Social Identity, Police Surveillance, and Arrest Rates

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Abstract

Using hundreds of thousands of geo-coded records from 911 calls and directed police patrols in Durham, NC, we show how different neighborhoods of the city experience different levels of police responsiveness. This responsiveness disparity generates different policing strategies, which we term protectionist, broken windows, and avoidant. Some areas of the city, for the example, see more than 1,000 directed police patrols per month whereas other areas with similar population sizes see almost none. Using a statewide arrest database, we demonstrate how this inter-neighborhood disparity in policing surveillance explains inter-racial disparities in arrest rates. We document vast differences across demographic groups, ranging from less than 0.5 percent arrest rates for older Asian women to more than 80 percent for younger Black men in certain localities. We conclude with a discussion on the importance of how policing responsiveness to 911 calls and local neighborhood surveillance context help us better understand arrest rates.

Keywords: Policing, 911 Calls, Race and Ethnic Politics, Geo-Spatial Analysis

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Introduction

This paper is based on a chapter of a book tentatively entitled *Working as Intended*. In previous chapters, we reviewed patterns of contact with the North Carolina criminal legal system. Our analysis is based, as we described, on a record of every arrest-charge in the state over 7 years. By definition, each item in the database consists of a charge against an individual; an arrest or a citation. But for every person arrested, the analysis we will present in this chapter suggests that at least 95 individuals have contact with the police. Traffic stops are of course a common way of interacting; over 1 million people interact with North Carolina police officers in that way each year, with only a share of these resulting in a citation and less than two percent leading to arrest (see Baumgartner et al. 2018). Individuals involved in automobile crashes also generally can expect to interact with the police, generally without arrest. People who have been victimized by crime will likely interact but not be arrested. And many individuals may call the police about some concern but not be arrested (on patterns of public contact with the police nationally, see the periodic reports from the US Department of Justice based on the National Crime Victimization Survey; the most recent is Tapp and Davis 2022, reporting on the 2020 survey).

In this chapter, we make use of three databases from the Durham Police Department that allow us to look more deeply into patterns of contact with the police and whether a person is arrested. All of the data we report here come from the City of Durham's Open Data Portal.[1] These allow us better to understand our main database, which by definition is limited to individuals who have been arrested by a police officer.

The Open Data Portal includes 1,612,622 data points, which can be broken down as follows. First, a small share were not usable because they were geo-coded or they were outside

[1] We downloaded the data we use in this chapter in 2021 from this site: https://live-durhamnc.opendata.arcgis.com/.

of the city limits; this leaves 1,565,198 total usable observations. Of these, 1,040,546 were initiated by police and 524,652 were calls for service initiated by civilians. The police actions can be divided into two groups: 521,017 directed patrols and 519,529 other police-initiated enforcement acts. A directed patrol is an officer, generally in a patrol car, driving on patrol; the database indicates the time and location of the beginning of the patrol.

Of these 1.6 million policy actions or investigations, only a tiny fraction end in an arrest. While we believe that these databases represent an accurate and highly granular picture of the intensity of policing in Durham, we should highlight that they only include interactions that have been recorded by the police. There are certainly instances of people being policed that are not recorded by law enforcement, so we do not want to imply that we are working with a record of the universe of police interactions.

Individuals living in different neighborhoods experience vast differences in the likelihood of interacting with the police. Modern police departments make extensive use of data analytics and document what they do. They pay extensive attention to patterns of calls for service: where they come from (e.g., which city block or exact address), how serious the alleged behavior is, the precise time of the call, and so on. With reams of such data, leaders allocate patrols, cars, and officers to different neighborhoods. They are sensitive to crimes, of course, but also to calls for service that may not involve a crime or lead to an arrest. Police culture and technology are highly attuned to geography, as the data clearly show that there are indeed certain “hot spots” where more crimes occur than others.

Our database allows us to know, for each call for service (911 call), its time and location, the nature of the problem, the police response to the call, and the outcome with respect to police actions. This allows us clearly to see which 911 calls lead to an arrest and which lead to

something else. But we can go further because we also have information about police-initiated behaviors. After all, the police are not merely passive agents responding to public calls for service. They are also pro-active in directing cars and officers to certain areas, and the officers on the ground use their own discretion to follow up on some situations but to ignore others. The size and richness of these two databases in terms of precise times and locations for each activity allow us to evaluate the ways that directed patrols (that is, those activities generated autonomously by the police department) respond to public complaints. It makes sense that if a spike in calls comes from a particular location that the police might add some extra surveillance to that general area (and indeed they do, as we will demonstrate).

In this chapter we explore the different neighborhoods of Durham in order to understand police surveillance. Our analysis shows that arrests occur only one time out of 100 when the police initiate contact with an individual, and fewer than five times out of 100 when the police respond to a call for service. While these two rates are quite different (one is five times higher than the other), they are both very low. Well below 5 percent of police contacts with members of the public result in an arrest.

Obviously, one cannot be arrested unless one first comes into contact with the police. Understanding patterns of contact with the police is therefore fundamental to understanding patterns of arrest, the focus of chapters beyond this one. Our goal in this chapter is therefore to explain what leads a person into contact with the police. Largely, this depends on where they live, what particular neighborhood or city block. Of course, as we showed in Chapter 2, arrests relate strongly to demographics: age, race, and gender. In this chapter, we use a different analytical approach and different sets of data than in the other chapters of the book in order to explore in detail how location matters. Of course, residential segregation is real, so people of

different income levels, races, and other identity characteristics live in different areas. Where one lives is a key driver in police contact.

Our case study of Durham has some pluses and some minuses. On the plus side, we have an extraordinarily rich database that allows us to understand not only how police respond to calls for service, but also how these calls have a secondary impact on the allocation of police surveillance because the department relies on such data to allocate its own proactive behaviors. Second, the databases we use here are rich with respect to the many possible outcomes of a police encounter other than arrest. On the minus side, it is obvious that Durham is just one city and is not reflective of the entire state. Rural areas may experience different types of dynamics than a more densely populated city such as Durham. And cities differ dramatically in how many police officers they have per resident. Some have relatively more officers than others, inevitably leading to different levels of surveillance. While Durham is in the middle of the distribution in terms of officers per capita, no single police agency can represent the diverse realities that we see across the entire state. Still, we believe that the reader will agree with us that we can gain a lot of understanding about arrests when we understand more about police surveillance.

Police Response to Public Calls for Service

During the period from 2013 to 2019, residents of Durham submitted over 524,000 911 emergency service calls. Many of these calls ranged from the ordinary—i.e., traffic accidents and personal disputes, etc.—to the extraordinary—i.e., sounds of shots, homicide, armed robbery, etc. Each instance of contact initiated its own unique sequence of subsequent institutional follow-up by law enforcement or medical services. Some calls would go on to be cancelled before first responders had that chance to arrive at the scene while others would travel down a series of forking pathways that sometimes led to an arrest. Regardless of the exact specifics surrounding

each call, each instance of civilian-initiated contact constituted a point in a vast mosaic of data to which the police department has access, control, and the ability to analyze.

Acting on this constant flow of information, the Durham Police Department (DPD) regularly initiates its own enforcement acts through directed neighborhood patrols, foot patrols, vehicular stops, and so on. Between 2013 and 2019, the department conducted over 1 million officer-initiated enforcement acts. The vast majority of these acts involved surveillance operations, such as directed patrols—approximately 521,000; where assigned officers patrol a neighborhood to enhance public safety via their own physical presence or to assess whether a safety threat still exists following some emergency. Often, DPD conducts these surveillance operations in commercial or entertainment zones where there is a high volume of pedestrian activity. Examples include Durham's downtown region, which accounts for a disproportionate share of surveillance relative to other parts of the city.

Since we know which actions were initiated by the police department itself, and which were in response to a call for service, we can assess whether and how calls influence subsequent police patrols. The result is an assessment of each neighborhood of the city of Durham with regards to its crime and police surveillance profile. Some areas, we will note, generate both a lot of calls for service and a lot of surveillance. Others show lower levels of one, the other, or both. These assessments allow us to generate a measure or a continuum of neighborhood surveillance and to show that some residents are surveilled considerably more than others. This over-exposes certain segments of the population to the criminal legal system while insulating others. Neighborhoods regularly surveilled by law enforcement and whose residents regularly call law enforcement produce a disproportionate share of civilian-police interactions. In Durham, these high demand / high surveillance neighborhoods tend to cluster to the east of Durham's

downtown region extending south toward North Carolina Central University, an historically Black institution.

Notably different is the area around Duke University, a prestigious and expensive historically White institution; police patrols there are less frequent. This could be due to the fact that Duke University, like many university campuses across the country, has private police that often have concurrent jurisdiction. While we do not know the nature of the interdepartmental agreement between Duke University Police and the Durham Police Department, campus police usually act as primary responders on campuses. Though we do not explore the workings of special police forces, we should highlight that this adds another level of privilege to those fortunate enough to attend college: if a student is engaging in behavior that would be deemed a criminal act, campus police (and by extension, the college itself), decides whether to enforce the rules in a strict manner, or whether they should be lenient and allow the behavior to be brushed off a youthful transgressions—something that is not extended to those outside of campus walls. (To be clear, NCCU also has its own police department. We will see, however, that the areas surrounding these two educational institutions could hardly be more different with regards to the intensity of Durham Police Department activities.)

A deep dive into the patterns of surveillance across a single city, and the connection between reported crimes, calls for service, and police-initiated patrols will help to inform our analysis in subsequent chapters where we further discuss the role that socioeconomic and racial inequality plays within the North Carolina judicial system. In this chapter, we document multiple forking pathways into the North Carolina judicial system, starting with police surveillance and ending with arrest. Most of these pathways preclude them from showing up in our main AOC database since they do not involve arrest. Our focus in this chapter is therefore on a single city to

review which people have how much contact with the police. Generally, this does not involve arrest, though occasionally it does.

Police- and Public-Initiated Police Actions Compared

The source of the police-civilian interaction greatly influences who has contact with law enforcement, who is arrested, and who therefore appears within the NCAOC administrative dataset on which we rely in other chapters. Broadly speaking, there are two possible sources for police-civilian interactions. Civilian-initiated interactions represent the first source. This includes any interaction where a Durham resident, after experiencing some real or perceived crisis, decides to call emergency services with the expectation that responding officers will be dispatched. Law enforcement-initiated interactions represent the second source. This includes any interaction where a law enforcement agent, after surveying their immediate environment, decides to interact with a member of the public. These contacts are affected of course by decisions by supervisors to assign individual officers for patrol in various areas of the city as well as by the officer's own decisions on the ground.

Our database includes just over 1 million unique police encounters with members of the public; about half of these stem from response to 911 calls for service, and the rest are initiated by the police themselves (including directed patrols). The vast bulk of the police-initiated actions are traffic stops or other activities that are the exclusive domain of the police such as crime-scene investigations or arrest warrants. A smaller share of the police-initiated are for what we will call here "overlapping" reasons: the same concerns that might motivate a member of the public to call 911: suspicious behavior, stolen property, a robbery, the sound of gunshots, a loose dog, unruly behavior, public drunkenness, or a loud party. Table 1 summarizes these different sources of police-public encounters and the number of arrests that derive from them.

Table 1 Police Interactions and Arrests, by Source.

		Encounters		Arrests		Arrest
Source	Type	N	%	N	%	Rate
Public (911 calls)	Overlapping	524,597	50.2	27,931	68.8	5.3
Police	Overlapping	73,746	7.1	9,543	23.5	12.9
Police	Exclusive	445,721	42.7	3,130	7.7	0.7
Police	Subtotal	519,467	100.0	12,673	31.2	2.4
Total		1,044,064	100.0	40,604	100.0	3.9

"Overlapping" refers to calls for service or police actions for similar reasons: suspicious vehicles, robbery, sound of gunshots, or any other action that could be initiated by a civilian as well as by a police officer. "Exclusive" refers to activities that could never be initiated by a civilian, such as crime-scene investigations, serving an arrest warrant, traffic stops, and so on.

Looking first at the public-initiated encounters, which are police encounters with members of the public in response to a 911 call, we see about 525,000 such encounters and almost 28,000 arrests, a rate of 5.3 percent. Looking next at the police-initiated encounters for similar reasons, we see only 74,000 encounters and 9,500 arrests, with an arrest rate of almost 13 percent. Other police encounters are much more numerous (over 445,000 encounters), but very rarely lead to arrest (0.7 percent). When we look at the subtotal of all police-initiated encounters, it is about half of the observations and the arrest rate is 2.4 percent. However, the table makes clear that the police encounters differ dramatically depending on the type of activity. Traffic stops and crime-suspect interviews rarely lead to arrest, but in the overlapping category we see a much higher arrest rate.

It is important to look at the data in another manner, though, because 911 calls are so common and "overlapping" police-initiated behaviors are very rare. If we look at all arrests in the entire database, almost 70 percent of the arrests (68.8) stem from a 911 call. When the police are going about their business, doing traffic stops for example, they rarely make an arrest. Bottom line: almost 70 percent of all arrests can be directly attributed to someone picking up the phone and calling emergency services.

Table 1 showed that arrests ensue only 3.9 percent of the time when a police officer encounters an individual. What happens the other times? The Durham Police Department classifies all encounters with the public into one of eight categories. Three of these include straightforward outcomes where responding officers do not possess wide latitude in enforcement discretion. This includes: 1) encounters cancelled by the dispatcher, 2) those transferred to other local agencies (e.g., the fire department), and 3) cases that were documented by responding officers (generally for insurance purposes) but which do not lead to immediate criminal investigation (i.e., hit-and-run report, property crime report, collision report, etc.). The remaining outcomes are 4) scenarios where a responding officer determines a complaint to be unfounded, 5) cases where the responding officer resolves the issue and determines there is no need for an official report, 6) a verbal or written warning, 7) a citation, and 8) arrest. Recall that arrests (and a few citations) lead to a record in the AOC database that we use in other chapters.

Breaking down police-civilian interactions by these eight outcomes reveals that the instigating source has a large influence on the outcome, beyond only whether or not the person is arrested. Table 2 shows how the outcome generally falls far short of arrest, and how these encounters end differently depending on whether they were initiated by the police or by a call for service.

Table 2. Outcomes of Police Interactions, by Source.

Outcome	Police-Initiated	Public-Initiated
Resolved, no further action	59	49
Documented, no further action	5	24
Unfounded	3	13
Transferred to another agency	5	5
Arrest	2	5
Cancelled	2	4
Warning	12	0
Citation	12	0
Total (Percent)	100	100
Total (Observations)	519,467	524,597

Table 2 shows that 59 percent of all public encounters initiated by the police result in an immediate resolution of the situation by the officer with no documentation. This compares to two arrests, twelve citations, twelve verbal or written warnings, with a few cases (about ten percent) cancelled, unfounded, or sent to another agency such as EMS. The key takeaway: arrests are rare; officers typically resolve the situation on their own, immediately. (Recall from Table 1, however, that we can identify a small share of police-initiated actions that lead to a much higher arrest rate; Table 2 refers to all police actions, however.)

Table 2 also shows the outcomes for 525,000 calls where members of the public, not the police, initiated the encounter. When the police arrived, what did they do? Here we see that arrests occur 5 times out of 100; documentation (perhaps needed by the reporting party for insurance purposes, for example if there is a robbery, vandalism, or a hit-and-run) occurs approximately 24 percent of the time; immediate resolution with no documentation is still the most common outcome, at 49 percent; and about 22 percent were cancelled, found to be unfounded, or sent to another agency. (No citations or warnings are present.)

Table 2 shows some similarities and some important differences. Immediate resolution with no documentation is the most common outcome in both types of encounters. Most

interactions with the police, it is useful to remember, lead to nothing but a conversation. Documentation of the encounter with no follow-up is common when a member of the public initiates the encounter, but not when the police do. Similarly, more than 20 percent of the public-initiated calls are cancelled, unfounded, or sent to another agency whereas this is rare when the police are at the origin; all this makes intuitive sense. A key difference: Arrests are more than twice as likely when the public initiates the call as compared to when the police act on their own.

Durham's database also allows us to break down the data by what the call was about: suspicious individuals or vehicles in the neighborhood, noise or other quality of life issues, crimes of violence, and so on. As one might expect, these are highly variable in their odds of leading to an arrest. Table 3 shows these results.

Table 3. Public-Initiated Police Contacts by Category and Outcome.

	Encounters		Arrests		Arrest
Category	N	%	N	Category	Rate
Property Crimes	137,218	26.16	11,490	41.17	8.4
General Disturbance	97,176	18.52	2,044	7.32	2.1
Quality of Life	67,201	12.81	325	1.16	0.5
General Suspicious	59,675	11.38	217	0.78	0.4
Other	46,558	8.88	602	2.16	1.3
Violent	30,417	5.80	2,561	9.18	8.4
Domestic Violence or Abuse	30,230	5.76	7,435	26.64	24.6
Alcohol or Drugs	19,761	3.77	1,868	6.69	9.5
Hit and Run	18,675	3.56	124	0.44	0.7
Financial	13,134	2.50	951	3.41	7.2
Sexual Crimes	4,552	0.87	294	1.05	6.5
Total	524,597	100.00	27,911	100.00	5.3

Table 3 presents the categories in order of frequency; 26 percent of the encounters (but 41 percent of the arrests) related to property crimes. The last column shows the arrest rate; 5.3 overall, but higher and lower for each individual category. Over 67 percent of the arrests occur

for property or domestic violence related issues, but these are just 32percent of the encounters. Crimes of violence are less than six percent of the encounters (9.18 percent of arrests), and sexual crimes are less than one percent of the encounters (1.05 percent of the arrests). The typical 911 call is not about such crimes.

In this section, we have reviewed some important differences between police interactions with members of the public that derive from a 911 call and those that were initiated by a police officer. Arrest rates are generally very low, but they are higher when officers respond to a call and when the call involves a domestic violence dispute. A small share of public calls for service relate to sexual or violent crimes, and these are of course more likely to lead to arrest. Still, these represent approximately 10 percent of all the arrests that follow from a 911 call. Calls for service have another impact, however. They feed into algorithms that police administrators use to allocate future police patrols. This means that when a person calls 911 reporting some suspicious activity, that call itself may not lead to an arrest. However, it may cause the Department to allocate additional police patrols in the area. In the next section, we look at these dynamics.

The Geography of Housing, Crime, and Surveillance

Rich and poor people tend not to live on the same block. When people with financial means look for housing, many of the attributes they seek would be the same things that others might seek: Good schools, a safe environment, quiet, being away from major thoroughfares and establishments that sell liquor (not too far, but not too close), and the availability of amenities such as parks, green spaces, and high quality shopping. They may also look for a larger house on a larger lot. (Obviously some prefer a luxury apartment in a downtown high-rise, but this is a not the general norm.) But only some can afford these things. Crime and police surveillance cluster

in areas the wealthy can afford to avoid but the poor cannot. Of course, in Durham as in the rest of the US, this also correlates with race. Figure 1 shows a series of maps of Durham. The top pane shows demographics (population density, percent minority, and poverty) and the lower pane shows crime-related statistics (calls for service, police patrols, arrests). Note that arrests come from the NC AOC database that we use in other chapters of the book; 911 calls and police patrols should be familiar to the reader already as they are used throughout this chapter.

Figure 1. The Geographical Distribution Population, Race, Income, and Policing.

The top-left pane of Figure 1 shows population density; the top-middle pane, the share of the population identifying as non-White; and the top-right pane, poverty.[2] It will not surprise that

[2] Note that our measure of poverty is not the share of the population under the poverty level; rather it is simply the inverse of average household income provided by the Reference USA household income survey database. High values refer to low income and low values refer to high income. This is so that the shading in the map will always show the marginalized groups with the same color scheme.

the wealthier areas are also those with lower population density and lower shares of minority residents. Areas of the city with lower income and more minority residents also are more crowded.

The bottom of the Figure shows where the 911 calls come from (left pane), where police patrols occur (middle), and the addresses of people who are arrested. These maps are not precisely identical, but the similarities are striking. Note that the arrest data come from the NC AOC database and refer to the home address of the person arrested, not the location of the arrest. Still, we see that those who are arrested tend to live in the same areas where the calls for service come from and where the police surveillance occurs.

The Continuum of Surveillance

Given the patterns that we just documented in Figure 1, it should come as no surprise that individuals living in different areas of the city experience vastly different experiences with the police. The "deployment hypothesis," for example, states that minority residents experience increased rates of police contact because of differential policing deployment patterns (Engel, Smith, and Cullen 2012). The uneven distribution of crime and calls for service generates differential scrutiny across neighborhoods as the police follow the data and patrol more intensely in areas that generate more calls for service. However, as we will show, their responses to calls from wealthy and poor neighborhoods differ substantially. In the following section, we examine four neighborhood types that we identify with our data on 911 calls and police patrols. We identity "demand" by looking at the number of calls for service from each neighborhood in the city; we identify "surveillance" by looking at the number of police patrols. Generally, of course, the two overlap quite substantially: the police surveil the areas that generate the 911 calls.

We identify two sets of neighborhoods because they are at the extremes of both demand and surveillance: High demand, high surveillance (HDHS) areas produce among the top ten percent 911 calls and similarly are ranked in the top ten percent in terms of police patrols. Low demand, low surveillance (LDLS) areas are the opposite: they rank in the bottom ten percent both in terms of calls as well as patrols. Because calls and patrols are tightly correlated, we can also identify areas that generate more and fewer patrols than one would expect, given the volume of calls. These are the high demand, low surveillance (HDLS) areas and the low demand, high surveillance (LDHS) areas of the city. People living in these different types of areas have very different relations with the police.

Table 4 shows summary statistics about the Durham population across six different types of neighborhoods: the four types just mentioned as well as downtown and then the remainder of the city, neighborhoods that are not at either extreme with regard to calls for service or surveillance. Note that because we use only the top and bottom few percent, 65 percent of the Durham population lives in these "other" neighborhoods. By looking at the extremes, we can see the patterns more clearly. In other chapters, we will look at similar questions with different techniques, reaching similar conclusions, so we are confident that our particular methods are not driving the results we show.

Table 4 Demographic Characteristics of Durham Neighborhoods.

Type	Population	% of Pop	Income ('000s)	% Commercial	% Black	% White	% Latinx
HDHS	34,859	12.1	18	5.0	60.3	20.7	5.5
HDLS	11,696	4.1	76	0.2	47.9	35.9	4.4
LDHS	8,162	2.8	143	1.0	12.3	70.7	2.3
LDLS	8,133	2.8	130	0.3	14.7	68.8	2.1
Downtown	14,544	5.1	17	11.5	24.6	53.8	3.6
Other	210,580	73.1	63	1.5	34.3	46.9	3.8
Total	287,973	100.0	61	1.8	37.0	44.6	4.0

Note: HDHS = High Demand, High Surveillance; see text above for the other categories. Population refers to the number of residents in the area, according to the US Census. Income is the average family income, in thousands. Percent Commercial is the percent of properties zoned as commercial rather than residential. Percent of population is the share of the total city population, summing to 100% across all the neighborhoods. Racial breakdowns sum to 100% for each row in the table.

Table 4 shows information about the entire city of Durham. Looking at the bottom row labeled "Total," the Table shows a total population of almost 290,000 (based on LandScan population estimates), the average income of $61,000, the percent of the properties that are zoned commercial—about two percent—and the racial breakdown of the city (based on registered voters in the NC voter file): 44 percent White, 37 percent Black, and so on.

Each of the other rows refers to a specific set of neighborhoods. Starting at the top, in those neighborhoods that generate a lot of calls to 911 as well as a high number of police patrols per capita, we see that approximately 35,000 people live in such places, that they have a very low income, less than one-third of the city average, and that the White share of the population is approximately half of the city-wide average whereas the Black share is much larger. Note particularly that 12 percent of the city population resides in such neighborhoods and that these neighborhoods, unlike any others, have a high number of commercial properties, second only to the downtown area.

High demand, low surveillance neighborhoods are listed next. These house about 4 percent of the city population, and reflect the city demographics relatively well, both by income and race. While they generate large numbers of demands for police response, they see fewer police patrols than one would expect. Low demand, high surveillance neighborhoods, housing about three percent of the city's population, are wealthier and have more White and Other racial group residents. Low demand, low surveillance are the wealthiest neighborhoods and are more than 70 percent White.

The downtown area is outside of this categorization scheme, as its commercial and public nature generates a different style of policing than the residential districts of the city. And note of course that "Other" neighborhoods represent almost 73 percent of the population, generally reflective of the city in terms of racial composition, but not as wealthy as the city average, perhaps because the low-demand neighborhoods house individuals of such high average family incomes.

Table 4 is a good summary of the demographics of six different neighborhood types. Rich and poor live apart. Most residents of the city live in areas that are not particularly distinguishable from average with respect to policing, and those areas are typical of the broader city with respect to demographics. But about 12 percent of the city residents live in areas where they are surrounded by poor minority residents; these are the HDHS areas. A few, about 5 percent of the city, live in high income areas with mostly white neighbors and low demand for policing services

Table 5 shows the level of police interactions that residents of these six different types of areas experience. The Table repeats the population numbers from Table 4, then shows the total number of interactions, 911 calls, directed patrols, police-initiated actions, and arrests.

Table 5 Summary of Police Activity across Durham Neighborhoods.

	Population		Total Police-Civilian Interactions			911 Emergency Calls			Directed Patrols			Police-Initiated Actions			Arrests		
Type	N	%	N	%	Rate	N	%	Rate	N	%	Rate	N	%	Rate	N	%	Rate
HDHS	34,859	12.1	646,038	41.3	18.5	211,185	40.3	6.1	246,089	47.2	7.1	188,764	36.3	5.4	18,884	46.5	0.5
HDLS	11,696	4.1	39,429	2.5	3.4	24,723	4.7	2.1	2,976	0.6	0.3	11,730	2.3	1	1,076	2.6	0.1
LDHS	8,162	2.8	21,797	1.4	2.7	3,215	0.6	0.4	13,038	2.5	1.6	5,544	1.1	0.7	209	0.5	0
LDLS	8,133	2.8	8,017	0.5	1	3,635	0.7	0.4	1,671	0.3	0.2	2,711	0.5	0.3	94	0.2	0
Down-town	14,544	5.1	173,934	11.1	12	35,101	6.7	2.4	65,497	12.6	4.5	73,336	14.1	5	2,432	6	0.2
Other	210,580	73.1	675,866	43.2	3.2	246,738	47	1.2	191,746	36.8	0.9	237,382	45.7	1.1	17,913	44.1	0.1
Total	287,973	100	1,565,081	100	5.4	524,597	100	1.8	521,017	100	1.8	519,467	100	1.8	40,608	100	0.1

Note: Rate refers to the number of actions per 100 residents.

Table 5 shows stark differences in the likelihood of a police encounter depending on where one lives. If we look at the rates of each outcome per 100 residents of the area, and compare the HDHS areas to the LDLS areas, we see that arrests are 0.5 to 0.0; police initiated actions are 5.4 compared to 0.3; directed patrols number 7.1 per 100 people compared to 0.2; 911 calls are 6.1 v. 0.4 and that the total number of interactions is 18.5 compared to 1.0.

Looking at the share of each type of police activity, and keeping in mind that the HDHS areas constitute 12.1 percent of the city's residents, the Table shows that these areas account for 46.5 percent of the arrests; 36.3 percent of the police-imitated actions; 47.2 percent of the directed patrols; 40.3 percent of the emergency calls; and 41.3 percent of the total interactions. The areas are therefore over-represented with regards to each of those types of actions by factors of 3.8, 3.0, 3.9, 3.3, and 3.4, respectively. (That is, the share of arrests is 3.8 times higher than the population share, and so on.)

We have now presented some maps that make it clear that different areas of the city differ dramatically by race, population density, income, prevalence of crime or other anti-social behaviors generating calls to 911, police surveillance activities, and arrests. We have also categorized the neighborhoods of the city by their demand for police services and the amount of police surveillance that they experience. In the next section we look in detail at how demand and surveillance interact, showing important differences depending on the type of area.

Surveillance Spillovers

When an individual calls 911, they set in motion a complicated set of immediate and longer-term police responses. The distinction we make among the four types of neighborhoods by levels of demand for and supply of police surveillance has a lot of explanatory power. We mentioned before that the police are active users of data analytics and algorithms; they send their officers

out to particular areas in response to the flow of data suggesting the need for more or less policing in certain areas at certain times. They respond quite differently to increases in the number of calls for service in different types of neighborhoods. Here we look at "surveillance spillovers." These are not the immediate responses to a 911 call; those are direct and straightforward. The spillovers are the follow-on surveillance that occurs after a neighborhood generates an increased number of such calls in a particular period of time.

Let us be clear: When a 911 call occurs, the police typically respond directly to the address from which the call originated. What we are talking about here (e.g., the "surveillance spillovers") are the subsequent police patrols that statistically can be associated with such calls. As we mentioned above, each 911 call enters into a stream of data that the police use to allocate resources, including officers, cars, and patrols. In some neighborhoods (poorer, more predominantly Black), these secondary patrols are in the immediate surrounding area of the calls, so more calls generate more blue lights over the next few days. But in other areas of the city, the same number of 911 calls generates no noticeable increase in police-initiated patrols.

Depending on the setting, the police may "flood the zone" with aggressive tactics making people feel they are in occupied territory, or they may discretely patrol the perimeter of the area, monitoring who is coming and going, looking perhaps for people who do not "fit in." Because these responses are so different, residents might find the police response to public disturbances to be reassuring or frustrating, a cherished community amenity or a public nuisance (Bell 2020). These reactions to the police depend, in part, on the extent of surveillance spillovers that emerge when residents call emergency services. For example, when a person calls the police in a low-demand neighborhood, their action has little to no impact on their neighbors because the police often interpret the crisis as being a one-off situation. The perpetrator is assumed to be an outsider

or the situation contained entirely within the household. In fact, we will show below that the secondary patrols that are generated by such calls actually occur in other neighborhoods, surrounding ones. In high-demand neighborhoods, on the other hand, the police often assume that the perpetrator is a local resident, and they increase their surveillance operations accordingly. This can generate fear, frustration, and inconvenience for local residents, the vast majority of whom are interested in minding their own business and who are not criminal suspects. Recall from above that even when police have encounters with members of the public, only a small share are arrested.

The numbers apparent in Tables 4 and 5, and the analysis to follow make one thing clear: Policing differs dramatically by neighborhood. Some neighborhoods see "light-touch" or "hands-off" policing, and others see much more aggressive police actions and almost constant police presence. These correlate strongly with race and poverty. And while one might think that it makes sense for the police to "go where the crime is", it is important to recall that the vast majority of those living in "high crime" areas are not themselves criminals. This is borne out in the statistics from earlier in this chapter showing that only a tiny share of all police-public interactions result in arrest.

All of this reinforces previous observations that "neighborhoods where police contact is concentrated" often "experience policing as a community event" (Lerman and Weaver 2013). That is, a 911 call does not just affect the person making the call; it reverberates throughout the community as the police come looking for suspicious activity. But this community-event aspect of policing is very different in the low-demand (e.g., wealthy, White) areas of the city; there, it is unlikely to affect the neighbors.

We measure surveillance spillovers for each 911 call as follows: First, we measure circular regions centered at each call location site; these circles are smaller if the intensity of 911 calls from the same or nearby sites is higher. Second, we count the number of directed patrols that intersect with each circular region within seven days of the emergency call. Using this framework, we are able to calculate the number of directed patrols in the surrounding area within seven days of every emergency call. We define high surveillance spillover events as any call that produces a large number of directed patrols over the next seven days in the local area. The intuition here is simple: How many additional directed police patrols do we observe in the vicinity of a 911 call, over the following week? Because the police use so much crime data, including calls for service, as a means of tracking "hot spots" and other areas in need of greater police presence, we can observe different levels of spillover response in different areas of the city. This process generates vastly different outcomes.

The number of additional police patrols that can be attributed to a 911 call differs by the topic of the call as well as by its location. Looking first at the type of call, or the object of the complaint, Tables 6 and 7 show the ten complaint topics that produce the highest (Table 6) and the lowest (Table 7) numbers of additional patrols to the area of the call in the following seven days. Table 6 shows the topic and category of the call, the number of such calls, the number of subsequent patrols that can be associated with it, three measures of the intensity of those subsequent patrols (mean number per call, share of calls that led to no patrols at all, and the average distance from the call to the patrol). The number, mean number per call, and share of calls with zero additional patrols are all indicators of the intensity of the police response. The distance measure suggests whether the police patrols are in the immediate vicinity of the originating call or further away.

Table 6. Emergency Complaints with the Highest Spillover Effects.

			Patrols in the following 7 days				
Complaint	Category	Calls	Total Number (Unique)	Mean per Call	Percent of Calls with Zero	Avg. Distance from Call Site (Feet)	Avg. Time until First Patrol (Hours)
Theft or larceny	Property	1,451	4,800	5.1	40.0	525	15
Shoplifter	Property	7,687	21,110	4.0	17.0	174	17
Armed robbery	Violent	3,996	16,905	3.3	34.1	270	15
Gunshot wound	Violent	1,556	4,923	3.2	32.1	243	13
Panhandling or solicitation	Quality of Life	7,026	32,934	3.1	31.7	308	16
Common law robbery	Property	1,683	8,333	3.1	37.3	301	16
Trespass or loitering	Property	1,663	7,273	3.0	29.7	354	17
Trespass or unwanted	Property	21,417	78,334	2.9	37.0	321	16
Fight	Gen. Disturb.	2,678	13,784	2.9	37.5	305	16
Intoxicated person	Quality of Life	5,459	25,732	2.7	38.5	341	15

Table 6 focuses on those calls with the greatest spillover effects. These generally involve property crimes and quality of life: Shoplifters, panhandlers, robberies, trespassing, and similar crimes. Each such call generates, on average, 2.5 to 3.7 additional police patrols in the area during the following week. This distribution is skewed and the number of calls that generate no additional patrols at all ranges between 17 and 38 percent. The patrols tend to be relatively close, within 300 feet, of the source of the initiating call.

Compare these patterns with other types of calls in Table 7; these are the calls that typically lead to no spillover effects at all, with 59 to 75 percent of the calls leading to not a single supplementary police patrol, and those patrols that do occur are considerably more distant from the location of the originating call (typically more than 400 feet).

Table 7. Emergency Complaints with the Lowest Spillover Effects.

		Patrols in the following 7 days					
Complaint	Category	Calls	Total Number (Unique)	Mean per Call	Percent of Calls with Zero	Avg. Distance from Call Site (Feet)	Avg. Time until First Patrol (Hours)
Barking dog	Quality of Life	2,853	3,247	0.7	67.9	810	10
Involuntary commitment	Quality of Life	6,963	11,407	1.0	65.3	411	13
Cardiac or resp arrest	Quality of Life	1,819	3,798	1.5	61.7	743	12
Runaway	Other	1,855	4,224	1.2	59.0	533	14
Animal problem	Quality of Life	4,606	10,548	1.2	58.5	564	14
Overdose or poisoning	Quality of Life	1,725	4,848	1.5	58.3	601	15
Missing person	Other	4,775	11,514	1.3	57.0	542	15
Sound of shots	Violent	13,654	31,064	1.3	56.7	503	13
Sexual assault	Sexual Crimes	1,184	2,750	1.3	55.7	653	14
Suspicious vehicle	General Suspicious	16,435	38,173	1.3	55.3	676	13

The calls listed in Table 7 are for barking dogs or other animal concerns, personal health emergencies (heart attack, overdose), runaways or missing persons, and suspicious cars or activities. Notably, it also includes the sound of gunshots and sexual assaults. Tables 6 and 7 give a sense of the different types of police responses to different types of calls. Our goal in presenting this detailed information is to give the reader a sense of what types of calls are coming into the 911 center and how the police are responding. Much of it makes sense. A shoplifter and a barking dog generate quite different levels of police response; we should all be pleased at that. (The low police response to sexual assaults is another matter, of course.)

Having presented this background information, now we turn to the question of differential response depending on the neighborhoods from which the calls emanate. Table 8 presents the same data as in the previous two tables for calls coming from the six different neighborhood types that we identified in Table 4, above. It shows the number of calls emanating from the area and the directed patrols that followed within the next seven days: the total number,

the mean number per call, the percent of calls that led to no such response, and the average distance from the call site.

Table 8. Spillover Effects by Neighborhood Type.

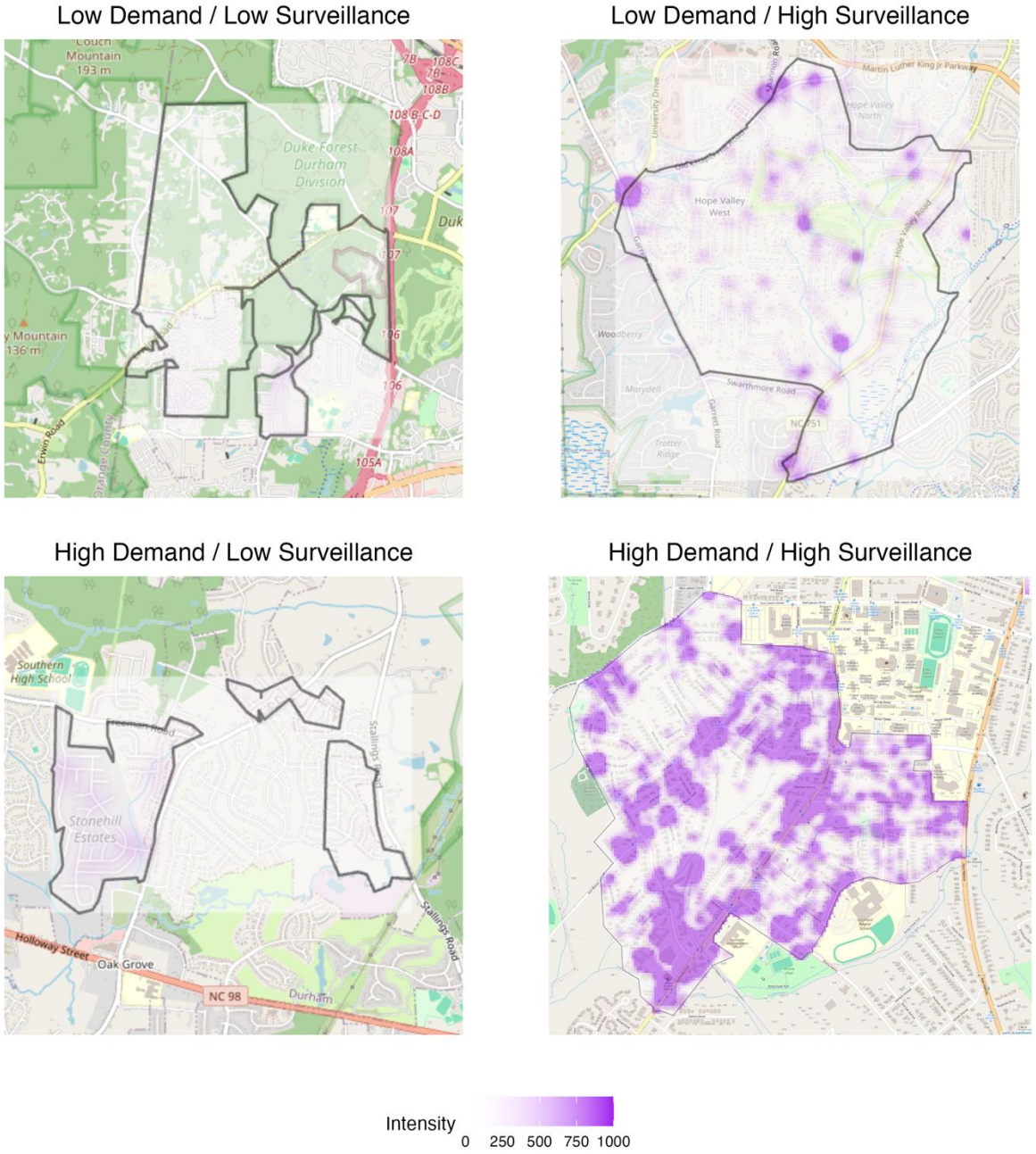
		Patrols in the following 7 days				
Neighborhood Type	Calls	Total Number	Mean per Call	Percent of Calls with Zero	Avg Distance from Call Site (Feet)	Avg. Time until First Patrol (Hours)
HDHS	223,544	242,198	2.6	38.7	233	15
HDLS	25,509	7,084	0.3	78.1	969	9
LDHS	3,224	8,611	1.9	41.5	1,223	15
LDLS	3,939	3,112	0.6	67.0	1,706	10
Downtown	36,491	61,541	3.8	31.3	205	16
Other	259,007	182,427	1.2	56.2	572	13
Citywide	551,714	448,252	1.9	48.5	453	14

The numbers are stark when we look at the 4 neighborhood types of particular interest. First, almost half of the total number of calls, and more than half of all the surveillance, comes from the HDHS (high demand / high surveillance) neighborhoods, but recall from Table 4 that only 12 percent of the city's population lives in these areas. The mean number of subsequent patrols generated per call is 2.6; just 39 percent of the calls go without such response; and the responses tend to be within 233 feet of where the call occurred. Looking in order at the three other neighborhood types, we see mean numbers of patrols decline from 2.6 to 0.3, 1.9, and 0.6; percent with no response moves from 39 to 78 to 42 to 67; and the average distance moves from 233 to 969 to 1,223 to 1,706 feet from the location of the call. So, there is less intensity of response as we move across the neighborhood types from HDHS to LDLS, and the response is less specifically targeted at the exact geographical location of the call.

The Table also provides information about the Downtown area, which also sees a high degree of police response for each 911 call, similar to the HDHS areas of the city in fact.

Figure 2 illustrates what we just showed with maps of particular neighborhoods that exemplify the four neighborhood types we have been discussing. The maps show the number of police patrols per month, averaged across the entire time period.

Figure 2. Police Surveillance in Selected Durham Neighborhoods.



At the top-left of Figure 2 we see the Durham neighborhoods of Lochn'ora, Solterra, and Carillon Forest (representing the low demand, low surveillance areas) and at the bottom left we

see the areas of Marbry Landing, Gatewood Forest, and Stonehill Estates (high demand, low surveillance). Both areas are low surveillance areas and indeed we see very few police patrols (indicated by purple shading, barely visible in the two maps) and no specific hot-spots. On the right side we see the area of Hope Valley at the top, representing a low demand, high surveillance area. Police patrols here are noticeably more intense, but they are in specific locations and these tend to be on the outskirts or perimeter of the area and on the major streets. These are typically occupied by business establishments such as gas stations and grocery stores.

Less than a half-mile to the north of Hope Valley is College View; this area illustrates a high demand, high surveillance area. It is adjacent to North Carolina Central University, a large historically black public university. Here we see virtually every street outlined in purple, indicating over 700 police patrols in the area each month. Seven hundred patrols a month, across 30 days on average, is 23 patrols per day, or one per hour. Readers should let that number sink in. And this is not just for a general area; it is for a specific address or city block. Residents on some blocks would see the blue lights on average once an hour, all day, every day, year after year. Others might see the police a few times per year.

Table 4 showed the population of each of the neighborhood types, and Table 5 showed the calls and police patrols. HDHS neighborhoods generate by far the most calls per capita at 6.1 (see Table 5). The downtown area is higher than average at 2.4, but none of the other neighborhood types generate as many as 2 calls per resident. With regard to police patrols, the numbers are even starker. Downtown generates 4.5 patrols per person and HDHS areas generate 7.1. No other type of area generates as many as 1.6 patrol per resident, and the LDHS and LDLS areas generate only 0.3 and 0.2 patrols per resident, respectively. Based on this we can say that residents of HDHS areas are more than 30 times as likely to see the blue lights of a police

vehicle on their street or in their immediate area than are residents of wealthier areas that generate fewer 911 calls. A 30-to-one difference is a stark illustration of the vast differences in likelihood of an adverse encounter with law enforcement and perhaps the strongest evidence we can present about the continuum of surveillance. Many individuals live in areas that are rarely visited by the police. Others, specifically those living in HDHS neighborhoods, may see them many times, every day.

High rates of neighborhood violence partially explain why the police are so active in the HDHS areas. During our time period, approximately 49 percent of all violent emergencies that occurred in Durham occurred inside an HDHS neighborhood. When broken down by emergency type, 62 percent of suspicious persons with a weapon, 62 percent of gunshot wounds, 61 percent of armed robberies, 59 percent of weapon disturbances, 55 percent of stabbings, and 50 percent of weapons violations occurred in HDHS neighborhoods. These high rates make it clear why residents are making calls to 911: Serious crimes are happening around them.

The irony, if not the tragedy, of it all is that the spillover effects of the heavy police presence stemming from this crime make all neighborhood residents, not only those responsible for the anti-social behavior, subject to increased rates of arrest. In HDHS neighborhoods, law enforcement surveillance of local side streets increases the exposure rates of neighbors who did not call law enforcement. On average, one emergency complaint from a HDHS neighborhood produces 2.6 directed patrols inside a call's circular region within seven days of the call report; in a LDLS area, this number is 0.6 (see Table 8). Crime clearly differs starkly by area of the city, as do police patrols. Living in an area with high crime and high levels of police surveillance exposes one not only to the possibility of crime victimization, but also to vastly increased levels of police contact, which can lead to arrest. Those with the opportunity to raise their children in

LDLS areas not only are more likely to avoid crime victimization, but also to avoid police surveillance.

Conclusion

A common adage in real estate is that the top three most important elements in determining the value of a home or building are "location, location, and location." In this chapter, we have shown how true this is in another area: policing. Depending on where one lives, we can predict the likelihood of living near anti-social behaviors and being subject to high levels of police surveillance. We have identified about 12 percent of the Durham population who live in high demand, high surveillance neighborhoods and shown how their experiences are starkly different to those who live in other areas of the city. We have also identified about three percent of the city's residents who live in low demand, low surveillance areas. The second group have about seven times the annual family income as the first group, and they rarely see the police.

Policing is strongly connected to identity characteristics: age, race, gender, and income status. It is perhaps even more strongly associated with time and place. While we have not focused on the time element here, we agree with your mother: To avoid trouble, it's best to be home before 10pm. We have looked closely here at the issue of place. When we look at place after having looked (in previous chapters) at age, race, gender, and income, we find that race and income correlate strongly with neighborhood. Poor people tend to cluster in those same areas where we see higher shares of minority residents, more anti-social behavior, and a different, more intense and aggressive style of policing than we see in other areas of the city. So, if policing is about location, location, and location just as is real estate, then it is also about income and race.

We were able in this chapter to make use of highly detailed information provided to us by the Durham Police Department and we cannot replicate this precise analysis for the entire state. However, we can document similar patterns of geographic difference in arrest rates across the state, for each of the state's major metropolitan areas. In the following chapter, we turn to show these similar patterns using different measurement techniques.