these covariates in the etiology of police behavior. While many researchers have discussed the importance of the institutional environment to the behavior of the police (Kappeler, Sluder, & Alpert, 1998), few have tied this in to the territorial behavior of the police. And those who have (e.g., Herbert, 1997) studied the territorial nature of the police have stopped short of integrating an explicit institutional explanation. Even Herbert (1997), who starts with Weber, only goes so far as to say “Weber’s interest in territorial control inheres in his definition of the state” (p. 14). Herbert (1997) ultimately misrepresents Weber when he writes

“Weber sought to describe a variety of rationalities that determine human action, but, when discussing modern bureaucratized society, emphasized purposively rational action and downplayed normative or affectual action” (p. 16). Herbert has fallen into the same pattern criticized by Meyer and Rowan (1977) as ignoring that half of Weber’s theoretical underpinnings that deal with *Vorstellung* and shared, normative concepts of a legitimate social order apart from the rational behavior of bureaucracy.

The current study brings Weber’s concept of *Vorstellung* to the fore and combines it with his definition of a state as a social aggregate geographically bound with a vested interest in protecting its borders (Weber, 2004). As the literal manifestation of the state’s efforts to protect its borders (that is, to maintain the peace within those borders), the police are subject to those social pressures shaping and defining legitimacy, and their behavior may be analyzed according to the nature by which it is organized, namely, territorially. This study therefore presents a cogent theoretical structure and analytic framework to answer the questions *why do police behave in ways that, for all intents and purposes, are detached from their goal?* and *why is it that police appear similar, in form and function, despite idiosyncratic pressures that may lead to great variations in the ways in which they behave?* In short: police often behave in ways that, for all intents and purposes, are detached from their goal of crime control because, *inter alia*, they must achieve legitimacy in novel ways that do not result in crime control. When the mandate is to be nebulously obtained with limited resources

(such as controlling drug crime with traditional arrests), there is a disconnect between what police are doing and what is being accomplished. There is so much similarity between police in terms of form and function despite unique circumstances because, *inter alia*, their behavior is influenced, in a geographic manner, by the behavior of those institutional actors which they perceive to be legitimate. By observing the territorial nature of police through spatial analytic techniques, this theory is at least partially supported by the current study. It warrants more, and more nuanced, research to bolster this statement and to refine the theoretical and analytic underpinnings experimented with in this dissertation.

Future Research

This study did not tap into the functions underlying isomorphism. Rather, its focus was on how isomorphism may express itself (territorially) within a large police agency. When DiMaggio and Powell (1983) discussed isomorphism, they did so in terms of three distinct processes: coercive, mimetic, and normative isomorphism. As outlined in chapter 2, coercive isomorphism occurs whenever powerful stakeholders put pressure on an organization to adopt or drop specific policies, practices, or organizational elements, whereas mimetic isomorphism occurs whenever, in a bid to acquire legitimacy, organizations adopt the practices of similarly purposed organizations which are already seen as legitimate. Finally, normative isomorphism occurs as a result of an organization seeking to couch its purpose and methods within the broader institutional environment, generally via professionalization. Each of these forms of institutional pressure could be

expressed spatially; future research should aim to at once disentangle the separate effects of each of these forms and find ways to meaningfully measure them.

This is inherently a difficult process: "[W]hile institutional theory offers some compelling hypotheses about organizations, its propositions are not easily measurable and are therefore very difficult to test using macro-level survey research methods" (Katz, Maguire, & Roncek, 2002, p. 480). What efforts have thus far been attempted have fallen short in finding, on any meaningful level, much significant isomorphic effects in policing (e.g., Giblin & Burruss, 2009). This is a result of the methodology rather than the phenomenon under study. The current corpus of Giblin and Burruss's work (Giblin, 2006; Giblin & Burruss, 2009) is simply too positivist in nature, attempting to capture a nebulous social process with a few survey questions or social artifacts. For example, attempting to capture coercive processes in terms of funding availability, received COPS grants, and how many other government grants were used. By narrowing coercive isomorphism to just three variables, they risk a Type I error. A more sophisticated methodology would be to provide more exhaustive measurements of isomorphic processes or to find a proxy that more meaningfully captures each process.

Relatedly, future research needs to consider isomorphic processes *beyond* the law enforcement organization. The current study was concerned with pinpointing sovereign police precincts for a very specific policy reason (see below); but other researchers have pointed out that the institutional pressure placed on specific police units come not only within the agency, but also from

without (see, especially, Katz, 2001). Progress therefore needs to be made not only in measuring and observing actual isomorphic behavior among police agencies and precincts, but also extra-departmental sources of isomorphism should be pinpointed. While the current study assumes that these processes are going on, it says nothing about which are the most influential, how they operate, and why they might be influential. There are variables (particularly those suggested by Giblin and Burruss [2009]) that should be incorporated into the regression equation. Such variables could include: membership and attendance at professional meetings, sources of accreditation, involvement in a POST program, etc. Such studies might also consider the origin of the police chief as a normative and mimetic process. For example: when Bratton moved to the LAPD from the NYPD, he immediately began introducing a more NYPD-style COMPSTAT model (Bratton & Malinowski, 2008).

This relates to one of the most intriguing suggestions from this study: the idea that individual officers may endow their PSA with legitimacy. Future research needs to tap into this possibility. Bratton's experience described above, as well as the individual commanding officer described by Katz (2001; see below), point to this possibility. Legitimacy, at the organizational level, is typically conceived as a meso-level phenomenon. The reality may be more complex: by way of analogy, sources of organizational legitimacy may be multi-leveled, emanating from the individual level and the organizational level in tandem. Future research should explore this concept further, clarifying the role of

individual officers vis-à-vis institutional legitimacy, and employing multi-level analytic techniques, combined with spatially informed variables, to test any theoretically informed hypotheses.

This study was focused exclusively on arresting behavior. This decision was guided by theory: the mandate of the police is largely encapsulated in the law enforcement function (Bittner, 1970), and therefore most susceptible to institutional pressures within discretionary limits. Although this may be the case, it certainly does not preclude other behavioral variables from being influenced by the institutional environment. Within an organization, any behavior that is highly discretionary should be prone to institutional pressures. This could include, for example, traffic citations, deployment of less-than-lethal weaponry, or use of *Terry* pats. In addition, this particular theoretical framework may help explain racial patterns of vehicle stops and different police practices within specific neighborhoods. In terms of how police agencies behave, this could include variables such as the presence of police paramilitary units, use of a specific firearm/electrical conductive device, or use of force matrices. As with property and violent crime arrests, different behavioral variables may exhibit distinct patterns when it comes to how they respond (if at all) to environmental pressure. Such variables and relationships should be further explored by future research.

Future research should also extend the current theoretical paradigm and analytic framework to the relationship between police agencies across the nation. It is possible that there are police agencies which stand out as sovereigns. For

example, the NYPD was very influential in spreading both COMPSTAT and zero-tolerance policing across the United States (and in other countries) throughout almost 20 years (Eck & Maguire, 2000). Agencies closer in proximity to one another may be more similar in their behavior than those more distant by virtue of their proximity. This poses several interesting research questions and theoretical puzzles. First, what behavior at the agency level might be influenced in this fashion? Arresting behavior is only one possibility. As with intra-agency isomorphism, there may be other behavior researchers could be interested in, such as the existence and use of paramilitary units such as SWAT-teams, or the use of COMPSTAT or other actuarial models of crime control. And second, how do we define proximity? As Ward and Gleditsch (2000) have indicated, “proximity” can be understood as a normative concept rather than as a strictly geographic concept. Perhaps proximal agencies can best be defined by their size: do larger agencies resemble other larger agencies not only because they share many of the same problems, but because they are looking to one another for ideas about how best to deal with those problems? Or, perhaps proximity can be understood in terms of the degree to which agencies are involved in professional associations: agencies involved in such organizations may be considered “close” to one another, and therefore become more similar. Sovereigns would be those agencies with members in leadership positions in such professional organizations.

This latter point begs a research question that this dissertation has only considered tentatively: *why is a sovereign is a sovereign*. In general, sovereigns

are understood as those entities in the institutional environment which hold some special sway over the rest of the environment. In some cases, this may be due to holding purse strings; in other cases, it may be due to being perceived as legitimate. For example: A small town police department may behave like a large city police department because that large city police agency is perceived as doing what “real cops” do. This, of course, is tied into the mandate of policing and how it relates to organizational expectations: if the mandate is tied into a “protect the innocent and capture the villain” mantra, then those agencies best reflecting those practices may arise as sovereigns in their institutional environment. In future research projects, more time should be spent on discerning why a certain PSA (or a certain police agency, etc.) stands out as a sovereign. The current study only touched on this, both theoretically and empirically. If, as the policy implications discussed below suggest, the utility of the theory and method outlined in this dissertation will assist in disseminating behavior and policy changes within a police agency, then if we are also able to *endow* a precinct with perceived legitimacy, in effect rendering it a sovereign, the relevance of this dissertation’s findings is increased. By understanding what *makes* a sovereign a sovereign, future research might make such a situation a possibility.

Policy Implications

This section concludes my dissertation by discussing possible policy and practice applications of these findings and their underlying theory. I briefly discuss the social and racial/ethnic ecology of policing and what it means for

police practice. As this is not the focus of my dissertation, and as other authors have spent considerable time on this topic, my remarks are brief. More time is spent on what this theory means for police organizational change. Attention is given both to change *within* a police agency and change *between* agencies. As will be explained, the importance of this study is its findings that the territorial nature of policing is, in a sense, a “naturally occurring phenomenon” that can be tapped into to effect organizational behavioral change. What is more, with an increased understanding of the nature and role of sovereigns, the territorial nature of policing can be manipulated to not only effect change, but to purposefully facilitate its implementation.

The Social and Racial/Ethnic Ecology of Policing

Kane (2002) noted, “The very communities likely in need of the most protection by the police due to conditions favoring deviance also may be in need of the greatest protection from the police due to conditions favoring deviance” (p. 891). This statement is supported by the current study: PSA’s with high population mobility (and, by extension, Hispanic populations) and majority Black neighborhoods have more concentrated arrests, net of controls (including reported crime). On the one hand, these increased arrests may be due to increased opportunities for arrest: the correlation between violent arrests and crime reports in 2008, for example, is 0.43, and between violent arrests and Black population is 0.58. In addition, the relationship between Black population and structural disadvantage in 2008 was correlated at 0.74. On the other hand, the partial

correlation coefficient between Black population and all criteria (when statistically significant) remained positive net of crime reports to the police. Given that these reports not only help control for “the dark figure of crime”, but also control for police presence, it is clear that there are simply more police in PSA’s with large Black populations and high population mobility than what one might otherwise expect.

For the citizens, this presents the dilemma of needing the police, as a form of strong, public control in light of the lack of private and parochial control (Bursik & Grasmick, 1993) yet being unable to effectively moderate their arresting behavior (Kane, 2003). If understood through a threat perspective, the current study agrees with Kane and colleagues’ (2011) findings that Black residents remain a threat to the White majority despite the “otherwise social and political influence of black residents in DC” (Kane, Gustafson, & Bruell, 2011, p. 21). Police presence may therefore be seen as an effort to maintain housing stratification between the northwest and the southeast. Although the current study does not test the threat hypothesis directly, its findings are congruent with those of Kane and colleagues (2011) regarding both the Black and Hispanic populations. For the Hispanic population, however, the situation is especially apparent for gun and drug crimes and their perceived presence in northwestern D.C.

Organizational Behavioral Change

One of the most pressing policy implications from the current study is the idea of organizational change. As Merton (1957) noted, organizations which are

bureaucratically organized resist change. Part of this resistance stems from occupational psychosis, which Merton, borrowing from Dewey, explains in this manner: “As a result of their day to day routines, people develop special preferences, antipathies, discriminations, and emphases” (p. 105). Such special preferences limit the degree to which bureaucrats are able or interested in effecting a change that, given novel exigencies, may be requisite. The police also resist change. Among other things (such as the conservative nature of most police officers), this may be a consequence of being a bureaucracy. Bureaucracies are maladaptive to change not only because of occupational psychosis, but because by design bureaucracies are meant to conserve: they are tightly structured under the assumption that each part works in a specific way, and to deviate from this is to invite poor productivity (Weber, 1964). Yet, as Merton (1957) points out, it is this pressure to conform that can ironically limit a bureaucracy’s ability to produce.

To suggest that police *never* change is not at all accurate. The changes experienced by police agencies from the 1920s to the 1950s was anything but gradual (this paragraph relies on Walker, 1998): police began regularly and consistently carrying firearms, the two-way radio became a mainstay of police tools, and the patrol car quickly replaced foot patrol. There were numerous changes beyond these tangible ones, as well. Under the work of Vollmer and later Hoover police became more professionalized. The idea that police officers needed a college education was first formulated by Vollmer at Berkeley (although it would take until the 1960s and 1970s for this idea to truly gain any footing), who

also insisted that officers be trained in an academy setting. Hoover carried the training on to in-service, using his own FBI officers both as an example and as instructors. Further, police performance began to be measured not by the Peelian objective of “absence of crime”, but by arrest numbers in the form of the Uniform Crime Reports (Skolnick & Fyfe, 1996). These were rapid changes not only to how police functioned and were organized, but how they saw themselves: as specialized crime fighters with a mandate to protect the innocent and catch the bad guy. It was a dramatic and relatively swift change from the quasi-despotic and social-service oriented police agency of the so-called political era of policing.

Such a change did not happen in the 1980s or 1990s with the advent of community policing. The race riots of the 1960s had brought the poor relationship between the police and minority communities to the fore, forcing police agencies to contemplate change. This change was also pushed at the federal level in the form of federally available monies for training and education (Walker, 1998). Community policing grew out of this era (Angell, 1971), and was first given coherent articulation from Trojanowicz and Bucqueroux (1990). Scholars continued to write about the utility and potential of community policing, giving special attention to the role of organizational change in making what amounts to a paradigm shift in the police mandate a reality (Cordner, 1999). Yet, to date, there is no evidence that community policing has been adopted wholesale among police agencies (with the Chicago Police Department standing out as a possible exception - yet even this change began in 1993 and continues to be redefined

today - see Chicago PD's website called "ClearPath"). In other words, it is difficult to assess whether community policing "works" because it is difficult to pinpoint its adoption. Scholars are left evaluating community policing piecemeal, such as focusing on foot patrol or community meetings (Alpert & Moore, 1993; Greene & Taylor, 1988). Although this is too broad of a topic for the current study, it is worthwhile to note that such studies confound the practice of community policing with its ontology: A concern with community responsiveness and well-being has and continues to be at the core of the police mandate. As such, it has demanded the attention of scholars for decades (Reiss, 1971; Reisig, 2010). Such a concern, however, is couched within the traditional definition of "what the police do" (Zhao & Thurman, 1997). Despite federal monies (Zhao, Scheider, & Thurman, 2002), community policing remains a "tool" rather than the paradigmatic overhaul it was intended to be (Maguire, 1997; Zhao, Lovrich, & Robinson, 2001).

This begs an important question: why were Vollmer and others able to institute change, yet the scholars of the late 1900's could not? This is a question with a complex answer. Part of the answer, as supported by the current study, is the following: Vollmer and others carved out a police mandate that earned legitimacy among the body politic; community oriented policing did not try to fit within this traditional mandate. Indeed, it attempted to replace the mandate of professional crime fighter with co-producer of justice with the community (Zhao, Thurman, & Lovrich, 1997). Other policing innovations that were tried around the

same time as community policing, such as zero-tolerance or problem-oriented policing and COMPSTAT, maintained the role of police as expert, and have flourished and continue to flourish (Walker & Katz, 2008). There is an important lesson here about the role of the police mandate in instituting organizational change. Namely: as one avenue towards organizational change, considering the nature of the police mandate, and considering those elements of the police institutional environment which best represent that mandate, may be fruitful.

More specifically, this study suggests that organizational change can occur through sovereigns. Sovereigns represent those entities in an institutional environment with undue influence. Their undue influence is a product of many things, including the perception among the rest of the environment that this entity has acquired legitimacy. To associate oneself with or to mimic a sovereign is to acquire a modicum of that legitimacy. Within a police agency, that is, at the police precinct level, precincts that appear to be legitimate are those that epitomize the police mandate: professional crime fighters that “get the job done”, and who “keep the brass off their back.” As was demonstrated in this dissertation, there were sovereigns in the MPD which unduly influenced the rate of juvenile drug arrests, net of controls. If the MPD were to effect change in its drug enforcement procedures, one potential and innovative way to do so may be to implement such changes in those sovereign PSA’s first. According to the territorial nature of policing, that behavioral change would then extend out “naturally” from the sovereign PSA’s to other Police Service Areas.

This process would have the additional benefit of avoiding “change by memo” and its associated resistance by police officers. One common complaint among police officers regarding organizational change is its seemingly cyclical nature and associating innovative programs with a chief’s pet project of the year (Thurman, Zhao, & Giacomazzi, 2001). From experience, veteran officers understand that programs come and go with little impact on what “real” police work looks like. It is therefore often ignored and/or endured. By relying on the ecological and territorial nature of the police organization, change-makers might overcome this obstacle by acquiring “buy-in” from those elements of the police organization perceived as legitimate. Insofar as the program does not wander too far off the path of “traditional policing”, it will automatically be associated with the police mandate, thus weakening resistance to its implementation.

This process could be facilitated further if administrators were able not just to tap into the available sovereigns in their agency, but if they were in fact able to manufacture sovereigns. The current study only touches on this idea, and the ability to explain *what makes a sovereign* remains equivocal in the current work. As explained above, this is an element of the theory ripe for empirical exploration and explanation. To the extent that it can be done, however, administrators would have a powerful tool at their disposal for implementing change. One possible starting place for understanding this process is suggested in Katz (2001). The gang unit in Katz’s study acquired legitimacy through a number of strategies. At the heart of many of these strategies was the second commanding

officer of the gang unit. As Katz (2001) explains: "...the lieutenant instituted a number of organizational changes and operational strategies...in an effort to receive support from administrators and police officers in the Junction City Police Department, as well as sovereigns outside of the police department" (p. 60). Stated simply, sovereigns may be the product of insightful leadership keenly aware of the police mandate and how to move within the political waters of the policing milieu. Tapping into the qualities of these individuals may have the cascading effect of bringing an entire precinct to legitimacy and becoming unduly influential upon the institutional environment of the agency as a whole.

One of the most novel aspects of the current study was its explicit focus on within organizational isomorphism. It is reasonable to extend its implications to the between organizational level of analysis, as well. Police organizational change at the institutional level and across states has, since the 1960s, been the concerted effort of the Department of Justice through federally allotted monies. Such efforts created education requirements, diversity hiring and promotion requirements (Walker, 1998), innovative policing practices, special units training (Kraska & Kappeler, 1997), and the implementation of new technologies (Stroshine, 2005; Pelfrey, 2005). These efforts are manifest in the late LEEP programs and the more contemporary COPS office (Zhao, Scheider, & Thurman, 2002). Although there is ample evidence that such programs have had an effect on the nature of policing in the United States, it is not clear that they have any intended effect at organizational change (Zhao, He, & Lovrich, 2003; Zhao, Scheider, & Thurman,

2002; Worrall & Kovandzic, 2007). Rather, the evidence suggests that police departments use the program monies for whatever they perceive to be a need (Greene, 2003; Worrall & Kovandzic, 2007). These results point to the conclusion that even when offered money for integrating COP style programs, police agencies will only do so insofar as the impact on their day-to-day behavior is limited to “classical” policing; the rest, as Greene (2003) suggests, is window dressing (e.g., revised mission statements, websites, stickers on the sides of vehicles, etc.).

Perhaps, then, a more fruitful way for the federal government to effect change in police behavior is not (only) through monies, but by targeting those agencies that seem to lead the nation in policing practices. The New York Police Department and its practices in the 1990s of COMPSTAT and zero-tolerance style policing is one such example: although such practices have not been adopted uniformly throughout American police agencies, and when implemented often are done so on an *ad hoc* basis²⁰, this example nevertheless suggests that the idea that police agencies are “watching each other” for cues on how to behave regardless of what they *should* be doing is tenable. To wit: while some studies have found a connection between zero-tolerance/order maintenance policing and the 1990s New York Crime Drop (Levitt, 2004; Zimring, 2007), others have not

²⁰ I am reminded of a COMPSTAT meeting I attended with the Goodyear (AZ) Police Department where mid-level managers explained what they were doing to combat crime. The officers were comparing January to February statistics in a March meeting. Crime had, obviously, gone down uniformly across crime type and area. The analyst who prepared the crime maps explained at the beginning of the meeting that this was anticipated: there are simply more days in January than February, and this is a pattern that they have observed for several years. Still, the officers took credit for the crime drop, and were commensurately congratulated for their efforts by the chief. This is in stark contrast to the typical image of NYPD or Baltimore PD COMPSTAT meetings.

(Rosenfield, Fornango, & Baumer, 2005; Rosenfield, Fornango, & Rengifo, 2007). Despite the equivocal empirical data on the impact of zero-tolerance policing and COMPSTAT, both have spread throughout the United States (Weisburd, et al. 2003; Herbert, 2001). While only anecdotal, this observation opens the door for not only future research in the area of institutional isomorphism at the between agency level, but also at the idea of tapping into sovereign agencies to effect behavioral changes at a national level.

This idea is surely to be compounded by a number of factors, particularly agency size. Such covariates would need to be controlled. Yet, smaller police agencies with no apparent need for paramilitary units indeed have SWAT-like units (Kraska & Kappeler, 1997), due largely to federally provided monies. As previously mentioned, this begs the question of *why would the federal government believe that small police departments require such units?* It is suggested that this is wrapped up in the idea of *what do police look like and how do they behave.* Sovereign and other institutional effects through isomorphism are therefore probable regardless of agency size. In addition, the concept of “adjacency” will most likely change, as discussed above. Nevertheless, the use of the analytic techniques employed in the current study will be applicable at the national level. The utility of the current study’s findings for organizational change, whether within an organization or between organizations, is therefore at once viable and intriguing.

Concluding Remarks

The current study adds answers to questions that have only been suggested by the policing literature: why is so much that the police continue to do ineffective, and why do they behave similarly despite distinct environmental and political exigencies? The answer, supported by both previous research and the current study, is that an important element is how we view the police, and how they view themselves. In other words, what their mandate is and how this mandate is wrapped up in their behavior. In addition, because their behavior is largely determined by the territories in which they are organized, this mandate plays out behaviorally in a territorial manner. In short, police appear so similar because of an institutional consensus on what police do and how police look; this consensus is communicated territorially and is especially promoted by sovereign entities. When all is said, this pattern is possible because of a search for institutional legitimacy: the right to exist in society. Because police are unable to achieve this legitimacy directly by achieving their mandate through traditional, law enforcement efforts, they must associate and copy the behaviors of those who are already perceived to be legitimate. The end result is a police function that is not wholly connected to its mandate, yet common among all police.

The utility of this theory has been presented in terms of *organizational behavioral change*, with a focus on arresting behavior. It is easily and importantly extend-able to other forms of police behavior. Such behavior may include how police relate to the public, or, importantly, police misconduct. A certain level of

misconduct is tolerated among police officers and kept guarded by a fraternal code of silence (Skolnick & Fyfe, 1993). In many ways, it supports the legitimacy of the police by giving them illicit avenues to achieving their crime control mandate (Crank & Caldero, 2002). It is feasible that a sovereign entity could behave in such a way that the patterns associated with misconduct were no longer tolerated. Doing so may have the potential of actually breaking down barriers to healthy police-community relationships and fulfilling the vision of the 1965 Presidential Crime Commission's report and call for "more extensive community programs providing special, intensive treatment as an alternative to institutionalization" (Walker, 1998, p. 203). While this vision was couched in the treatment focus of the 1960s, the ideal lives on in contemporary policing policy and scholarship, such as the role of the COPS office and the creation of new forms of police accountability maintenance (Walker, 2005). In addition, this study adds its voice to the canon of work demonstrating that the relationship between the police and minority communities remains tenuous. Co-opting the powerful and natural influence of institutional actors may be an additional step in improving these relations.

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APPENDIX A
ADDITIONAL TABLES

Table 1A. LISA coefficients for juvenile violent crime arrests in 2008.

<i>PSA</i>	<i>Local I</i>	<i>Z</i>	<i>p</i>
705	2.024	3.697	0.000
703	1.229	2.603	0.005
204	1.410	2.594	0.005
706	2.219	2.287	0.011
206	1.506	2.229	0.013
601	1.189	2.187	0.014
207	1.460	1.513	0.065
208	0.474	1.402	0.080
602	0.932	1.395	0.082
303	0.429	1.277	0.101
401	1.202	1.250	0.106
202	1.149	1.196	0.116
203	1.149	1.196	0.116
504	0.551	1.030	0.151
402	0.646	0.950	0.171
301	0.220	0.628	0.265
308	0.212	0.625	0.266
501	0.167	0.501	0.308
603	0.179	0.479	0.316
103	0.182	0.475	0.317
105	0.112	0.266	0.395
403	0.148	0.250	0.401
702	0.058	0.189	0.425
604	0.074	0.177	0.430
101	0.072	0.169	0.433
107	0.035	0.150	0.440
505	0.008	0.066	0.474
305	-0.002	0.065	0.474
302	0.001	0.064	0.475
404	-0.003	0.042	0.483
502	-0.032	-0.017	0.507
405	-0.077	-0.054	0.522
503	-0.130	-0.154	0.561
701	-0.097	-0.190	0.575
104	-0.229	-0.210	0.583
106	-0.132	-0.270	0.606
606	-0.148	-0.288	0.613
102	-0.166	-0.339	0.633
607	-0.198	-0.453	0.675
304	-0.190	-0.522	0.699
307	-0.281	-0.649	0.742
704	-0.314	-0.667	0.748
605	-0.326	-0.710	0.761

Table 2A. LISA coefficients for juvenile property crime arrests in 2008.

<i>PSA</i>	<i>Local I</i>	<i>Z</i>	<i>p</i>
602	3.238	5.046	0.000
705	1.651	3.200	0.001
604	1.527	2.949	0.002
703	0.914	2.058	0.020
303	0.622	1.913	0.028
601	0.951	1.861	0.031
704	0.738	1.848	0.032
301	0.635	1.782	0.037
204	0.742	1.466	0.071
304	0.368	1.288	0.099
305	0.306	1.018	0.154
302	0.297	0.870	0.192
208	0.260	0.838	0.201
706	0.697	0.781	0.218
404	0.258	0.618	0.268
206	0.353	0.582	0.280
702	0.201	0.546	0.293
202	0.383	0.440	0.330
203	0.383	0.440	0.330
403	0.257	0.434	0.332
207	0.352	0.407	0.342
603	0.138	0.402	0.344
402	0.243	0.401	0.344
106	0.105	0.338	0.368
105	0.138	0.334	0.369
401	0.251	0.298	0.383
307	0.070	0.249	0.402
607	0.060	0.229	0.409
504	0.089	0.213	0.416
102	0.054	0.196	0.422
104	0.146	0.184	0.427
405	0.131	0.168	0.433
107	0.022	0.123	0.451
103	0.001	0.059	0.476
701	-0.007	0.045	0.482
308	-0.014	0.027	0.489
502	-0.034	-0.022	0.509
606	-0.052	-0.069	0.528
605	-0.064	-0.099	0.539
501	-0.130	-0.295	0.616
505	-0.162	-0.304	0.619
503	-0.494	-0.727	0.767
101	-0.735	-1.324	0.907

Table 3A. Spatial error model for juvenile violent crime arrests

	<i>b</i>	<i>SE</i>	<i>z</i>	<i>p</i>
Crime reported [†]	0.99	0.17	5.75	0.00
Structural disadvantage	0.31	0.16	1.96	0.05
Population mobility	0.20	0.14	1.42	0.15
Black population [†]	0.67	0.19	3.46	0.00
λ	0.36	0.16	2.29	0.02
Constant	-8.11	1.58	-5.13	0.00

$AIC = 96.656$, $-2LL = 82.656$

[†]Natural log was used.

Table 4A. Linear model for drug related crime.

	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Crime reported [†]	0.47	0.24	1.98	0.06
Structural disadvantage	0.18	0.24	0.74	0.46
Population mobility	0.67	0.28	2.41	0.02
Black population [†]	0.03	0.48	0.07	0.95
District 1 ^{††}	-0.94	0.53	-1.77	0.09
District 2	-2.98	1.36	-2.19	0.04
District 3	-2.13	0.80	-2.66	0.01
District 4	-1.11	0.56	-1.98	0.06
District 5	0.27	0.56	0.47	0.64
District 6	-0.08	0.44	-0.18	0.86
Constant	-0.58	3.26	-0.18	0.86

$R^2 = 0.6099$, $F = 5.002$, $p < 0.001$

[†]Natural log was used.

^{††} Referent group = district 7

Table 5A. LISA coefficients for juvenile drug crime arrests in 2008.

<i>PSA</i>	<i>Local I</i>	<i>Z</i>	<i>p</i>
601	3.231	5.888	0.000
602	3.106	4.580	0.000
504	1.539	2.807	0.003
208	0.570	1.676	0.047
206	1.083	1.618	0.053
303	0.491	1.454	0.073
204	0.709	1.329	0.092
207	1.083	1.132	0.129
401	1.007	1.054	0.146
202	0.942	0.988	0.162
203	0.942	0.988	0.162
402	0.608	0.898	0.185
305	0.256	0.826	0.205
703	0.317	0.710	0.239
604	0.342	0.660	0.255
302	0.213	0.610	0.271
304	0.166	0.598	0.275
704	0.233	0.591	0.277
301	0.132	0.402	0.344
605	0.127	0.354	0.362
702	0.102	0.290	0.386
403	0.131	0.226	0.411
701	0.046	0.181	0.428
505	0.056	0.167	0.433
405	0.125	0.153	0.439
103	0.039	0.146	0.442
705	0.052	0.138	0.445
603	0.025	0.116	0.454
502	0.030	0.113	0.455
706	0.083	0.109	0.456
501	0.015	0.102	0.459
607	-0.002	0.056	0.478
107	-0.004	0.050	0.480
503	-0.004	0.029	0.488
606	-0.027	-0.008	0.503
307	-0.050	-0.065	0.526
101	-0.101	-0.136	0.554
404	-0.104	-0.167	0.566
308	-0.210	-0.495	0.690
105	-0.629	-1.185	0.882
102	-0.672	-1.548	0.939
106	-0.652	-1.566	0.941
104	-1.991	-2.012	0.978

Table 6A. Chi-square tests
for districts and LISA.

	χ^2	p
District 1	0.323	0.570
District 2	4.460	0.035
District 3	0.323	0.570
District 4	0.074	0.786
District 5	0.074	0.786
District 6	0.389	0.533
District 7	0.183	0.668

Table 7A. LISA coefficients for juvenile gun crime arrests in 2008.

<i>PSA</i>	<i>Local I</i>	<i>Z</i>	<i>p</i>
705	2.766	5.190	0.000
706	4.049	4.285	0.000
703	1.897	4.108	0.000
601	0.788	1.508	0.066
208	0.456	1.387	0.083
204	0.644	1.244	0.107
206	0.737	1.143	0.126
504	0.568	1.091	0.138
602	0.614	0.960	0.169
303	0.291	0.910	0.182
202	0.831	0.899	0.184
203	0.831	0.899	0.184
402	0.499	0.764	0.223
207	0.653	0.712	0.238
401	0.649	0.708	0.240
105	0.287	0.624	0.266
304	0.145	0.541	0.294
106	0.172	0.501	0.308
301	0.153	0.467	0.320
307	0.138	0.421	0.337
403	0.241	0.399	0.345
305	0.089	0.341	0.366
702	0.065	0.211	0.417
607	0.047	0.190	0.425
308	0.046	0.190	0.425
404	0.033	0.121	0.452
605	0.026	0.121	0.452
103	0.017	0.096	0.462
505	0.011	0.074	0.471
604	0.003	0.050	0.480
102	-0.008	0.040	0.484
501	-0.014	0.027	0.489
502	-0.020	0.007	0.497
107	-0.030	-0.016	0.506
405	-0.042	-0.019	0.508
503	-0.067	-0.064	0.526
104	-0.086	-0.065	0.526
603	-0.052	-0.067	0.527
704	-0.072	-0.113	0.545
302	-0.206	-0.481	0.685
606	-0.497	-1.131	0.871
101	-0.869	-1.533	0.937
701	-0.602	-1.541	0.938

APPENDIX B

ADDITIONAL FIGURES

Figure 1A.

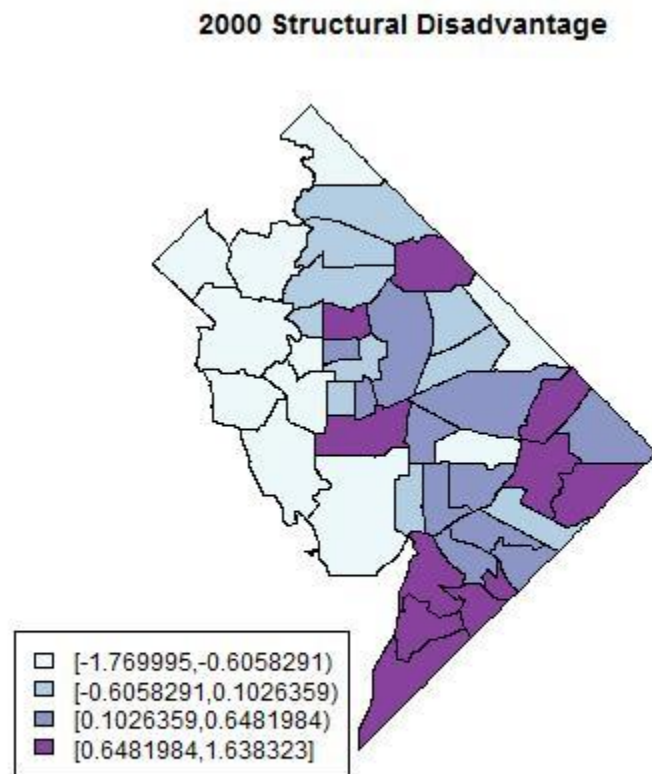


Figure 2A.

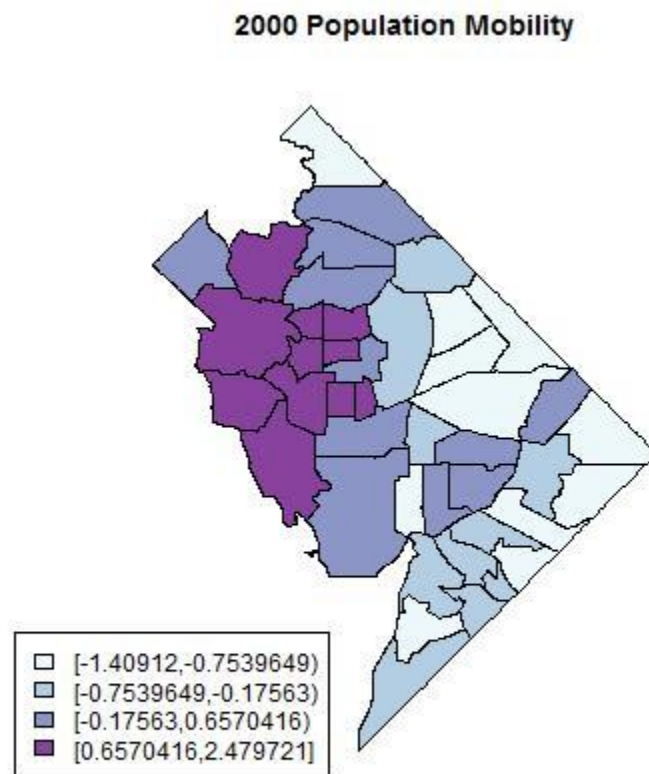


Figure 3A.

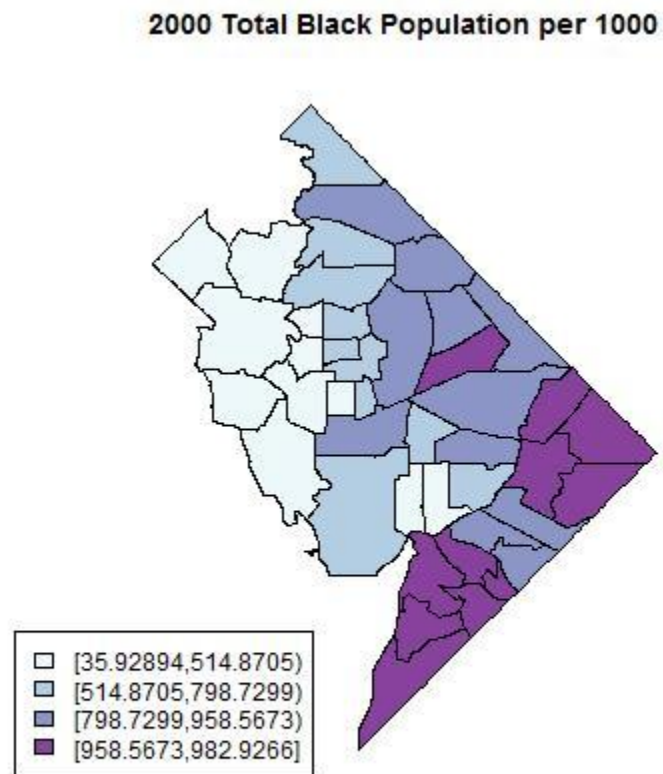
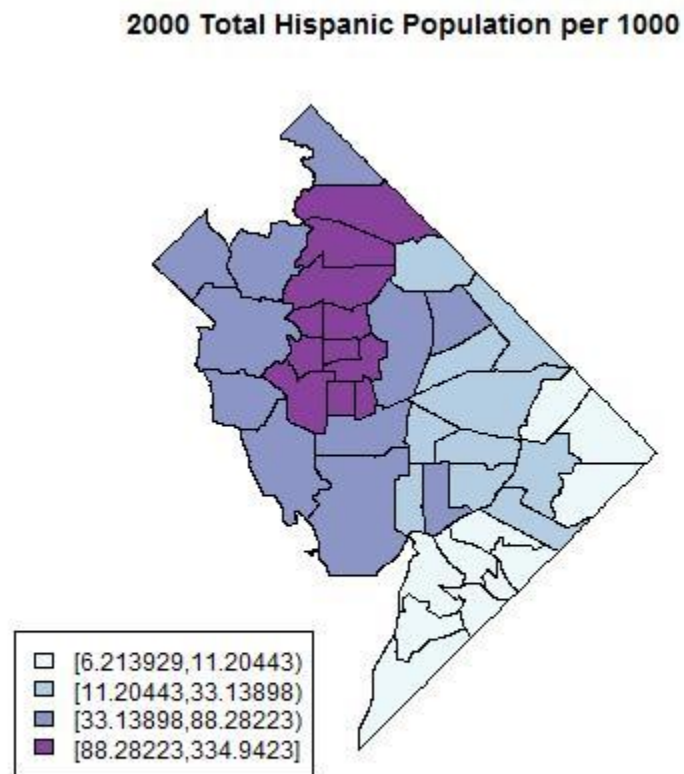


Figure 4A.



IRB APPROVAL



Office of Research Integrity and Assurance

To: Michael White
411 N. Cen

From:  Mark Roosa, Chair
Soc Beh IRB

Date: 02/21/2012

Committee Action: Exemption Granted

IRB Action Date: 02/21/2012

IRB Protocol #: 1202007441

Study Title: Understanding Territorial Police Behavior Using an Institutional Framework

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(4).

This part of the federal regulations requires that the information be recorded by investigators in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. It is necessary that the information obtained not be such that if disclosed outside the research, it could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.

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