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The Dynamics of Excessive Force

Daria Roithmayr†

ABSTRACT

Existing scholarship suggests that police use of excessive force will be greatest in departments with “bad apple” officers or bad top-down incentive structures. This paper proposes an alternative theoretical account to argue that patterns of excessive force dynamically emerge from local interactions among individuals that aggregate to form more global patterns of escalation, contagion, and decay. I focus on two dynamic interactions in particular. First, I argue that excessive force spreads and escalates by way of a self-reinforcing arms race between civilians and officers that intensifies the use of excessive force over time. As officers use excessive force, civilians in a community become less deferential and more resistant; in turn, as civilians become less deferential and more resistant, officers use more excessive force. Race shapes this process—black civilians are more likely to be perceived as non-deferential, and the arms race becomes more likely in black communities. Second, I argue that excessive force contagiously spreads among officers in the same network, as officers learn from each other how and when to use excessive force against defiant civilians. When officers observe others in their network using excessive force, they become more likely to use excessive force in later encounters. This theoretical account suggests that any department could be vulnerable to a surge in the use of excessive force, given the right initial conditions.

I. INTRODUCTION

Recent events in Ferguson, New York City, Cleveland, Charleston, and Chicago have highlighted a troubling fact. Even as violent crime rates have dropped dramatically across the country, police use of excessive force has become increasingly visible, particularly police shootings against unarmed members of the African American and Latino communities. The shooting of unarmed civilians, the indiscriminate use of stop and frisk, excessive force, and degrading and humiliating treatment are now all highly visible, thanks to cellphone

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1 See Federal Bureau of Investigation, Uniform Crime Reports, Summary for 2014, U.S. DEPT OF JUSTICE (national rate of violent crime has decreased for twelve years in a row).
cameras. Social media and subsequent government and civil rights organization investigations also help to uncover abuse that historically has gone unreported.²

Although reliable data is limited, the data that does exist indicate that police use of excessive force is relatively rare and highly uneven across time and space.³ Consistent with this unevenness, reports indicate that rates of excessive force appear quite hard to explain in any systematic way.⁴ Size does not appear to explain much. Some large urban police departments experience relatively high rates of excessive force while others report far lower rates. For example, departments in Albuquerque, Cleveland, and New York have been investigated by the U.S. Department of Justice for a range of abuses including excessive force.⁵ Other large urban departments, like the Los Angeles Police Department (LAPD), seem at least for the moment to have successfully reduced their rates of excessive force, although Los Angeles has experienced spikes during particular years.⁶ Some small municipalities like Ferguson experience high rates of force, while others do not.⁷

According to the literature, excessive force can be traced to one of three primary sources: (i) the personality traits or attitudes of individual police officers, or their demographic profiles; (ii) the top-down organizational incentive structures of individual police departments; or (iii) the racial and class biases of officers, which get triggered in particular interactions between police and civilians with particular demographic profiles.⁸ The oldest and most classic literature on excessive force falls into the first category, the “bad apples” theory, but all three theories focus on the characteristics of individual officers

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³ See id. and accompanying text.
⁴ Christopher J. Harris, Police Use of Improper Force: A Systematic Review of the Evidence, 4 VICTIMS & OFFENDERS 25 (2009) (discussing results of a systematic study on excessive force by police, and indicating the limitations of the study).
⁷ Many scholars argue that smaller departments, because of their size, are less likely to experience high rates of police brutality or excessive force. See Robert E. Worden, The Causes of Police Brutality: Theory and Evidence on Police Use of Force, in JUSTICE FOR ALL: UNDERSTANDING AND CONTROLLING POLICE ABUSE OF FORCE 37–46 (William A. Geller & Hans Toch eds., 1996).
⁸ See infra Part II.
or individual organizations' incentive structures. Empirically, based on these theories, we should expect to see excessive force in departments with bad apples or bad incentive structures. Unhappily, there is little empirical research to support such predictions. 

In contrast to the literature on police, scholars studying gangs have developed cutting edge methods to investigate the dynamics of violence. Scholars in this field have begun to use modern methods, including dynamic social network analysis, to suggest that gang violence is very much a social phenomenon and is heavily influenced by social ties among gang members. For example, recent scholarship maps the way in which violent events cluster among a relatively small group of gang members, suggesting that network relationships among individuals create channels for the spread of retaliatory violence.

Drawing from such research, this paper offers a supplemental theoretical account that focuses on the dynamic spread of excessive force over time and space. Here, the argument focuses less on individual actors or organizations and more on the dynamic patterns of escalation and contagion that can emerge at the level of the collective from local interactions among officers and civilians. More specifically, I focus on two dynamic patterns in particular: (i) a self-reinforcing "arms race" between civilians and officers that reproduces and potentially escalates the use of excessive force over time; and (ii) a contagion in which excessive force spreads among officers in the same network, as officers learn from each other how and when to use excessive force.

Each of these dynamics facilitates the spread of excessive force over time and space. First, excessive force spreads vertically (meaning over time), by way of a self-reinforcing arms race between police and civilians that involves the relationship between excessive force by police and increased defiance by civilians. Research documents that civilians are more likely to become resistant and defiant when police use excessive force against them or others in their community. More specifically, members of communities who are the victims of police abuse (or who have witnessed or learned of instances of abuse within

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See id.

See infra Part III and IV.


See, e.g., Andrew V. Papachristos et al., The Corner and the Crew: The Influence of Geography and Social Networks on Gang Violence, 78 AMER. SOC. REV. 417, 438–39 (2013). This work is discussed in more depth infra note 116 and accompanying text.
their community) become less likely to defer to rules of authority in their encounters with police, and more likely to evince resistance. A separate thread of research finds that police are more likely to use excessive force against civilians who refuse to defer, are defiant, or are resistant.\textsuperscript{13} This paper brings together these separate threads of research to argue that excessive force escalates in a positive feedback loop, as each side triggers an escalating response in the other.

Importantly, as the discussion below illuminates in more detail, race is an engine that fuels this process. Research shows that officers are more likely to perceive that black civilians are defiant or resistant, and are therefore more likely to use excessive force against black civilians, even when they are not exhibiting signs of defiance or resistance. This in turn makes it more likely that black civilians will in fact be defiant. Some research also suggests that officers may be more likely to use excessive force in the days immediately after an encounter with a resistant black civilian, in encounters with other black civilians.\textsuperscript{14}

Second, excessive force also spreads horizontally (meaning through geographic and social space) like a virus, propagating along the social networks of a department via social learning. What spreads from officer to officer is the use of a particular strategy or sequence of behavior involving the use of excessive force. Officers who observe other police officers use excessive force against a defiant civilian will become more likely to use excessive force in future encounters with a defiant civilian, particularly if the force they witness produces some positive payoff for the perpetrator. If officers perceive that using excessive force is a more effective way to reduce the length of an encounter and the risk of violence, or if officers reward each other with approval when they use such force, excessive force strategies will spread. Each new incident of excessive force potentially increases the probability of future excessive force, and the strategy of excessive force diffuses over time.\textsuperscript{15}

Both dynamics focus on the way in which violence spreads in a police force. Contagion spreads violence from officer to officer. Escalation spreads violence from officer generation to officer generation, along a timeline. Whatever the source for the initial spark of an excessive force event, these dynamic processes transmit and amplify the effect of that event across time and space.\textsuperscript{16}

\textsuperscript{13} See infra Part III.
\textsuperscript{14} See id.
\textsuperscript{15} See infra Part IV.
\textsuperscript{16} In theoretical treatments of contagion, the initiating event is ordinarily framed in the context of what theorists call the background rate. Background rates serve to distinguish events
Escalation and contagion do not continue indefinitely. Hotspots can decay and epidemics can lose their force, owing to the passage of time. Just as the risk of aftershock after an earthquake decays over time, the heightened probability that an officer will use excessive force after observing another officer use it or after being subject to civilian defiance decays over time, as the immediacy and memory of the event decay. Understanding the dynamics of this amplification and decay is essential for policymakers who aim to curb police abuse.

This analysis of the contagion of police violence draws from work in population ecology, epidemiology, and economic geography. In these disciplines and others, researchers map the dynamic patterns of infectious disease and economic phenomena (like competition and growth) that emerge from individual interactions. The focus of their work is less on originating events and more on the dynamic spread of a phenomenon—of pathogens or economic strategies, for example.

In the same way that an epidemiologist can map the escalation and spread of an epidemic, one can geographically map the dynamic spread of excessive force, both over time and space. In future work, this project will analyze longitudinal data from the Chicago Police Department to generate a hotspots map that traces the evolutionary dynamics of excessive force during the years for which we have available data. The rise and fall of excessive force can be analyzed quantitatively, to understand existing hotspots of excessive force, and to predict the formation of new hotspots and the decay of old ones, to the extent that such processes are predictable. An evolutionary dynamics model of excessive force can also generate new hypotheses using these maps as a theoretical starting point.

This essay is organized as follows. Part II reviews existing research on the causes of excessive force. Part III explores the argument that
excessive force escalates in the context of group conflict between police and civilians, escalating as police abuse civilians and then as civilians in turn defy and disrespect police. In Part IV, the paper reviews research on social learning and violence, to suggest that excessive force propagates like a virus from officer to officer by way of observational learning. Part V concludes, describing the data available from Chicago’s Police Accountability Project and future plans for generating a hotspots map.

II. EXISTING EXPLANATIONS FOR EXCESSIVE FORCE

Excessive force is defined as force that exceeds what is objectively reasonable and necessary under the circumstances for an officer to subdue or control a person. Research indicates that although police use of excessive force is rare relative to the number of encounters between police and civilians, half a million people annually experience some form of excessive force.

Existing scholarship focuses on one of three potential causes of excessive force: (i) individual traits of police officers, (ii) organizational configurations of police departments, or (iii) the race and gender dynamics of interactions between officers and the victims of police brutality. Each theoretical explanation and its accompanying empirical literature are considered in turn.

A. Individual Officer Traits

Most of the historical research on excessive force, which comes from sociology and criminology, has focused on the features of individual officers. This literature attributes excessive force to so-called “bad apples” who possess deviant personality traits or attitudes. A wide range of scholars have suggested that some officers are predisposed to violence because of “authoritarian” or “dominating” personalities, although it is not clear from research whether candidates are attracted

20 A periodic interview-based survey of 60,000 respondents, conducted by the U.S. Department of Justice, found that only 16.9% of respondents aged 16 or older had face-to-face contact with police. Of these, 1.4% (which would be a projected 574,000 in the U.S. population) said they had force “threatened or used against them” during their most recent contact. MATTHEW DURESE & CHRISTINE EITH, U.S. DEP’T OF JUSTICE, CONTACTS BETWEEN POLICE AND THE PUBLIC, 2008, BUREAU OF JUSTICE STATISTICS SPECIAL REPORT 12 (2011). Of this group, 76% complained of improper treatment, and 74.3% believed the force was “excessive” (projected to be about 517,000 persons). Id. at 13–14.
to policing because they have pre-existing authoritarian personalities, or the experience of policing develops those attitudes and traits (or both).  

For example, one such study traced excessive force to "tough cops," which the study defined as those officers who presume that police are meant to intervene negatively to control a hostile citizenry. Researchers relied on survey research to correlate officer attitudes on the use of force with other more general views of the relationship between police and civilians. The study suggested that officers most likely to use improper force are those who believe in maximum police discretion to carry out the job of fighting crime, doing battle with civilians who are unappreciative at best and hostile at worst.

Such theories enjoy widespread acceptance among the public and policymakers, empirical research produces weak support at best for the bad apples hypothesis. Studies have found no consistent link between attitudes or personality traits like "tough cops" and actual officer behavior. More generally, attitudes are weakly correlated to officers' actions across a range of circumstances. Most contemporary scholars now dismiss the bad apples theory as unsupported.

In a related vein of research that springs from the bad apples hypothesis, some scholars argue that officer age, gender, and arrest activity may be linked to the use of excessive force: younger officers are more likely to be the subject of civilian complaints. Likewise, scholars have suggested that excessive force can be linked to a lack of a college education, race (black officers are more often linked to excessive force than white), or gender.

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22 See Worden, supra note 7, at 26.


24 Citing to bad apples theorists, the Christopher Commission’s investigation of the Los Angeles Police Department traced misuse of force in the department to a small number of "problem officers." See id.


26 See Worden, supra note 7, at 27–28.


28 See Steven G. Brandl et al., Who Are the Complaint-Prone Officers? An Examination of the
But again, more recent scholarship suggests that the links between demographic traits and actual behavior are more likely explained by omitted variables.\textsuperscript{29} For example, the research finding that black officers are more likely to use force on duty or off duty may in fact be a function of duty assignments or the neighborhoods in which an officer chooses to live or spend time.\textsuperscript{30} The variable of duty assignment, which can be correlated with officer traits like experience and age, potentially confounds empirical support for studies that focus on traits and attitudes.

B. Organizational Incentives and Culture

Some scholars try to trace excessive force by officers back to the top-down incentive structures of the individual organizations in which they work—the department or unit's organizational DNA, so to speak. Here, scholars argue that particular rewards, punishments, and organizational practices determine whether officers engage in excessive force. For example, the Christopher Commission concluded that departmental rewards for high arrest numbers, light sanctions for improper use of force, and complicated civilian complaint procedures contributed to an organizational culture that encouraged the use of excessive force in the LAPD.\textsuperscript{31}

Some support for this view comes from studies on the effect of organizational interventions (primarily on the effect of changing rules) on changing rates of misuse of force. For example, in 1972, the city of New York established a restrictive policy on the employment of deadly force, limiting its use to situations in which there was a clear threat to the life of the officer or another human being.\textsuperscript{32} James Fyfe found that the policy effectively reduced the weekly mean number of firearm discharges by twenty-nine percent.\textsuperscript{33} Although the research is dated, the finding suggests that changing organizational policy can affect rates of excessive force.

\textsuperscript{29} See Sean A. Grennan, Findings on the Role of Officer Gender in Violent Encounters with Citizens, 15 POLICE SCI. & ADMIN. 1, 83–84 (1987); Worden, supra note 7, at 23–48.

\textsuperscript{30} See Hoon Lee et al., The Impact of Neighborhood Crime Levels on Police Use of Force: An Examination at Micro and Meso Levels, 42 J. CRIM. JUST. 491 (2014); see also Worden, supra note 7, at 28.

\textsuperscript{31} See Christopher Commission, supra note 23.


\textsuperscript{33} See id.
Beyond indirect evidence, however, the support for this hypothesis is sparse. Proper organizational analysis is expensive and time-consuming and researchers find it difficult to distinguish between occupational culture and organizational culture. More generally, scholars find it difficult to casually link top-down structural incentives to cultural attitudes or behaviors at the ground level; omitted variables are a significant problem here as elsewhere, and top-down policies vary in their effect on bottom-up behavior. Notably, the so-called “code of silence” among officers frequently interacts with top-down incentives to produce varying reactions to those incentives.

C. Identity-Focused Dynamics Between Police and Civilians

A third approach to explaining excessive force centers on the social (and mostly racial) interactions between officers and civilians. In this literature, scholars argue that the class, race, and gender stereotypes of officers and civilians explain the behavior of police. On this view, excessive force is a product of officer bias against people of color, young men in particular, and the poor and working class.

Empirical support for this theory is mixed. A number of studies find that officers use deadly force disproportionately against civilians who are African American or Latino, or in disadvantaged urban neighborhoods. Ascertaining the cause of this disparity is more difficult. It seems uncontroversial that police officers are subject to the same kinds of stereotyping and implicit biases as those to which civilians are subject. In addition, those biases are likely heightened in the context of disadvantaged neighborhoods. At the same time, other literature suggests that police may discriminate against minority citizens in predominantly white neighborhoods to “defend” them from minorities who are perceived as criminal threats.
The foregoing discussion explores a number of hypotheses about the cause of excessive force. Among contemporary empiricists, the scholarly consensus is that none of these hypotheses alone sufficiently explains the source of excessive force, for reasons explored above. In the next section, I develop an account of excessive force that focuses less on individual traits of officers and organizations, and more on the dynamic interactions among police and civilians. In this analysis, the relevant unit of analysis is the interactive relationship—the link that connects officers with each other and with the civilians they police. My argument suggests that excessive force is generated as a product of those interactions, and that any officer in any department is potentially vulnerable to emergent excessive force given a particular set of interactive relationships.

This account draws on a modern shift in the literature on culture, one that moves away from seeing culture as a set of attitudes toward seeing culture as a set of particular behaviors and actions, what some call a “culture in action” model. In these new models, the focus is on “toolkits” of strategies that people deploy in particular interactions with others and in particular environmental settings. The dynamic account that follows focuses very specifically on the toolkit of strategies that officers deploy in the face of resistant or defiant civilians, and on the way in which using the tools of excessive force can trigger an arms race between civilians and officers, and a contagion of force among officers.

III. ESCALATION: AN ARMS RACE BETWEEN OFFICERS AND CIVILIANS

The next two sections draw on more recent research to develop a dynamic account of excessive force that focuses on escalation and contagion. This section argues that excessive force emerges and intensifies in an arms race that escalates excessive force in the conflict between civilians and police. The next section discusses the idea that excessive force spreads via social learning among officers.

The argument for an escalating arms race between officers and civilians can be briefly summarized as follows. In higher-crime locales, police and civilians are engaged in sustained group conflict over control, in much the same way that gangs engage in conflict over control and turf. In this context, police are more likely to engage in excessive force when civilians defy their authority or are otherwise resistant to police

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40 See Worden, supra note 7, at 46–48.
control in a particular encounter. In turn, the use of excessive force makes it more likely (for some period of time after the event) that civilians will defy or resist police authority in future encounters. This increase in resistance may be particularly true for members of communities of color in disadvantaged neighborhoods, who are disproportionately victims of excessive force, or who witness or hear about the use of excessive force in their communities. The following discussion develops this argument more fully.

A. The Background Role of Group Conflict

The use of excessive force by police against civilians takes place against the backdrop of a more general conflict between the two groups. A brief review of group conflict theory illuminates the contextual role that group conflict, and a strongly salient group identity, can play in excessive force dynamics.

Realistic group conflict theory investigates the dynamics of conflict between groups over resources, status, political power, or opportunity. Among the central claims of the theory, scholars suggest that groups in conflict develop close bonds in which they favor each other, and often develop hostility toward out-group members, demonizing them in stereotyped ways. Studies have documented the way in which group members minimize differences among members in order to promote in-group favoritism, and likewise, exaggerate differences between group members to justify their hostility toward out-group members.

Scholars have only recently begun to use “realistic group conflict” to understand and explain the persistence of police use of excessive force. Drawing from realistic conflict definitions of group identity, some scholars note that police group identity is defined in large part by the conflict between police and civilians over social control of geographically and racially defined communities.

As researchers note, group conflict literature documents the way in which groups exaggerate the differences between group members and describe out-group members as threatening, in order to justify perpetuating the conflict. In the case of police versus civilians, this understanding of threat has some basis in reality. Officers patrol their

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42 For a comprehensive overview of work on realistic group conflict theory, see Roy F. Baumeister & Kathleen D. Vohs, Realistic Group Conflict Theory, in 2 ENCYCLOPEDIA OF SOC. PSYCHOL. 725, 725–26 (2007).
43 See id.
44 See Holmes & Smith, Intergroup Dynamics of Extra-Legal Police Aggression, supra note 37, at 347.
45 See id.
beats confronting not just symbolic, but actual threats to their safety and ability to exert social control. Both real and symbolic threats activate the salience of the police identity, and in turn, in-group solidarity and out-group hostility. For example, officers may perceive civilians with gang tattoos as a threat, thus triggering the in-group solidarity that draws on the group’s identity as police in conflict with gangs.

More generally, the literature notes that conflict and threats enhance group identification and loyalty, the tightening of group boundaries, and increased out-group hate toward the civilians police regulate. Conflict with civilians reinforces police officers’ bonds to each other. The “blue wall” of silence, in which officers refuse to testify against each other, or agree on a fabricated story to protect each other, shows the power of police solidarity.

Other aspects of police activity help to explain the high salience that group identity as police has for individual officers. First, the highly structured organization and training of police officers accentuates their separateness from the civilian population. Indeed, owing to the nature of police work, in which police compete with law violators for social control, police see themselves occupationally not just as separate from, but also in conflict with, the people they regulate.

Second, the racial identity of those with whom police most engage accentuates group conflict. Here, the argument is less that group conflict pits white against black, and more that group conflict is understood as police officers versus black and brown civilians. As noted earlier, a large body of empirical evidence indicates that police use greater force, including lethal force, with black and Latino suspects than with white suspects. Data from the U.S. Department of Justice (2001) indicates that black suspects are approximately four times more likely than white suspects to die at the hands of a police officer.

Recent research finds that police officers who have served in districts with a large population, a greater concentration of black residents, and a high rate of violent crime, are more likely than other

50 See HOLMES & SMITH, RACE AND POLICE BRUTALITY, supra note 46, at 28–35.
officers to exhibit racial differences in video-game reaction times. When asked to decide whether to shoot a civilian with ambiguous objects in his or her hands, officers are more likely to shoot, and to shoot quickly, when the civilian is black, although officers' reaction times were better than civilian members of the community. This research suggests that racial identity, particularly when coupled with class markers and geographic location in disadvantaged neighborhoods, accentuates and intensifies group conflict.

Third, the size of police groups relative to the groups being policed contributes to group conflict and to the emergence of excessive force. In general, research suggests that groups that are in the numerical minority more frequently display in-group favoritism and out-group hostility, and this effect is even more likely in small groups that possess a high degree of power. Both of these traits are true of police. Relative to the rest of the population, police are in the numerical minority, and the adversarial nature of their relationship to the population might accentuate officers' perception of being outnumbered. Police also have relatively more power than the civilians they police.

The existence of group conflict between police and civilians is not new, but merely serves as the backdrop against which to understand the dynamics of excessive force. In particular, officers are more apprehensive and fearful of potential violence from civilians, and are primed for a more aggressive response to perceived threats. In addition, as I will argue in the following section, a highly salient police group identity makes social learning among officers more likely.

B. The Self-Reinforcing Nature of Excessive Force

This section argues that excessive force can dynamically reproduce itself or even intensify over time in a self-reinforcing or escalating arms race dynamic. In this relationship, civilian resistance and defiance increase the likelihood of excessive force, and in turn, police use of excessive force increases the likelihood of civilian resistance and defiance.

The argument here focuses less on the origin of excessive force, and more on the escalation that results when violence becomes self-reinforcing. The feedback loop of excessive force might well begin with a

54 See Holmes & Smith, Intergroup Dynamics of Extra-Legal Police Aggression, supra note 37, at 347.
"bad apple" officer engaged in excessive force or an officer who misjudges how much force is necessary to affect an arrest. Alternatively, the self-reinforcing process might begin from the civilian end, when a "bad apple" civilian treats an officer with disrespect or defiance. Whatever the original spark, excessive force escalates and persists over time because of a positive feedback loop that connects defiance and excessive force.

Support for this model of escalation and persistence comes from two largely separate bodies of research, which the following discussion reviews in depth. One thread of research finds that police officers are more likely to engage in excessive force when civilians refuse to defer to, or otherwise openly defy, police authority. Another thread finds that civilians are more likely to refuse to defer to, and even disrespect or defy authority, when they themselves or members of their community have recently been victims of excessive force. For example, civilians who perceive police to be exercising illegitimate force are more likely to refuse to follow police directives to lie down, get in the car, or put their hands in the air. This kind of civilian resistance makes it more likely in turn that police will use excessive force to compel them to comply. Thus, in this arms race between officers and civilians, police use of force triggers the refusal to defer, which in turn triggers police use of force.

Historical and empirical research has documented the existence of this co-evolutionary relationship in other contexts. Namely, studies have explored the co-evolutionary cat-and-mouse game between police and civilian protesters, as civilians innovate to avoid police regulation, and police then adapt to re-regulate civilians. The following discussion focuses on the co-evolution of an arms race involving escalating force.

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55 Using the metaphor of forest growth, one team of scholars studying the clustering of innovative firms in areas like Silicon Valley and Silicon Beach describe the initial "seed" element as more of a function of chance than deterministic forces. Once individual trees have seeded in a particular place, population dynamics then determine the evolutionary dynamics of forest growth. See Richard Pouder & Caron H. St. John, Hot Spots and Blind Spots: Geographical Clusters of Firms and Innovation, 21 ACAD. MGMT. REV. 1192, 1198 (1996).


1. The correlation between civilian defiance or resistance and police excessive force.

A number of scholars have documented that police use of force is more likely when a civilian engages in behavior that defies authority—threatening, attacking, verbally abusing, or fleeing, for example.\(^{59}\) Theorists have argued that police use excessive force in the face of a resistant civilian to retaliate, to preserve social order, or to avert a potential threat.\(^{60}\)

As an empirical matter, a number of scholars have documented a correlation between civilian resistance during an encounter and the increased probability that police will use excessive force during the same encounter.\(^{61}\) An observational study of Miami-Dade police officers, and another in Springfield/Eugene, Oregon, found that a very high percentage (ninety-seven percent for both Miami and Oregon) of all use of force cases resulted after a suspect resisted arrest.\(^{62}\)

The probability that an officer will use excessive force evolves during an encounter. Because this sequence of decisions may be path-dependent, events during the early phases of an encounter can disproportionately affect the future probability of force. Accordingly, a civilian’s refusal to defer to police during these early phases can significantly increase the likelihood of excessive force.\(^{63}\)

Those scholars who focus on the use of excessive force to avert threats from civilians suggest that officers are not merely (or only) retaliating against a civilian who refuses to defer. In their view, officers might well interpret refusal to defer as a signal that the civilian participant might engage in violence against the officers. That is, patrol officers see a person who refuses to defer as having “gone rogue”;

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officers fear the potential danger associated with a person who is unwilling to abide by the rules.  

Work by Richard Sykes and John Clark helps to explain the link between excessive force and defiance. Sykes and Clark propose a “deference exchange” framework, in which the unit for analysis is the encounter between officer and civilian, rather than the individual officer or the law enforcement organization. In an ordinary interaction, police expect civilians (who have less power and are lower in social status relative to the officer) to defer to the officer’s authority and to cooperate. But when a civilian refuses to defer, affirmatively defies authority, or resists an officer, the police often interpret this action to be evidence that the civilian will not abide by ordinary moral, legal, and social rules. Officers will frequently conclude that the civilian does not respect the authority of the law and may pose a danger to the officer. As Erving Goffman puts it, “to be pointedly refused an expected act of deference is often a way of being told that open insurrection has begun.”

This interpretation of defiance as a signal of potential future violence finds support in other research. Work from a range of disciplines on the so-called “culture of honor” suggests that those communities or institutions in which interactions are less scripted by the rule of law (gangs, prisons, the South, ranchers) have developed rituals of deference because such rituals dampen the potential for violence. When those rituals are disrupted, community members are more likely to react with violence, in part as a preemptive act of self-defense. When an officer perceives that he has lost control of an encounter, that is, when law is no longer scripting the encounter, the officer may become more sensitive to challenges to the officer’s honor, and may be more likely to react with force.

In this dynamic, racialized perception is key. Police are more likely to use excessive force when they perceive that civilians are more resistant, whether or not civilians are actually more resistant. It turns

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64 See JEROME H. SKOLNICK, JUSTICE WITHOUT TRIAL 47, 48 (1966).
65 See Sykes & Clark, supra note 59, at 592–99.
66 See id.
67 See id.
out that race affects whether police interpret defiance and resistance as a signal of potential violence. Research suggests that police are more likely to perceive minority civilians as defiant and more likely to threaten a police officer’s well-being or challenge an officer’s authority, particularly when the encounter takes place in a segregated, low-income, urban neighborhood. Racial stereotypes about potential threats are particularly salient when police encounters involve African American civilians—stereotypes are strongest against African Americans. Thus, at the margin, when police are unsure whether civilians are being disrespectful or resistant, they are more likely to perceive resistance when the civilian is black.

Race might also affect the possibility of escalation even after an encounter with a defiant civilian. Recent research finds that police willingness to use excessive force against resistant civilians spills over to the days immediately after the encounter, but only for African American civilians. Joscha Legewie collected data on police encounters in New York before and after two fatal shootings of a police officer by a black suspect. Legewie matched the encounters before and after each shooting, matching for both time of day and location. Legewie also collected similar matched data before and after the shooting of a police officer by a Latino perpetrator and then by a white perpetrator.

Legewie found an increase in police use of force against African American civilians in the three-day period after the shooting of the officer. Use of force increased by 16% for one shooting and 13.3% in the other. Legewie found no similar increase in police use of force against other civilians. Likewise, he found no increase in police use of force against any group, white, Latino, or African American, after the shooting of an officer either by a Latino or white suspect.

In conjunction with earlier-cited research, Legewie’s study suggests that under certain conditions, race will determine whether an officer will use excessive force during encounters, not just with an African American civilian who is resistant, but also with black civilians whom they encounter in the days immediately after the index.

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73 See id., supra note 60, at 9–10, 19–34.
74 See Legewie, supra note 60, at 9–10, 19–34.
75 See id.
encounter. This is so even when civilians in the later encounter are not resistant.

In sum, evidence supports the idea that when civilians are defiant or resistant to police authority, officers are more likely at the margin to use excessive force. Research suggests that black civilians are particularly at risk for resistance-related excessive force. The next section documents that when police use excessive force, civilians become more likely to resist police authority.

2. The correlation between police use of excessive force and citizen resistance or defiance.

In a separate thread of research, scholars have found that police use of excessive force affects people’s willingness to defer to officer directives or comply with their instructions during an encounter. The argument here is not that force affects resistance during the same encounter (although that is also true). Rather, these scholars suggest that excessive force undermines legitimacy, which in turn makes civilian deference and cooperation less likely, and civilian resistance or defiance more likely in future encounters.

Though definitions of legitimacy vary widely, Tom Tyler usefully defines legitimacy as the condition in which a person (i) accepts the right of a law enforcement actor to command and to dictate behavior, and (ii) agrees that she has a corresponding duty to obey. When police engage in illegitimate use of excessive force, or when punishment is delivered unfairly, unjustly, or disproportionately, such action diminishes legitimacy—it leads to cynicism about the law and a distrust of police motives. Indeed, use of excessive force is among the strongest predictors of a citizen’s view of police legitimacy.

In turn, a person’s view of legitimacy of police authority shapes whether they comply with police requests, directives, or commands. Studies of police encounters in Richmond, Virginia, and a number of other cities find that legitimacy influences choices by members of the public about whether to comply with police directives. When people

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79 See id.

80 See Mastrofski et al., Compliance on Demand, supra note 57 at 30; see also John McCluskey et al., To Acquiesce or Rebel: Predicting Citizen Compliance with Police Requests, 2 POLICE Q. 389, 407-12 (1999).
believe the police are legitimate, they are more likely to comply with police directives, and less likely to be defiant or resistant. Conversely, when police are not viewed as legitimate, their actions are subject to challenge, their decisions are not accepted, and their directives are ignored.

Notably, even intrusive police tactics and directives that civilians view negatively will be more widely tolerated when people trust the motives that drive police tactics. Scholars document that the loss of legitimacy that accompanies police use of excessive force contributes to defiance, anger, and even the persistence of criminal behavior.

This increase in the likelihood of defiance can be indirect as well as direct. Civilians need not have experienced excessive force themselves. Empirical evidence shows that witnessing or hearing about other people's interactions with the law and legal authorities can also engender widespread loss of legitimacy and in turn widespread resistance. Moreover, loss of legitimacy and the accompanying increases in defiance can intensify over time, as resentment accumulates and becomes amplified. Thus, each incident in which police use excessive force can be viewed simultaneously as a potential ground zero event and an intensifier for widespread loss of legitimacy and increased defiance, depending on how much time has elapsed since the last such incident.

We can now put together these two threads of research that document the way that police misconduct shapes civilian resistance, and the way in which resistance shapes misconduct. Taken together, this research shows that excessive force escalates over time because of the positive feedback loop between officer use of force and civilian refusal to engage in ritual deference toward officers. This paper suggests that hotspots might be areas in which force and defiance each

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83 See id.
86 See id.
have ratcheted up in response to the other. On this view, many
departments are vulnerable to the potential evolution of a hotspot
owing to an arms race.

Particularly at risk are those departments in which officers are
more likely to view civilians as refusing to defer, and communities of
color that are subject to repeated police use of excessive force. Race
plays an important amplifying role: race makes officers more likely to
perceive resistance, and thus more likely to use excessive force, which
in turn produces the very resistance the officers are trying to reduce.

IV. CONTAGION: THE SPREAD OF EXCESSIVE FORCE VIA
SOCIAL LEARNING

This section explores the argument that police use of excessive
force is contagious, spreading among officers who are in the same unit,
and increasing the probability that an officer will use excessive force if
he or she has observed others doing so. The research reviewed in this
section suggests that officers will learn to use excessive force by
observing other officers using excessive force, particularly when doing
so brings with it a reward. This section reviews a wide range of
suggestive research: studies on observational learning generally, on
observational learning in criminals, on observational learning in police
officers, and on violence transmission in gang networks. Taken
together, this research supports an argument for the contagious spread
of excessive force among police officers via observational learning.

A. Research on Observational Learning Generally

In general, recent work on cultural transmission documents that
observational learning—learning from watching other people—plays a
large role in generating human behavior. Indeed, data suggests that
the majority of human behavior is acquired via learning from other
people.87 Social learning consists of several different mechanisms to
explain the influence of others on decision making. The most important
of these for our purposes are imitation and sequence learning.

Imitation is a broad category of social learning that involves the
observation and copying of behavior.88 Scholars define imitation as a

87 See Robert Boyd & Pete Richerson, Culture and the Evolutionary Process 83–94
(1985); Luigi Luca Cavalli-Sforza & Marcus W. Feldman, Cultural Transmission and
Evolution: A Quantitative Approach 6–9, 63 (1981); Luigi Luca Cavalli-Sforza & Marcus W.
more general review of social learning, see Ronald L. Akers, Social Learning and Social

88 See Thomas Zentall, Imitation: Definitions, Evidence and Mechanisms, 9 Anim. Cogn. 335,
category of processes that make it more likely for someone to engage in a behavior after she observes the behavior than if she does not observe the behavior. Researchers have focused their lens on a particular kind of imitation called “sequence learning,” in which people learn to perform complex behavior by observing a sequence of acts, skills or tasks.

In their description of sequence learning, Richard Byrne and Anne Russon distinguish between copying the “surface behavior” detail of a sequence of behavior, which they call “action-level” imitation, and copying the hierarchical organization of the sequence, which they call “program-level” imitation. They define the “program level” to be the hierarchical organization of a program into a modifiable structure of goals and sub-goals. For example, food preparation (for gorillas or humans) can be divided into a sequence of separate goals: find, collect, clean, and fold vegetation, etc., and then each of these goals can be divided into separate tasks, like strip the stem and tear off the leaves for the goal of cleaning the vegetation. Byrne and Russon compare these hierarchically organized sequences to computer programs with routines, subroutines, and individual lines of code.

Program-level sequence learning consists of copying the structural organization of the behavior—the goals, their sequence, and even the subroutine structure—while allowing for individual independent (non-social) learning at the most detailed sub-hierarchical level. So in the above example, individuals learn by observing the sequence of goals of finding, collecting, cleaning, and folding, but they learn independently; perhaps through trial and error, how to strip the stem or tear off the petioles when collecting vegetation. In comparison, action-level sequence learning would include identical behavior in stripping or tearing off petioles.

What is important about program-level sequence learning for our purposes is that it exhibits variation at the most granular level, even as imitative copying takes place at a higher level. Individuals who possess cognitive complexity can imitate the overall form or the sequence of goals, while subroutines or sub-goals at a finer level can be acquired by
trial and error. According to the research, the ability to imitate sequences at the program-level requires complex cognitive function and thinking in the abstract.

This research suggests that even if behavior is not copied identically, people can learn the broad outlines of how to accomplish a particular task by observing one another. Police officers, for example, may observationally learn the broad program-level outline of how to use excessive force to control a resistant civilian, even if they do not precisely imitate particular tasks. As the following section suggests, program-level learning features heavily in observational learning among criminals.

B. Research on Learning in Criminals

Over the last several decades, scholars have developed the general argument that crime and deviance are shaped by peer influence and group processes. Research suggests that criminals learn particular sequences of behaviors or scripts from each other when they commit crimes. Consistent with the concepts of program-level learning, criminals use both general scripts (e.g., “theft” scripts) and more specific sub-track scripts (“car theft” scripts).

In a car theft script, for example, the criminal carries out a sequence of sub-tasks: prepare for the crime by choosing tools, select a particular car, carry out the theft by hot-wiring the ignition, sell the stolen vehicle to an overseas exporter. Over time, these sub-tasks become part of a regular course of behavior; the script becomes a psychological shortcut that the criminal accesses when committing the crime. Importantly, although scripts consist of fairly regular component behaviors or prescribed steps, like program-level learning, scripts in script theory also allow for a fair amount of flexible adaptation.

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96 See Byrne & Russon, supra note 89, at 709; see also L. Rowell Huesmann & Lucyna Kirwil, Why Observing Violence Increases the Risk of Violent Behavior by the Observer, in THE CAMBRIDGE HANDBOOK 545, 564–65 (Daniel Flannery et al. eds., 2007).
97 See supra note 11.
99 See id.
100 See id.
L. Rowell Huesmann and Lucyna Kirwil suggest that a range of contextual facts affect criminals’ observational learning of scripts. Most importantly, positive reinforcement—when the behavior is followed by a reward for the model (and/or for the observer as well)—makes observational learning more likely:

According to observational-learning theory, the likelihood that an individual will acquire an observed social script is increased when the model performing the script is similar to or attractive to the viewer, the viewer identifies with the model, the context is realistic, and the viewed behavior is followed by rewarding consequences.¹⁰²

This research suggests that if a police officer observes another officer using excessive force and obtaining a positive reward—say, approval by the officers’ colleagues or the reward of reducing risk by shortening the duration of an encounter with a resistant civilian—they are more likely to copy the use of excessive force. Using excessive force produces perhaps its highest payoff in averting a potential threat.¹⁰³

Thus, in uncertainty, officers may be like criminals in that they are more likely to use strategies that involve excessive force if those strategies produce high payoffs. This is particularly true if officers observe that those officers who use excessive force receive no punishment or disapproval from others.¹⁰⁴ Indeed, the next section suggests that police officers are likely to display the same kinds of observational learning of violence and wrongdoing that criminals display.

C. Research on Observational Learning by Police Officers

Generally speaking, police officers exert a great deal of influence on each other. Gordon Alpert and Roger Dunham find that peer influence is a central pressure operating within police units.¹⁰⁵ Police officers are “subjected to intense peer influence and control,”¹⁰⁶ and peer influence

¹⁰² Huesmann & Kirwil, supra note 96, at 551 (citing Bandura, supra note 11).
¹⁰³ See Legewie, supra note 60, at 8.
¹⁰⁴ For example, in 2008, experts estimated the odds that Chicago police would be disciplined for filed complaints alleging misconduct at 2 in 1000. Scholars noted that the odds of discipline are actually lower because so few civilians actually file complaints in response to police brutality. See Craig B. Futterman et al., The Use of Statistical Evidence to Address Police Supervisory and Disciplinary Practices: The Chicago Police Department’s Broken System, 1 DePaul J. Soc. Just. 251, 257 (2008).
¹⁰⁵ See Alpert & Dunham, Understanding Police Use of Force, supra note 61.
¹⁰⁶ See Kappler et al., supra note 49.
induces individual officers to adopt the beliefs and definitions of fellow officers.107

Research on observational learning suggests that officers who witness other officers use excessive force are more likely to use excessive force in the future in similar settings.108 In particular, officers are likely to copy particular scripted strategies and behaviors involving the use of excessive force against defiant or resistant civilians.109 So for example, if an officer observes another officer using a Taser or a baton on a civilian who was verbally disrespectful, the observing officer becomes more likely to use that strategy in a future encounter.

Other research on police behavior during protests suggests that these scripts of violence can diffuse widely in a police officer population. In a study of the policing of global justice protest movements, Donatella Della Porta and Sydney Tarrow charted the evolution and diffusion of specific types of force tactics by police in their battle against an increasingly organized and innovative protest movement.110 As protests spread from Seattle to Gothenburg to Genoa, protesters began to adopt new forms of protest designed to evade suppression by police. For example, when confronted with officers who infiltrated crowds to make arrests, protesters began using masked street formations and blockading. In response, police then began to deploy heavy anti-riot gear, mobilizing special coercive units in advance of their intervention, using force to temporarily incapacitate protestors, and then pushing them outside the boundaries of the relevant geographic zones.111

Della Porta and Tarrow traced the diffusion patterns of these discrete and identifiable tactics as they diffused from city to city and from unit to unit, likely via observational sequence learning. In addition to informal sharing of information, officers from other cities were transported to new cities to experiment with joint intervention.112

108 See ALPERT & DUNHAM, UNDERSTANDING POLICE USE OF FORCE, supra note 61.
109 See id.
110 See Della Porta & Tarrow, supra note 58; see also John D. McCarthy et al., The Diffusion and Adoption of Public Order Management Systems, in SOCIAL MOVEMENTS IN A GLOBALIZING WORLD 71, 71–93 (Donatella Della Porta et al. eds., 1999) (tracing diffusion of policing institutional practices in response to protest innovation).
111 See Della Porta & Tarrow, supra note 58, at 21.
This evidence suggests the possibility that police officers were learning at the program-level observationally, by watching and then doing.

Closer to home, research on police in the United States confirms that scripts and strategies likely diffuse via social learning from officer to officer. Jeffrey Fagan and Amanda Geller have studied diffusion in police departments of what they call “scripts of suspicion,” deployed by police officers who are carrying out Terry stops. In this study, Fagan and Geller tracked the diffusion of rationales used to justify a Terry stop in follow-up administrative reporting. Departments asked officers to fill out a form after such a stop, and in particular, to choose from a menu of possible factors justifying the stop.

As Fagan and Geller noted, over the period of the study (2004–12), officers in the same unit began to list the same factors to justify a stop, abandoning some factors and increasing their use of others. For example, from 2004 to 2011, the selection rate for the “furtive movements” factor rose from forty percent to sixty percent, while three or four other factors declined in selection until their use became negligible. In particular, two of the “other” factors (in which officers were invited to detail factors that were not listed) declined in use, at the same time that the average number of listed factors increased thirty percent. In sum, officers’ factor selection became more similar in complex patterned ways over time. Although the authors did not investigate whether the factors used by the officers were more successful in defeating any challenges to the stop, we can assume that such positive reinforcement would play an important role in the learning process.

D. Research on Violence Transmission in Gang Networks

The hypothesis that excessive force is contagious among police officers in a network gains support from recent research suggesting that violence may be contagious among gang members in the same network. Gang violence in particular is very much shaped by peer influence, and recent research documents the clustering of violence (homicides, fatal gunshot, and nonfatal-gunshot injury) among social networks in gangs.

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114 See id. at 73.
115 Early work by Colin Loftin suggested that violence among gang members was “subcultural” and could be transmitted by contagion. See Colin Loftin, Assaultive Violence as a Contagious Social Process, 62 BULL. N.Y. ACAD. MED. 550 (1986).
116 See Andrew V. Papachristos, Murder by Structure: Dominance Relations and the Social
Research on social learning theory and gangs is mixed. Some scholars rely heavily on relatively outdated models of social learning that emphasize “differential association”—a theory that focuses not just on the learning of behavior among gang members but also on the drives and motivations to comply with law, and the incorporation of such motives into the individual’s social psychological makeup. More modern quantitative scholarship on the social network analysis of gang activity focuses on the structural relationships among gang members and the clustering of criminal activity that is correlated to such structural connections.

Work by Andrew Papachristos in collaboration with others has demonstrated that the placement of a gang member in a social network can determine his risk of violence. Papachristos and his team use social network analysis and incident level homicide reports to recreate the structure of gang violence in Chicago. Their research shows that tit-for-tat reciprocal murders between gangs are more likely when perpetrating gangs have had prior network contact involving murder with victim gangs in their “conflict network” in the past. Likewise, Papachristos and his collaborators have demonstrated that the probability of being a gunshot victim is correlated to past exposure to gunshot injury of fellow network members.

Such work suggests that the diffusion of police strategies of excessive force via social learning is likely to take place along social and professional networks. Like gang members, police officers are connected to each other via a range of both formal and informal networks. Formal organizational networks channel responsibility, communication, and accountability via formal organizational hierarchy and network structures. Officers in the same unit are likely to observe one another with great regularity. Thus, these formal network relationships are likely to serve as vectors to facilitate the spread of excessive force.

In addition, research suggests that informal connections among officers might be the key vectors along which violence gets transmitted. Informal networks are not always visible from the formal

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118 Papachristos et al., *Murder by Structure*, supra note 116, at 111.


organizational structure of responder units. Often, units that appear separate in an organizational diagram work together on an informal basis. In a social network analysis of emergency responders, for example, Robert J. Houghton et al. mapped the informal network relationships of three separate police and fire department encounters during an emergency response. For police, the group studied two car break-ins and a mobile phone robbery. Researchers found that police response exhibited a “split network” topography, in which a central log unit recorded the incoming request, and then active policing was divided into separate networks (a group initiating an investigation and a group to treat injured parties, for example) with communication shared between them. Importantly, network members were not necessarily part of the same formal network or unit. Thus, in any social network analysis of excessive force, we would need to map these informal network connections as well as the more formal ones.

E. Network Transmission of Excessive Force

Taken together, the foregoing research suggests that excessive force is likely to diffuse among police officers who are connected to each other by network ties. This paper argues that excessive force likely spreads because police learn how and when to use excessive force against defiant civilians observationally, by watching other officers. Observational learning plays a key role in much social behavior; people often learn at the program-level to follow scripts of behavior from one another. Criminals learn to commit crimes by observing others who are using these scripts of illegal behavior. Officers often learn policing strategies informally from one another as well. Existing research on social network analysis in gangs suggests that police officers may well become infected by the use of excessive force in the same way that gang members become infected by exposure to violence from members of their network.

V. CONCLUSION

Each of the foregoing dynamics potentially helps to explain the reproduction of excessive force. Part III of this paper argued that excessive force escalates and spreads because excessive force generates increased resistance and defiance in civilians, and in turn, resistance and defiance are correlated to the increased likelihood that police will use excessive force. Part IV argued that the practice spreads through

\[\text{See id.}\]
social learning along informal and formal social and professional networks in police organizations.

Where other accounts have focused on individual officer or individual department attributes, this account focuses on the social production of violence, and in particular, on the interaction among officers and the interaction between officers and civilians. Mapping the contagion and escalation of force could potentially help to explain why some units or sub-units of police departments become hotspots of excessive force while others do not. Empirical research is needed to determine how much of observable excessive force events might plausibly be traced to originating events and how much to contagion among officers and an arms race between officers and civilians.

In research currently underway, we extend the above analysis to test our model against available data. To theoretically map the contagion of excessive force among officers, we develop a simple “self-exciting point process” mathematical model, a modeling approach used to model contagion in epidemiology, financial contagion, and earthquakes. This point process model describes the spread of excessive force in probabilistic terms. The likelihood that a particular officer will use excessive force in a particular encounter depends on two variables: (i) the “background” probability that the index officer will spontaneously use excessive force without having been influenced by other officers; and (ii) the sum of social influence—the increased probability of using excessive force after observing another officer do so—over all observations by the index officer of other officers who have used excessive force at an earlier time. The influence that observing another officer has on the index officer in turn depends on the officer’s “susceptibility” and the length of time that has elapsed since the observation, as the effect fades with time.122

We are currently testing this model against longitudinal citizen complaint data from the Chicago Police Department (CPD).123 The CPD data contains “outbreak data” in the form of citizen complaints lodged against officers for the use of excessive force, from 2002 to 2015.124 The complaints include the date of the incident and the officer accused.

122 See Daria Roithmayr et al., The Dynamic Spread of Police Misconduct (forthcoming) (on file with author) (using a self-exciting point process “Hawkes” model to analyze the spread of various categories of police misconduct (including excessive force) in the Chicago Police Department); see also Daria Roithmayr & Julia Neagu, Contagious Excessive Force (forthcoming) (on file with author) (using a disease model to analyze the spread of excessive force in the Chicago Police Department).


124 Id.
Importantly, the data also includes a record of co-offending police officers and observing witness police officers, as well as the sequence of events as narrated by the complainant. Finally, additional data allow us to reconstruct complete formal institutional networks of officers by using officer unit assignments for all officers employed by CPD between 2002 and 2015, the years covered by the database.125

Such data may potentially enable us to trace the spread of excessive force from officer to officer. Modern techniques permit us to map the spread of excessive force by reconstructing “transmission trees” and estimating key parameters via Markov Chain Monte Carlo sampling. Preliminary results from network research on a wider range of complaints beyond excessive force already have identified small clusters of networked officers who are the subject of a significant number of citizen complaints. These results suggest that like gangs, police units may very well function to transmit the spread of illegal violence among network members.

To validate the argument that a feedback loop generates mutually escalating excessive force and civilian resistance, we develop a simple mathematical model of an arms race between civilians and officers. In this model, civilians respond to the use of excessive force by increasing their level of collective resistance to police directives, with some probability. In turn, officers respond to resistance by collectively increasing the use of excessive force, with some probability. This model resembles the standard arms race model found in political science literature.

To test the arms race model against our CPD data, we draw from two categories of data. To assess levels of civilian resistance, we use the city data on civilian “inference with a public officer,” which includes resisting or fleeing arrest, and refusal to cooperate with an officer.126 To assess levels of police use of excessive force, we use the frequency of citizen complaint data described above.127

The potential impact of our research is significant. Our analysis could reframe the way we understand excessive force. Understanding individuals as they are located in collective social networks and social relationships, and the way in which those relationships (and individual behavior in turn) change over time, is essential to explaining the how and why of excessive force. This project constructs violence as social and relational.

125 Id.
127 CITIZENS POLICE DATA PROJECT, supra note 123.
A focus on social influence has begun to pervade the study of gang violence in the United States. This paper has argued that social influence and patterns of collective violence ought to be studied in police units to understand the evolutionary dynamics of excessive force. Although there are very important differences between gangs and police units, there is much to be learned from using these methods to study those who police as well as those who are policed. Mapping the dynamics of interaction among officers and between officers and civilians may help policymakers to fully understand the emergence of excessive force, to quantify the risk factors that determine an officer’s susceptibility to escalation and contagion, and to inoculate officers and units against the spread of illegal violence.