



Research Report

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# Racial Disparities in Misdemeanor Speeding Convictions



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# About This Report

Virginia law states that any motorist pulled over for driving 20 miles per hour (mph) or more over the speed limit or driving in excess of 80 mph at any speed limit (or 85 mph as of July 2020) is eligible for a reckless driving citation, which is a Class 1 misdemeanor violation. However, both law enforcement officers and the courts can use discretion to reduce the misdemeanor charge to a simple traffic infraction. In this report, we use data on speeding violations in 18 Virginia counties over a nine-year period to examine whether there are racial disparities in who benefits from this discretion and why these racial disparities might exist.

## Justice Policy Program

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# Summary

Twenty-five U.S. states designate excessive speeding as a criminal misdemeanor, and an estimated 20 million such cases are filed each year. A misdemeanor is a more serious charge than a traffic infraction (e.g., a speeding ticket) and carries both higher penalties and the possibility of a criminal record. When motorists are caught speeding in a range that qualifies as a misdemeanor, law enforcement officials have discretion in whether to charge the motorist with a misdemeanor, and courts have discretion in whether to convict the motorist of any misdemeanor charge issued by law enforcement. The expectation of a fair legal system is that this discretion is exercised without systemic biases.

In this study, we used data from all speeding citations issued in 18 Virginia counties over a nine-year period to examine whether the percentage of misdemeanor-eligible motorists who were convicted of a misdemeanor varied by race. To better understand how racial disparities can arise and what policies might work best to reduce them, we decomposed the observed racial disparity into some of its root causes. Specifically, we conducted regression analysis, along with Oaxaca-Blinder decomposition analysis, to identify the extent to which observed racial disparities in misdemeanor conviction rates can be explained by racial differences in case characteristics and the extent to which racial disparities remain unexplained by any of the factors that we could control for. Because law enforcement officers and the courts take into account somewhat different case characteristics, we conducted this analysis separately at the law enforcement and court stages. Because of the relatively small numbers of individuals in other racial groups, our analysis focused on disparities between Black and White motorists.

## Findings on Racial Disparities in Misdemeanor Speeding Convictions

### Overall Racial Disparity

**Among motorists cited for speeding in a range that qualified for a misdemeanor, Black motorists were almost twice as likely as White motorists to be convicted of a misdemeanor.** White motorists were convicted of a misdemeanor 19 percent of the time, and Black motorists were convicted 36 percent of the time.

**Significant racial disparities were present at both the law enforcement and the court stages.** We found that 55 percent of the overall racial disparity in conviction rates could be explained by what happened at the law enforcement stage (i.e., by whom law enforcement charged with a misdemeanor), and the remaining 45 percent of the disparity was explained by what happened at the court stage (i.e., by whom the court convicted of a misdemeanor).

### Racial Disparities at the Law Enforcement Stage

**The county in which a motorist was cited explained almost half of the racial disparity in whom law enforcement charged with a misdemeanor.** Further analyses indicated that location explained such a substantial proportion of the overall disparity at this stage because law enforcement officers offered fewer charge discounts overall in the counties in which Black motorists made up a larger percentage of cited motorists. We were not able to determine whether there was a race-neutral reason for why enforcement was stricter in these counties.

**Almost half of the racial disparity in whom law enforcement charged with a misdemeanor was unexplained by any of the case characteristics that we could control for.** This remaining racial disparity might reflect either disparate treatment by law enforcement officers or underlying racial differences in omitted variables.

## Racial Disparities at the Court Stage

**About four-fifths of the racial disparity in whom the court convicted of a misdemeanor could be explained by observable case characteristics.** In our study, one of the primary reasons that racial disparities occurred at the court stage was because Black motorists were significantly less likely than White motorists to attend the required court appearance to adjudicate a misdemeanor charge. Although there are several potential policy options to address this—including text message reminders or the adjudication of cases through online platforms—the optimal option will depend on first understanding why this racial difference in court appearance rates occurs. Another key reason that Black motorists were more likely to be convicted of a misdemeanor at the court stage was that they were less likely to have a lawyer present at their court appearance. Having an attorney present significantly lowered the likelihood that a motorist was convicted of a misdemeanor, but in Virginia, attorneys are not provided by the court for these violations and must be retained at the motorist’s expense.

**About one-fifth of the racial disparity in whom the court convicted of a misdemeanor was unexplained by any of the factors that we could control for.** This unexplained racial disparity might reflect either disparate treatment by the court or underlying racial differences in omitted variables.

# Contents

<b>About This Report</b> .....	iii
<b>Summary</b> .....	v
<b>Figures and Tables</b> .....	ix
<b>CHAPTER ONE</b>	
<b>Introduction</b> .....	1
Project Overview.....	2
Previous Literature.....	3
Structure of the Report.....	4
<b>CHAPTER TWO</b>	
<b>Data and Analysis Sample</b> .....	5
Data Sources, Cleaning, and Variable Construction.....	5
Analysis Sample Creation and Descriptive Statistics.....	8
<b>CHAPTER THREE</b>	
<b>The Process for Charging and Adjudicating Reckless Speeding Violations</b> .....	13
The Law Enforcement Stage.....	14
The Court Stage.....	20
<b>CHAPTER FOUR</b>	
<b>The Impacts of Receiving a Misdemeanor Speeding Conviction</b> .....	25
Presence of a Criminal Record.....	25
Higher Fines and Fees.....	26
Worse Driving Record.....	28
<b>CHAPTER FIVE</b>	
<b>Racial Disparities in Misdemeanor Convictions</b> .....	29
Raw Racial Disparities.....	29
Regression Analysis at the Law Enforcement Stage.....	32
Regression Analysis and Oaxaca-Blinder Decompositions at the Court Stage.....	36
<b>CHAPTER SIX</b>	
<b>Conclusions and Policy Implications</b> .....	43
Summary of Key Conclusions.....	43
Data Limitations.....	43
Implications for Policy.....	44
<b>APPENDIXES</b>	
<b>A. Identifying Officers Who Did Not Discount Speeds When Issuing Citations</b> .....	47
<b>B. Disentangling Differences in Motorist Speed from Disparate Treatment at the Law Enforcement Stage</b> .....	51
<b>C. Additional Tables</b> .....	55
<b>References</b> .....	59





# Figures and Tables

## Figures

- 2.1. Virginia Counties Included in the Analysis ..... 6
- 3.1. Distribution of Cited Speeds in Speed Limit Zones of 25, 35, or 45 mph ..... 16
- 3.2. Distribution of Cited Speeds in Speed Limit Zones of 55 or 60 mph ..... 16
- 3.3. Distribution of Cited Speeds in Speed Limit Zones of 65 or 70 mph ..... 17
- 3.4. Percentage of Motorists Charged with an Infraction When Cited for a Speed Above the Misdemeanor Cutoff ..... 19
- 3.5. Process Map of How Speeding Citations in the Reckless Range Were Handled ..... 20
- 3.6. Percentage of Motorists Who Attended Court and Had the Misdemeanor Charge Downgraded or Dismissed ..... 23
- 5.1. Raw Disparities in Speeding Citation Outcomes, by Racial Group ..... 30
- 5.2. Cited Speed Distributions in Jurisdictions with a Speed Limit of 70 mph, by Racial Group ..... 31
- 5.3. Oaxaca-Blinder Decomposition Results for Racial Disparities at the Court Stage ..... 40
- A.1. Distribution of Cited Speeds in Speed Limit Zones Between 25 and 60 mph Among Motorists Cited by Officers Who Did Not Discount Speeds ..... 48

## Tables

- 2.1. Summary Statistics for the Main Analysis Sample ..... 9
- 3.1. How Court Pathways Differ Across Motorist and Case Characteristics ..... 23
- 4.1. Average Fines and Fees Levied for Each of the Four Main Outcomes ..... 27
- 4.2. Driver’s License Demerit Points for Each Outcome ..... 28
- 5.1. The Impact of Motorist Race on Being Charged with a Misdemeanor at the Law Enforcement Stage ..... 33
- 5.2. Distribution of Cited Speeds in Areas with a Speed Limit of 70 mph, by County ..... 35
- 5.3. The Impact of Motorist Race on Being Convicted of a Misdemeanor at the Court Stage ..... 38
- B.1. Comparison of the Distribution of Cited Speeds by Law Enforcement Officers Who Did and Did Not Discount Speeds ..... 52
- C.1. Summary Statistics for the Speeding Citations Dropped from the Main Analysis Sample ..... 55
- C.2. Racial and Speeding Citation Composition, by County ..... 56
- C.3. Proportion of Reckless Speeding Violations That Law Enforcement Charged as an Infraction, by County ..... 57
- C.4. Proportion of Cited Motorists in Various Case Pathways Whose Charge Was Downgraded to an Infraction or Dismissed by the Court, by County ..... 58



## Introduction

Research examining racial disparities in the criminal justice system has primarily focused on felony offenses, but disparities in misdemeanor offenses can have serious consequences as well. In addition to the possibility of jail terms and potentially large fines, misdemeanor convictions can have detrimental impacts on an individual's job prospects, as well as eligibility for a driver's license, professional license, child custody, food stamps, student loans, and public housing (Natapoff, 2018). A misdemeanor conviction will also increase the penalty on any subsequent criminal conviction. Furthermore, a much larger swath of the population is likely to be involved in the misdemeanor system: The number of non-traffic misdemeanor case filings is about 13 million per year, which is about four times more than the number of felony filings in a given year (Natapoff, 2018; Stevenson and Mayson, 2018). Disparities in how misdemeanors are meted out can thus have large downstream consequences for overall equity.

Recent analyses indicate significant racial disparities in the likelihood of being charged with a misdemeanor offense. For instance, although Black individuals made up 13 percent of the U.S. population in 2015, they made up 27 percent of misdemeanor arrests (Natapoff, 2018). Mayson and Stevenson (2020) analyzed misdemeanor case filings in multiple jurisdictions and found that racial disparities in case filing rates were apparent in every one of the eight jurisdictions they studied. A far more difficult question to answer is *why* these racial disparities are present. In particular, these disparities can be driven by three factors: (1) disparate treatment by decisionmakers; (2) racial differences in relevant behavior; and (3) the fact that adjudicative processes take into account characteristics that vary by race, including some characteristics that are potentially irrelevant and should not be considered. The latter two factors are often defined as *disparate impact* or the "explained" part of the disparity. Given the role that disparate impact has been shown to play in racial disparities in the criminal justice system (Rose, 2021; MacDonald and Raphael, 2017; Beck and Blumstein, 2018), it is important not only to separately identify the role of disparate treatment and disparate impact but also to examine which group characteristics explain the largest amount of the observed disparity.

Disentangling the underlying sources of the overall racial disparity in misdemeanor charges and convictions is helpful in creating tailored policy options. In practice, however, this has often been difficult to execute because we usually do not know who is offending (e.g., the people charged likely do not constitute all people who committed the offense, and some of those charged might not have committed the offense), and we often do not observe all relevant information that decisionmakers have. For these reasons, in this study, we focus on a misdemeanor offense for which these traditional difficulties are minimized: misdemeanor speeding violations in Virginia. Although misdemeanor speeding offenses are often overlooked by researchers, 25 U.S. states designate excessive speeding as a criminal misdemeanor, and an estimated 20 million misdemeanor cases are filed every year for this offense (Natapoff, 2018).<sup>1</sup> It is rare for motorists convicted of a speeding offense in Virginia to serve jail time, but being convicted of a misdemeanor speeding offense does result in a criminal record, which can make it more difficult for convicted individuals to succeed in

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<sup>1</sup> Natapoff (2018) and Mayson and Stevenson (2020) present some of the most-recent attempts to construct data sets of misdemeanor case filings; both studies dropped misdemeanor speeding violations from their analyses.

any application process that asks about prior criminal convictions. These convictions also carry high fines, can significantly damage the individual's driving record, and can result in increased penalties for any future criminal conviction.

For several reasons, studying misdemeanor speeding violations presents a unique opportunity to understand both the overall disparities present in a misdemeanor offense and why they exist. First, speeding is an offense with different levels; at lower levels, motorists are charged with a traffic infraction, while at higher levels, they are charged with a misdemeanor. Because we have some information on the speed that individuals are caught traveling, our understanding of the motorists who are eligible to be charged with a misdemeanor speeding offense is better than our understanding of who is eligible for most other misdemeanor offenses; in the latter case, we observe only whom law enforcement charged with an offense. Second, the data available in Virginia make it possible to track these offenses from the law enforcement stage to the court stage, which is relatively rare but extremely important in understanding the extent of racial disparities. Third, a speeding violation is a relatively simple offense in that the speed that the motorist is caught traveling is the main factor that should determine the outcome; in contrast, for many other types of offenses, the outcome is determined by contextual factors that can often be hard to identify. The combination of these three reasons allows us to decompose the overall racial disparity in misdemeanor speeding convictions into its root causes, providing a deeper understanding of how these disparities can arise and what policies might work best to combat them.

## Project Overview

Until July 2020, Virginia law stated that any motorist pulled over for driving 20 miles per hour (mph) or more over the speed limit or driving in excess of 80 mph at any speed limit should be given a citation for reckless driving, which is a Class 1 misdemeanor violation. (The latter threshold is now 85 mph.) From 2005 through 2014, speed was a factor in 31 percent of all traffic fatalities in the United States; thus, these laws are in place to improve public safety (National Transportation Safety Board [NTSB], 2017). However, both law enforcement officers and the courts are afforded a lot of discretion in how they enforce these rules. When motorists are caught speeding in this reckless range, law enforcement and the courts *can* charge them with and convict them of a misdemeanor, but they can also show leniency. In particular, law enforcement officers either can cite the motorist for a speed that does not qualify for a misdemeanor, which automatically means that the person will not be charged with a misdemeanor, or can cite the motorist for the speed the person was indeed traveling but choose to classify that as an infraction (i.e., a speeding ticket); in this report, we refer to these options as *charge reductions* or *discounts*. Motorists who do not receive a charge reduction by the officer are generally required to go to court to adjudicate the charge, whereby the judge or prosecutor can reduce the charge to a simple traffic infraction. This allowance for discretion brings up a natural question: Are misdemeanor charges being downgraded to traffic infractions in a race-neutral manner?

For this study, we exploit a data set that we scraped from online Virginia court records that contain information on all speeding citations handed out in 18 counties in Virginia from January 2007 through October 2015.<sup>2</sup> We use these data, along with stakeholder interviews and policy reviews, to answer the following questions:

1. **What is the process for charging and adjudicating reckless speeding violations?**<sup>3</sup> As part of this analysis, we develop process maps for how speeding violations that qualify for a misdemeanor charge

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<sup>2</sup> See the Case Information System web portal available at Virginia's Judicial System, undated.

<sup>3</sup> In Virginia, this violation is technically listed as *reckless driving—speeding*, but for simplicity, we refer to it in this report as *reckless speeding*.

can be handled at both the law enforcement stage and the court stage. We examine the amount of discretion that decisionmakers have, how that discretion manifests in various outcomes and can be measured, and what information about the motorist is likely to be taken into account at each stage of the process.

2. **How do the impacts of receiving a misdemeanor conviction for speeding compare with the impacts of receiving an infraction for speeding?** We examine the impacts that a misdemeanor speeding conviction can have on an individual's life, as well as the higher fines and driver's license penalty that is associated with a misdemeanor speeding violation (as opposed to an infraction). This analysis is based on both a review of institutional policy and an empirical examination of fines and fees levied.
3. **What is the racial disparity in the rate at which motorists stopped for speeding in the reckless range are convicted of a misdemeanor, and what factors can explain this disparity?** In this report, *racial disparity* is defined as the racial difference in a given outcome. Unless otherwise specified, the term refers to the raw or unconditional racial difference when no controls are accounted for. We conduct regression analysis, along with Oaxaca-Blinder decomposition analysis, to identify the extent to which the observed racial disparity in misdemeanor conviction rates can be explained by differences in the behavior and characteristics of racial groups, as well as the extent of the racial gap that is unexplained by any of the factors for which we can control. We then consider why there might be racial differences in some of the underlying group characteristics causing racial disparities in conviction rates, as well as whether there is a legally relevant reason that some of these controls are being taken into account. The models used for analysis here are directly informed by our process-mapping results. Because of the relatively small numbers of individuals in other racial groups, our analysis focuses on disparities between Black and White motorists.

## Previous Literature

This study sits at the intersection of the racial disparity literature on both traffic stops and criminal case outcomes. The research examining racial disparities in motor vehicle stops and searches is extensive and typically finds that motorists in racial or ethnic minority groups are more likely than White motorists to have their vehicles stopped and searched for traffic violations (see Cordner, Williams, and Velasco, 2002; Farrell et al., 2004; Pierson et al., 2020). These raw disparities might partly be explained by discrimination on the part of police officers, but there are also many other potential reasons, such as underlying differences in driving infractions and contraband-carrying rates. Several studies have made substantial methodological contributions in parsing out the role of racial bias on the overall observed disparity. For example, Quintanar (2017) and Grogger and Ridgeway (2006) examine the role of bias in motor vehicle stops, Anwar and Fang (2006) and Knowles, Persico, and Todd (2001) investigate the role of racial bias in the decision to search motorists, and Luh (2020) examines the role of racial bias in issuing parking tickets.

Another line of work in the literature on motor vehicle stops focuses on racial disparities that occur downstream of the stop decision. Specifically, instead of focusing on disparities in the decision to stop, these studies focus on the discretion that law enforcement officers have in selecting what charge to cite motorists for once they have been stopped. To our knowledge, these studies have primarily been conducted using speeding violations, likely because there are typically several offenses that can be charged in the overall speeding violation category. Our study falls within this line of literature and is most closely related to work by Anbarci and Lee (2014) and Goncalves and Mello (2021), which both examine settings in which speeding violations can be charged at several different offense levels, each of which carries a different fine or penalty. Anbarci and Lee (2014) find evidence that at least one racial group of officers is biased in favor of their own race, while

Goncalves and Mello (2021) find evidence that at least some of the overall racial disparity in the seriousness of the speeding violation charged is due to racial bias against motorists in racial or ethnic minority groups.

Our study expands on the work conducted in Anbarci and Lee (2014) and Goncalves and Mello (2021) in two key ways. First, in our study, the benefits that motorists received from getting their speeds or charges discounted were quite different from the benefits noted in the earlier studies. In previously studied settings, only a higher fine (rather than a more serious charge) was possible, but we are examining how an officer's decision about charge reductions affected whether the individual received an infraction or a criminal conviction. A misdemeanor conviction not only results in a higher fine but also can have more-substantial and long-lasting consequences on the individual. Second, our data allowed us to follow a given speeding citation through the court process until the final disposition. In Virginia, motorists who are charged with a misdemeanor by law enforcement can still have this charge downgraded by either a judge or prosecutor at the court stage. Thus, to understand the full extent of racial disparities in this process, it is necessary to follow a case from the initial stop to the final adjudication.

Tracking the racial differences in the treatment of cases from their entry into the criminal justice system until the conviction stage is rarely done. This is primarily because of data limitations and the fact that arrest and charging decisions are often housed with different authorities than final sentencing outcomes are. As a result, almost all prior work has focused on racial disparities at a particular stage of the justice system in isolation. For instance, Wu (2016) and Kutateladze, Lynn, and Liang (2012) focus on prosecution, and Spohn (2000) focuses on sentencing. Notable exceptions to this framework include studies by Rehavi and Starr (2014), Wooldredge and Thistlethwaite (2004), and Kim and Kiesel (2018), which follow cases from arrest to sentencing and indicate the importance of studying the criminal justice process in its entirety as opposed to focusing on distinct stages. Our study—to our knowledge, the first that tracks racial differences in traffic cases through the justice system—thus presents a useful addition to this nascent literature.<sup>4</sup>

## Structure of the Report

This report is organized as follows: In Chapter Two, we discuss the data we used and how we created the analysis sample. In Chapter Three, we describe the process of how reckless speeding violations are charged and adjudicated, and in Chapter Four, we discuss the implications of receiving a misdemeanor conviction versus a traffic infraction. In Chapter Five, we identify the racial disparities present in misdemeanor conviction rates for speeding and investigate the reasons that these disparities are present. Finally, in Chapter Six, we discuss the implications of our results for policy.

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<sup>4</sup> Quintanar (2011) is a similar study, but that paper focuses more on the extent to which there are racial differences in court appearances by motorists as opposed to whether judges and prosecutors amend charges.

# Data and Analysis Sample

## Data Sources, Cleaning, and Variable Construction

Collecting data on speeding violations in Virginia requires obtaining data from the district courts. Virginia is composed of 95 counties and 38 independent cities that are considered county equivalents for census purposes. For the most part, each Virginia county has its own district court. Virginia's online Case Information System web portal presents detailed publicly available information on every charge that was handled in a Virginia District Court during the previous ten years (see Virginia's Judicial System, undated). This includes misdemeanor charges (which are resolved in district court), felony charges (which have their preliminary hearings in district court), and all traffic citations.

In 2015, we used a web-scraping procedure to compile data on all cases heard in a given district court between January 2007 through October 2015 for a sample of 36 counties.<sup>1</sup> Our web-scraping program selected these 36 counties at random. We had originally intended to scrape the data from all district courts in a random order, but this became too time-intensive, so we stopped after 36 counties. Because we had originally intended to scrape data from all courts, we did not try to ensure up front that the selected counties were representative of the state as a whole.

From this initial sample of 36 counties, several counties were not suitable to be used in the analysis. Our project is focused on speeding citations, and the research design requires that the law enforcement officers record the speed that they are citing the motorist for traveling. That does not mean that the cited speed has to be the actual speed the motorist was going (as we discuss in Chapter Three) but rather that the officers cannot record a generic violation, such as "speeding 20+ miles over the limit." For 12 of the 36 counties, a significant proportion of the speeding citations did not list a speed, so we could not use data from those counties.<sup>2</sup>

In addition, we excluded four counties for which an error in the web-scraping resulted in only a few years of data, which would not have provided a long enough time span to create a previous driving record for motorists. Finally, in two of the counties, speeding violations were almost never classified as misdemeanor violations. Because our project focuses on whether excessive speeding violations are classified as either an infraction or a misdemeanor charge, we could include only counties that classify these violations as misdemeanors at least some of the time.

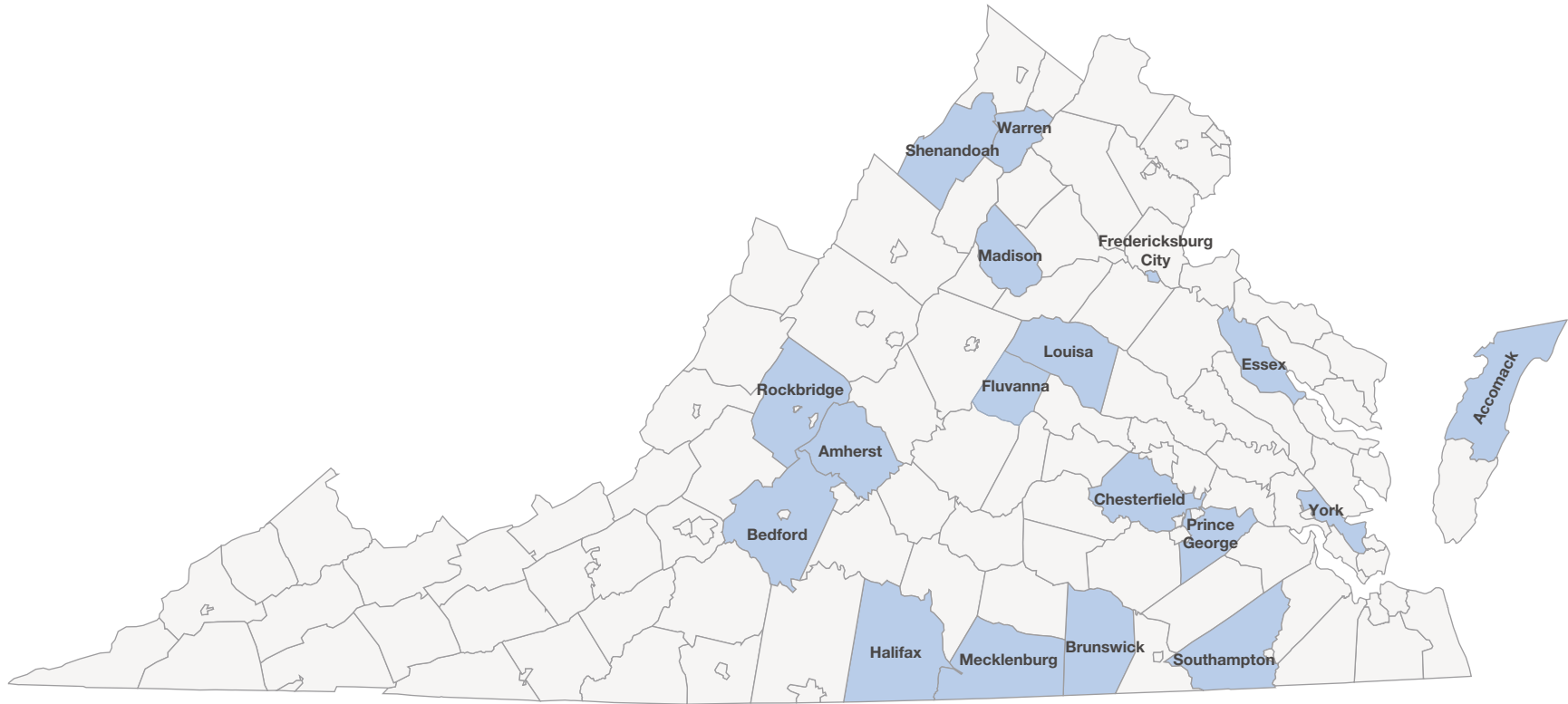
Our remaining sample contains 18 counties, which are shown in Figure 2.1. Overall, these 18 counties are less populous than the average county in Virginia: Census data indicate that there are roughly 64,000 residents on average in a Virginia county, and there are roughly 51,000 residents per county used in our analysis (Virginia Demographics, undated). These counties, however, are geographically dispersed through much of Virginia.

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<sup>1</sup> Most counties had either no data or incomplete data for 2006. Only two of the counties (Shenandoah and Southampton) appeared to have complete data for that year. We thus included the observations from 2006 for only those counties, although all central results are robust to dropping the observations from 2006.

<sup>2</sup> Speed not being coded generally occurred with the reckless driving violations. In our final data set, only 0.3 percent of the observations did not have a speed recorded.

**FIGURE 2.1**  
**Virginia Counties Included in the Analysis**



NOTE: Fredericksburg is the only independent city (i.e., county equivalent) used in our sample.



For each county, we used the charge code to select all citations given out for speeding violations. We dropped any case for which the case number, name, date of birth, or hearing date was missing. We then dropped speeding citations for which the individual was charged with multiple offenses on the same date or for which multiple offenses were disposed of on the same hearing date as the speeding citation. These additional offenses could have been other traffic violations or criminal offenses. These cases constituted 11.4 percent of the total speeding violations in our data and were dropped because, when trying to understand how discretion works in speeding cases, it is more straightforward to look at individuals whose sole charge was speeding. This left us with an initial sample of 746,855 speeding violations, and we discuss additional dropped cases shortly.

The Virginia Case Information System data track each speeding ticket from initial creation to final adjudication. This information includes the speed that the officer cited the motorist for going, the date that the incident occurred, the speed limit of the area in which the motorist was cited, the charge code (either speeding or reckless speeding), and how the officer classified the speeding citation (either an infraction or a misdemeanor). We also observed whether the motorist prepaid the ticket (i.e., paid the fine before the hearing date and thus did not need to go to court), as well as the outcome of the cases that did go to court, including whether the initial charge was amended down to a lower charge, whether the motorist had an attorney present at the court hearing, and the final fines and court fees. Finally, we observed the motorist's name; race (as perceived by the officer and listed on the citation); gender; month and day of birth (but not year, and thus driver age is unknown in our sample); city, state, and zip code of residence; and the county in which the alleged violation took place. We used the motorist's address to code whether they were an out-of-state driver.

Although the data do not provide the motorist's driving record, we built our own measures of each motorist's driving history. Generally, our district court data contained information on all motor vehicle citations handed out in a given county from 2007 to 2015. We thus coded whether a motorist cited for speeding in one of the 18 counties in our sample was convicted of a motor vehicle violation in any of those 18 counties in the previous three years. We used a motorist's name and month and day of birth to identify matches. These previous motor vehicle violations included convictions for speeding or moving violations, reckless driving, driving on a suspended license, hit-and-run violations, and driving while intoxicated. When building the driving record variables, we used only individuals for whom we would have observed any potential violations in the previous three years. Because our data set begins in 2007, we could not code this variable for anyone who had a speeding citation before January 1, 2010.

Although it is useful to have a proxy measure of previous driving violations, there are several downsides to this measure. First, using this variable requires throwing away several years of data. We thus conducted all of our main analysis without using driving history as a control (so that we could use the full sample), but we also show that the key results are robust to the inclusion of this variable. Second, given the data available in our sample, we were able to build driving history from only the 18 counties used for analysis. Because many drivers were either from other states or other Virginia counties, this driving history measure is likely to substantially understate actual previous driving violations. In Chapter Five, we discuss the implications that this noisy measure of driving history can have on our racial disparity results.

Next, using the data available to us, we created a measure of the individual's previous three-year non-traffic criminal history. The district court data for our 18 counties provided information on whether an individual was convicted of a non-traffic misdemeanor in those 18 district courts in the three years prior to their focal speeding incident. The district courts do not have the authority to adjudicate a felony charge. To collect a wider measure of prior criminal history, we obtained data from all Virginia circuit courts for this same period (2007–2015). We obtained the data from an organization that had already scraped the information and made it publicly available (Virginia Court Data, undated). Circuit courts handle felony charges, although many of the individuals charged with a felony are eventually convicted of a misdemeanor in those courts; the

courts also handle probation violations. Our criminal history measure is thus a combination of whether the individual had any non-traffic convictions in our 18 counties' district courts or any convictions (including probation violations) in any Virginia circuit court in the prior three years.

The final variable we coded was the number of miles per hour over the cutoff at which law enforcement officers are allowed to charge motorists with a misdemeanor. As noted in Chapter One, there are two ways in which speeding violations can be classified as a misdemeanor in Virginia, and each way is relevant at different speed limits. First, officers are allowed to charge a motorist with a misdemeanor if the motorist is going more than 19 mph over the speed limit. For individuals who were cited in areas where the speed limit was 25, 35, 45, 55, or 60 mph, the relevant cutoff at which officers are allowed to charge a misdemeanor is thus the speed limit plus 19. So, to determine how much over the misdemeanor cutoff a given motorist in this group was, we subtracted the speed limit plus 19 from the motorist's cited speed. Second, during our period of study, Virginia law stated that motorists could not exceed 80 mph regardless of the speed limit. For individuals who were stopped in areas where the speed limit was 65 or 70 mph and who were cited at speeds of 80 mph or above, the relevant cutoff is 80 mph. So, to determine how much over the misdemeanor cutoff they were, we subtracted 80 from the cited speed.

We made a few additional drops from our initial sample of 746,855 speeding violations to obtain our main analysis sample. We dropped 19,562 speeding citations for which the listed speed limit was not a valid value, 84 speeding citations for which the citation was not classified as either an infraction or a misdemeanor, and 151 speeding citations for which the citation was coded as a misdemeanor when the speed cited was not above the misdemeanor cutoff (which should not happen). In almost 92 percent of the remaining sample, the motorist was classified as either a Black or White individual, so we dropped the 59,208 speeding citations for which the motorist's race was outside those two categories. We also dropped 10,670 speeding citations for which the records indicated that the motorist was arrested. Generally, it is rare for a motorist to be arrested for a speeding violation, and in 57 percent of these situations in our data set, the motorist was charged with an infraction. A traffic infraction with no other crimes listed should not lead to an arrest, so it seems likely that the motorist was arrested because there was a warrant for arrest from a separate incident. This notion is further supported by the fact that 84 percent of these arrested drivers were Virginia residents, and Virginia law enforcement officers are likely to mainly receive alerts from in-state incidents. Because we wanted to focus only on incidents in which the speeding violation was likely the only offense being dealt with, we decided to drop the cases that involved an arrest. Finally, we also dropped 64 speeding citations that appeared to reflect a mistake in how the citation was recorded; specifically, in these 64 cases, there were very few (sometimes only three or four) citations at a particular speed limit in a given county. This left us with a remaining sample of 657,116 speeding citations.

## Analysis Sample Creation and Descriptive Statistics

As mentioned, in this project, we focus on the case dispositions of cited motorists who were speeding in ranges eligible for a misdemeanor; thus, our main analysis sample further restricted the sample of all speeding citations described in the previous section. Our identification of cited motorists who were speeding above the misdemeanor cutoff was guided by how these cases were charged by law enforcement officers. As we discuss in detail in Chapter Three, a law enforcement officer who encounters a motorist speeding above the misdemeanor cutoff and chooses to issue a citation has two options for how to record the cited speed: The officer can (1) cite the motorist for the actual speed the person was driving or (2) cite a lower speed so that the violation no longer qualifies as a misdemeanor. In Chapter Three, we present evidence that indicates that, when officers decide to lower the cited speed, they tend to lower it to right at the misdemeanor cutoff (i.e., 0 mph above the cutoff). This implies that, if we wanted to identify the cited motorists who were driving at a

speed above the cutoff, we needed to restrict our sample to those who were cited for a speed that was 0 mph or more above the cutoff (as opposed to 1 mph or more above the cutoff). Because there were very few motorists who were cited at ranges exceeding 15 mph over the cutoff (only 0.45 percent of all speeding citations in our sample), we truncated the sample to this point for simplicity. Thus, our main analysis sample consists of individuals who were cited at between 0 and 15 mph above the misdemeanor cutoff, giving us a total of 261,432 speeding citations. Table C.1 in Appendix C presents summary statistics for the speeding violations excluded from the main analysis—that is, the violations for which the cited speed was either below the cutoff or more than 15 mph over the cutoff.

Table 2.1 presents summary statistics for our main analysis sample. Because we are examining racial disparities in how these speeding charges are classified, we break these statistics out by motorist race. Two-thirds of the motorists in our main sample were White individuals and one-third were Black individuals. Almost 60 percent of these drivers were from out of state, and almost two-thirds of the violations occurred in areas where speed limits were either 65 or 70 mph. Note that we report summary statistics as decimal numbers (e.g., 0.585) but often describe results in the text as percentages (e.g., 58.5 percent).

As noted earlier, a significant proportion of the drivers who were cited at exactly the misdemeanor cutoff (0 mph above the cutoff) were unlikely to be going that speed. Thus, to get a better idea of how actual speed levels might vary across race, in the three rows of Table 2.1 that report statistics on miles per hour above the misdemeanor cutoff, we drop motorists with a cited speed at the cutoff and examine the distribution among the remaining speeds. The results indicate that Black motorists were likely to be cited at slightly higher speeds than White motorists were.

The next few rows of Table 2.1 examine the presence of traffic and criminal convictions in the three years before the date of the motorist’s focal speeding incident. We observed a full three-year history for only 59 percent of our sample, so the subsequent prior record variables are calculated only for this subsample. Generally, the prevalence of prior traffic violations was relatively low, as only 5.7 percent of this subsample had any traffic convictions in the previous three years in the 18 analysis counties. The results indicate that Black motorists in our sample were more likely to have a prior traffic violation than White motorists were. As noted earlier, this previous driving measure likely significantly understates actual driving history because these motorists may have had other violations outside of these 18 counties. In results not shown, we found that, when previous driving history is measured in only the originating county of the focal violation, 3.3 percent of individuals had a prior traffic violation (infraction or misdemeanor). Furthermore, the prior violation rate was 2 percent for out-of-state motorists and 11 percent for in-state motorists in our sample. These

**TABLE 2.1**  
**Summary Statistics for the Main Analysis Sample**

	Overall	Black	White	<i>p</i> -value
Black motorist	0.335	1.000	0.000	—
White motorist	0.665	0.000	1.000	—
Male motorist	0.600	0.577	0.612	0.000
Out-of-state motorist	0.585	0.644	0.556	0.000
Speed limit in area cited				
25, 35, 45	0.170	0.144	0.183	0.000
55, 60	0.188	0.222	0.170	0.000
65, 70	0.642	0.634	0.646	0.000

**Table 2.1—Continued**

	Overall	Black	White	<i>p</i> -value
Miles per hour above the misdemeanor cutoff				
1–5	0.650	0.624	0.667	0.0000
6–10	0.287	0.301	0.277	0.0000
11–15	0.063	0.075	0.055	0.0000
Previous record				
Motorists for whom we observed a 3-year history	0.592	0.592	0.592	0.662
Among motorists with a conviction in the previous 3 years				
Any traffic conviction in the 18 focal counties	0.057	0.062	0.055	0.000
Any non-traffic criminal conviction in Virginia	0.007	0.007	0.008	0.353
Location (county where the violation occurred)				
Accomack	0.035	0.035	0.036	0.6248
Amherst	0.037	0.026	0.042	0.0000
Bedford	0.021	0.009	0.027	0.0000
Brunswick	0.169	0.253	0.128	0.0000
Chesterfield	0.040	0.047	0.037	0.0000
Essex	0.019	0.023	0.017	0.0000
Fluvanna	0.009	0.005	0.011	0.0000
Fredericksburg	0.010	0.009	0.011	0.0002
Halifax	0.023	0.030	0.020	0.0000
Louisa	0.035	0.022	0.042	0.0000
Madison	0.023	0.015	0.026	0.0000
Mecklenburg	0.144	0.216	0.108	0.0000
Prince George	0.038	0.041	0.036	0.0000
Rockbridge	0.145	0.072	0.181	0.0000
Shenandoah	0.120	0.055	0.154	0.0000
Southampton	0.061	0.093	0.044	0.0000
Warren	0.035	0.013	0.045	0.0000
York	0.036	0.036	0.034	0.0614
Observations	261,432	87,468	173,964	

NOTE: The last column presents the *p*-value from a hypothesis test for whether the values for White motorists were significantly different from the values for Black motorists.

additional results provide evidence that our driving history measure does capture some relevant variation (because it behaves in the way we would expect), as well as some context on the extent to which the measure may understate actual driving history.

Only 0.7 percent of individuals in the sample had prior non-traffic criminal convictions from the previous three years in all Virginia circuit courts and in the 18 district courts used for analysis. Again, our measure of criminal history likely understates true incidence because, although the measure captures a relatively broad geographic area, criminal history is traditionally measured over an individual's lifetime as opposed to the prior three years. However, the extremely low incidence rate does provide evidence that most of the individuals in our analysis sample did not have much presence in the traditional criminal justice system.

The final set of rows in Table 2.1 presents information on the counties in which the motorists were cited. There are clear racial differences in where motorists were cited, which likely reflects, at least partly, the different racial compositions of those counties and their surrounding areas. In Table C.2 in Appendix C, we present further descriptive information about each of the counties in our sample. The statistics indicate that there was substantive variation across counties in terms of the racial composition of residents, the speed limits of the areas where individuals were cited, and the proportion of speeding violations that were classified as misdemeanors by law enforcement.



## The Process for Charging and Adjudicating Reckless Speeding Violations

Virginia law allows law enforcement officers to charge a motorist with reckless speeding if the person is traveling 20 mph or more over the speed limit or, during our study period, more than 80 mph at any speed limit.<sup>1</sup> This charge is classified as a first-degree misdemeanor, punishable by up to 12 months in jail. Motorists traveling over the speed limit but under the reckless speeding limits are to be charged simply with speeding, which is a general moving violation (or infraction) and can be punishable only by fine. However, within the confines of these laws, both law enforcement officers and the courts have substantial discretion in how reckless speeding violations are classified.

Although discretion in speeding violations has been examined in prior literature (see Anbarci and Lee, 2014; Goncalves and Mello, 2021), our study is somewhat new because we are examining the decision on whether the charge is classified as a criminal violation. Furthermore, we are looking at multiple stages of the process, which, to our knowledge, has not been examined previously with speeding violations. For these reasons, we detail in this chapter how reckless speeding violations are handled from the initial interaction with the law enforcement officer to the final case disposition. At each key decision point, we note the information that is likely to be taken into account by either the law enforcement officer or the court (judge, prosecutor, or both). This process mapping informs our discussion in Chapter Five, when we examine whether there are racial disparities in the rate at which these potential misdemeanor speeding charges are downgraded.

It is important to preface this discussion by noting that, because of data availability, our focus is on the process that occurs after the decision to issue a speeding citation has been made. This analysis ignores the decision points for who gets stopped and which stopped motorists then get issued a citation. These are both important components of the overall process determining who gets convicted of a misdemeanor speeding charge among everyone committing that offense. In Chapter Six, we discuss the implications that this can have on our central conclusions regarding racial disparities in misdemeanor speeding convictions.

Our descriptions of the processes, as well as all of our subsequent analyses, focus on whether an individual's speeding charge was classified as a misdemeanor (versus an infraction) and do not consider whether the motorist was actually charged with speeding or reckless speeding. Generally, there was almost a one-to-one correspondence between the charge type and the classification, whereby all those charged with speeding had the charge classified as an infraction and all those charged with reckless speeding had the charge classified as a misdemeanor. However, in our main analysis sample, we find a few deviations from this; in particular, 0.1 percent of the time, a motorist was charged with a speeding violation that was classified as a misdemeanor, and 0.4 percent of the time, a motorist was charged with a reckless speeding violation that was

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<sup>1</sup> Virginia Criminal Sentencing Commission, 2015, p. 133. As noted earlier, in Virginia, this violation is technically listed as *reckless driving—speeding*, but for simplicity, we refer to it in this report as *reckless speeding*. Note also that officers can charge motorists with this violation for traveling at speeds unreasonable for the conditions, but we do not consider that violation in this study. In July 2020, Virginia raised the 80 mph threshold to 85 mph, but the threshold was 80 mph throughout our study period.

classified as an infraction. We chose to focus on whether the charge was classified as a misdemeanor, because that is the outcome that is likely to have the most-substantial impact on an individual.

Our understanding of the charging and adjudication processes comes from several sources, including written laws and official documents, the data on speeding citations described in Chapter Two, interviews that we conducted with law enforcement officers and public defenders in Virginia, and interactions that we have had with motorists charged with this offense in Virginia.<sup>2</sup> In the next section, we discuss the mechanisms through which law enforcement officers can downgrade the charges for motorists who are caught speeding in a misdemeanor range, as well as what factors seem to influence this decision. Later, we discuss the subset of speeding violations that officers charge as a misdemeanor to detail how these cases get adjudicated by the courts.

## The Law Enforcement Stage

When officers pull over a motorist for speeding in the reckless range, they have two options to downgrade the charge from a misdemeanor. First, officers can choose to cite the motorist for a speed that is not in the reckless range, which automatically means that the motorist is charged with an infraction. Alternatively, officers can cite the motorist for the speed the person was indeed traveling (in the reckless range) but choose to classify that as an infraction (as opposed to a misdemeanor). As noted in Chapter One, these options are known as *charge reductions* or *discounts*. We discuss each of these two forms of discretion in more detail in this section and then discuss the likely factors that law enforcement officers consider when they make these decisions.

### Discretion in Cited Speed

Once a law enforcement officer stops a motorist for speeding, one of the first decisions they have to make is what speed to issue the citation for. Officers use a variety of technologies to estimate relatively accurately the speed at which a motorist is traveling.<sup>3</sup> However, it is generally believed that officers have wide discretion in the speed they list on the citation, although the ability to use discretion at this stage likely differs across law enforcement agencies. Because officers in Virginia record only one speed on a citation and do not note whether this speed has been discounted, the easiest way to examine the extent to which discretion is used by law enforcement is to examine the data for the frequency distribution of cited speeds.

Before we look at the distribution of cited speeds, it is useful to think about what the distribution would look like if officers were not using discretion in how they cite speeds. The distribution of true speeds (i.e., non-discounted speeds) among cited motorists for a given speed limit is formed by multiplying the number of individuals traveling at a given speed by the proportion of those individuals who will be issued a speeding violation (the *enforcement rate*). The distribution of speeds that motorists are traveling in a given area has generally been shown to be normally distributed, and the speed limit in an area is sometimes set such that it is at the 85th percentile of this distribution (Donnell et al., 2009). The enforcement rate across all officers should increase as speed traveled increases, although, without data, it is difficult to know precisely how the

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<sup>2</sup> We spoke with representatives from one law enforcement agency and three public defenders representing different regions in Virginia. We requested interviews with several additional law enforcement agencies, as well as prosecutors and judges, but these individuals did not respond to multiple interview requests.

<sup>3</sup> Officers can use radar and laser guns to measure speed relatively accurately. Officers can also use the pace method, which involves staying within the same distance of the motorist for a period of time and using their own speedometer to measure the motorist's speed. The pace method is likely to result in a rougher estimate of motorist speed.



enforcement rate varies across speeds. For example, there might be a large discontinuity in enforcement rates if most officers generally do not stop motorists traveling less than 15 mph over the limit but do start enforcing the speed limit at 15 mph over the speed limit. On the other hand, enforcement rates could increase more gradually if there is more variation in enforcement cutoffs across officers or if officers tend to gradually increase enforcement rates as speed increases (as opposed to it being a binary decision to either enforce or not enforce). However, regardless of what the enforcement rate distribution looks like, we would expect the distribution of true speeds among cited drivers to be continuous for the majority of the distribution. If there is a discontinuity in enforcement rates, the distribution of true speeds among cited drivers should be relatively continuous after that point. If enforcement rates gradually increase, we would expect the distribution of true speeds among cited drivers to be relatively continuous throughout the whole distribution.

### Distribution of Cited Speeds

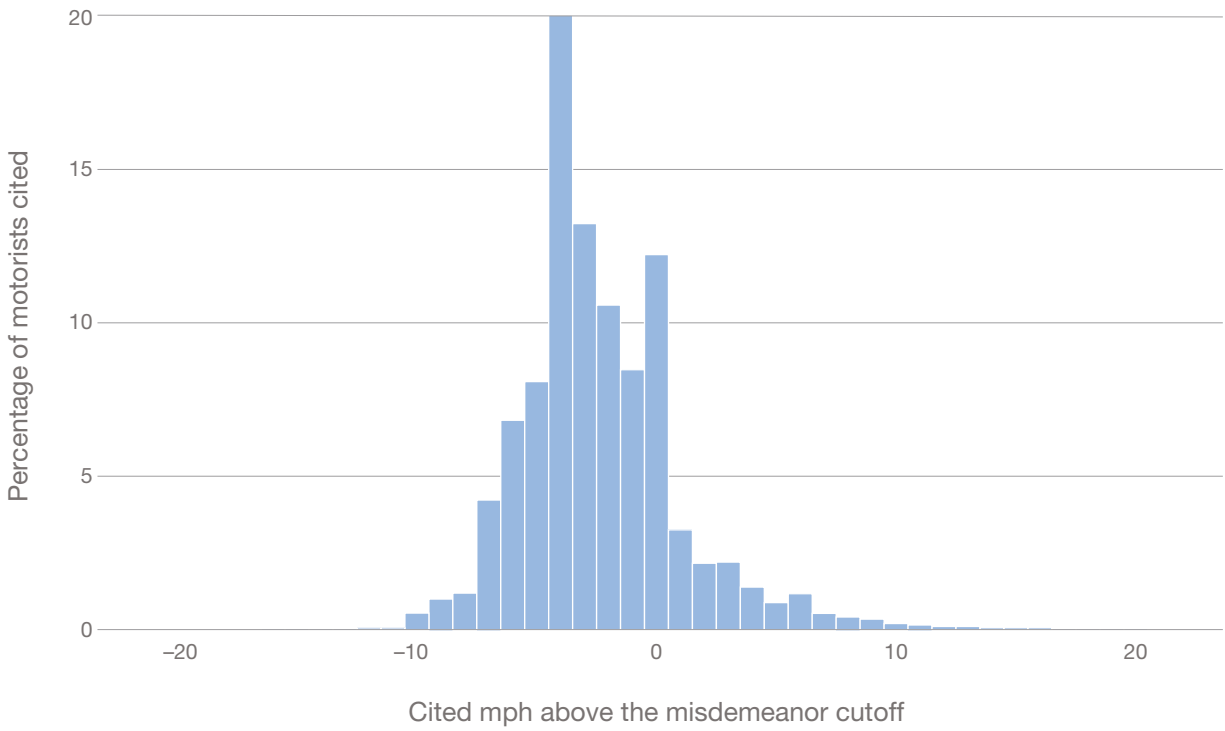
In Figures 3.1–3.3, we present three histograms, each presenting the distribution of miles per hour above the misdemeanor cutoff that the motorist was cited for a given set of speed limits. We use the full sample of speeding citation data for these histograms (i.e., we do not restrict the sample to citations that were at or above the misdemeanor cutoff), although we truncate speeds that were more than 20 mph over the cutoff. A value of zero corresponds to a speed cited at exactly the cutoff, so any citations over zero were eligible to be charged with a misdemeanor. We grouped the seven speed limits from the data set into three categories—(1) 25, 35, or 45; (2) 55 or 60; (3) 65 or 70—because the separate distributions for each speed limit within each grouping looked very similar, and it is more manageable to work with a smaller set of histograms.

All three histograms show clear evidence that there was *bunching* (i.e., excess mass) at the misdemeanor cutoff. Prior literature in this area has interpreted this bunching in speeding distributions as evidence that officers are choosing to discount motorist speed (Anbarci and Lee, 2014; Goncalves and Mello, 2021).<sup>4</sup> In this case, the distributions indicate that officers were likely choosing to cite speeds at the misdemeanor cutoff for some motorists who were traveling at speeds above the cutoff. Although there are a few other speeds besides the cutoff that exhibit either a discontinuity or excess mass, these are not necessarily related to speed-discounting to avoid charging a motorist with a misdemeanor. For example, in Figure 3.1, there is a large amount of motorists who were stopped at 4 mph below the reckless cutoff, which corresponds to driving 15 mph over the speed limit. This could occur if there was a discontinuous increase in the rate of enforcement at this speed. Furthermore, officers who were using less-exact methods to identify speed (such as the pace method) might have been likely to cite a round number (i.e., cite the motorist for going 40 mph in a 25-mph zone) when they had to approximate speed. Note that the penalties assessed to drivers cited below the cutoff are relatively continuous, as each additional mile per hour over the speed limit resulted in a fine that was \$5–\$6 higher. In zones with a speed limit between 25 and 60 mph, drivers who were cited going between 10 and 19 mph over the limit received more points against their driving record than drivers who were cited going between 0 and 9 mph over the limit, but hardly anyone was cited at this lower range. There thus do not seem to be other apparent reasons why one would expect to see discontinuities in these distributions outside what we have already discussed.

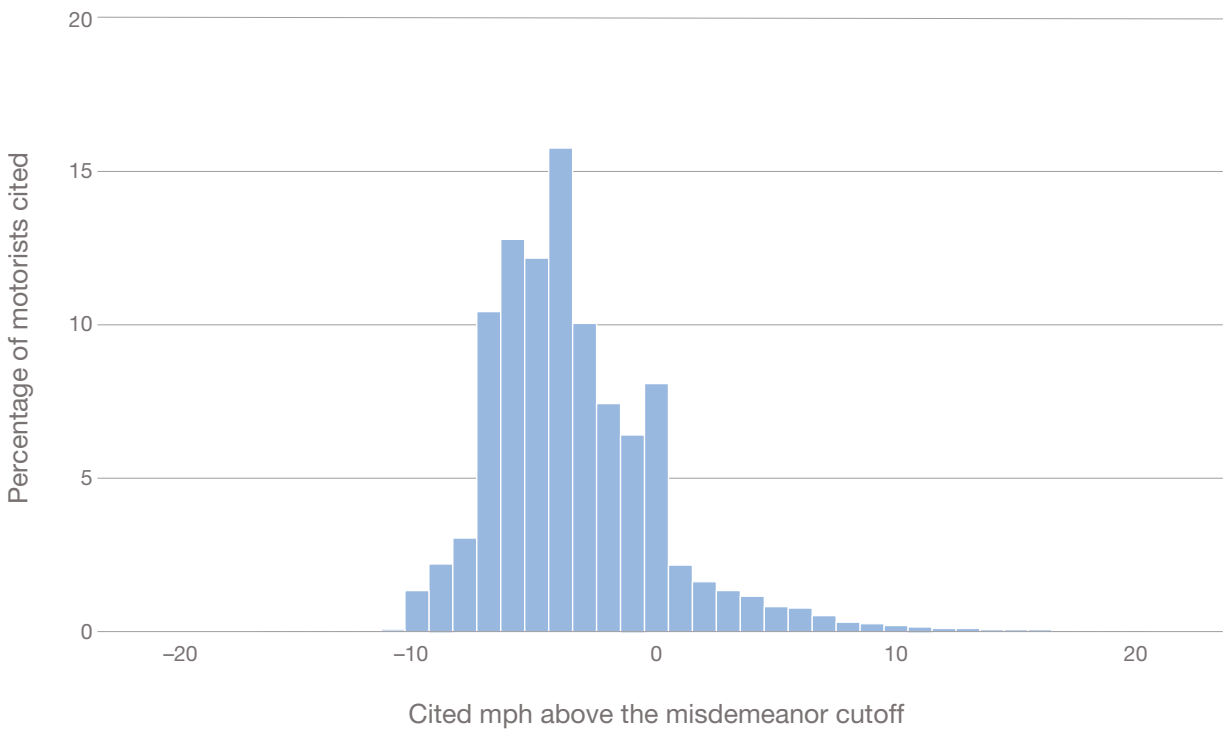
Another possible interpretation of the bunching that occurs at the misdemeanor cutoff is that motorists intentionally drive at a speed just below the cutoff to avoid receiving the harsher penalty. Although there is potential that some of this bunching reflects motorist behavior, we believe, for several reasons, that the majority of the bunching is due to officer behavior. First, it is to be expected that not all officers discount speeds, and, following Goncalves and Mello (2021), we detail in Appendix A how we identified officers who

<sup>4</sup> Bunching has also been examined in other areas. Saez (2010) examined whether taxpayers bunch at kink points, and Tuttle (2019) examined bunching in the distribution of drug amounts used in federal sentencing.

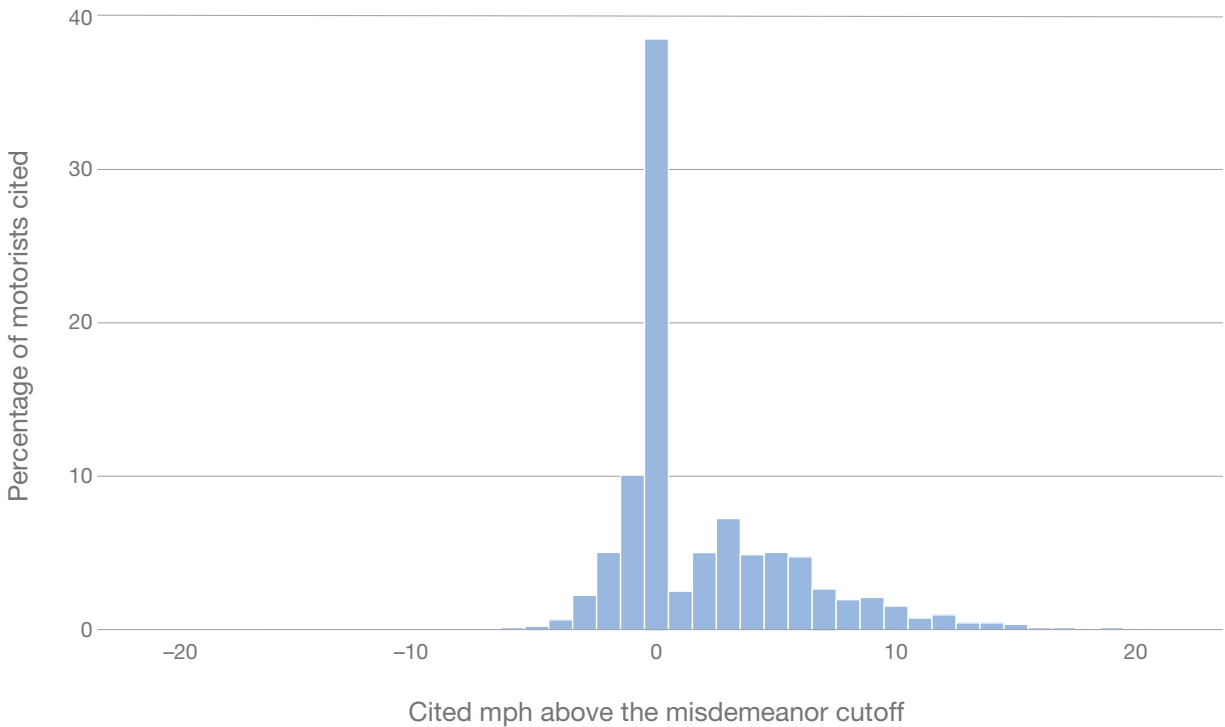
**FIGURE 3.1**  
**Distribution of Cited Speeds in Speed Limit Zones of 25, 35, or 45 mph**



**FIGURE 3.2**  
**Distribution of Cited Speeds in Speed Limit Zones of 55 or 60 mph**



**FIGURE 3.3**  
**Distribution of Cited Speeds in Speed Limit Zones of 65 or 70 mph**



were not engaging in speed-discounting when issuing citations. We found that, among officers who had more than 200 stops in areas where the speed limit was between 25 and 60 mph, 10 percent had cited speed distributions where this bunching pattern was not present; this finding indicates that the bunching pattern was not driven by motorist behavior but rather by officer behavior. Second, when motorists drive in areas with a speed limit of either 65 or 70 mph and consciously choose their speed, it seems irrational to drive at exactly 80 mph, because a lot of citations are given out at that speed (even if they are not misdemeanor charges). If a motorist were consciously setting her speed, it seems more rational for her to drive at between 75 and 77 mph rather than at 80 mph, because, at the lower speed, she would virtually never be cited. This bunching at 80 mph indicates that motorists are not really aware of these rules. Third, almost 60 percent of cited drivers in our sample were from out of state, so many of them likely would not be privy to how speeding laws are enforced in Virginia.

Proxy Measure for Discretion in Cited Speed

To analyze whether this practice of reducing speeds to the misdemeanor cutoff might vary across groups (in our case, racial groups), it is useful to have a measure of the proportion of motorists who benefit from this practice. Because we could not observe the actual speeds that motorists were traveling, we cannot identify this proportion precisely. However, following Anbarci and Lee (2014), we can employ the following measure as a proxy for the amount of discounting used:

$$\frac{\text{Number of motorists cited at the misdemeanor cutoff}}{\text{Number of motorists cited between the misdemeanor cutoff and 15 mph above the cutoff (inclusive)}}$$

All individuals who are cited for a speed at the cutoff are not eligible for a misdemeanor charge, so their speeding charge is automatically classified as an infraction. Those who are cited for a speed between 1 and 15 mph over the cutoff are eligible to be charged with a misdemeanor. In this way, our measure is a proxy for the proportion of motorists caught driving 1–15 mph above the cutoff who benefit by having their speed reduced to the cutoff.

There are several implicit assumptions being made with the use of this proxy. First, this proxy measure ignores all speeding citations for speeds below the misdemeanor cutoff, so we are implicitly assuming that, if an officer were going to discount a motorist's speed, he would cite that person for a speed right at the cutoff rather than below that cutoff. This assumption is reasonable because the main other speed that has excess mass occurs at 15 mph over the speed limit for areas with a speed limit between 25 and 60 mph (see the bar at –4 mph in Figures 3.1 and 3.2). As discussed earlier, this excess mass likely occurs for reasons outside of discounting motorists' speed to below the misdemeanor cutoff. For the violation of this assumption to affect our racial disparity results described in Chapter Five, officers would need to be disproportionately discounting motorists of one race over another to a lower cutoff.

Second, this proxy measure assumes that officers do not cite motorists at a speed greater than what they were traveling; thus, our assumption is that all motorists issued citations at exactly the misdemeanor cutoff speed were either going right at or above the cutoff speed. Third, we assume that officers do not apply this form of discretion to motorists who are going more than 15 mph above the cutoff. We made this assumption mainly for convenience, because only 0.5 percent of the observations exceeded 15 mph above the cutoff. Using such observations (which are relatively extreme outliers) detracted from the histograms and required us to use a large amount of speed controls in the regression models when we examined court outcomes.

Finally, even with the aforementioned assumptions, our measure is still considered a proxy because some proportion of motorists cited exactly at the cutoff were indeed going that speed, yet our proxy counts them as receiving a benefit even though they were not. Although this proxy measure works fine for rough comparisons, we consider the impact that it might have when we use it to measure racial disparities in Chapter Five.

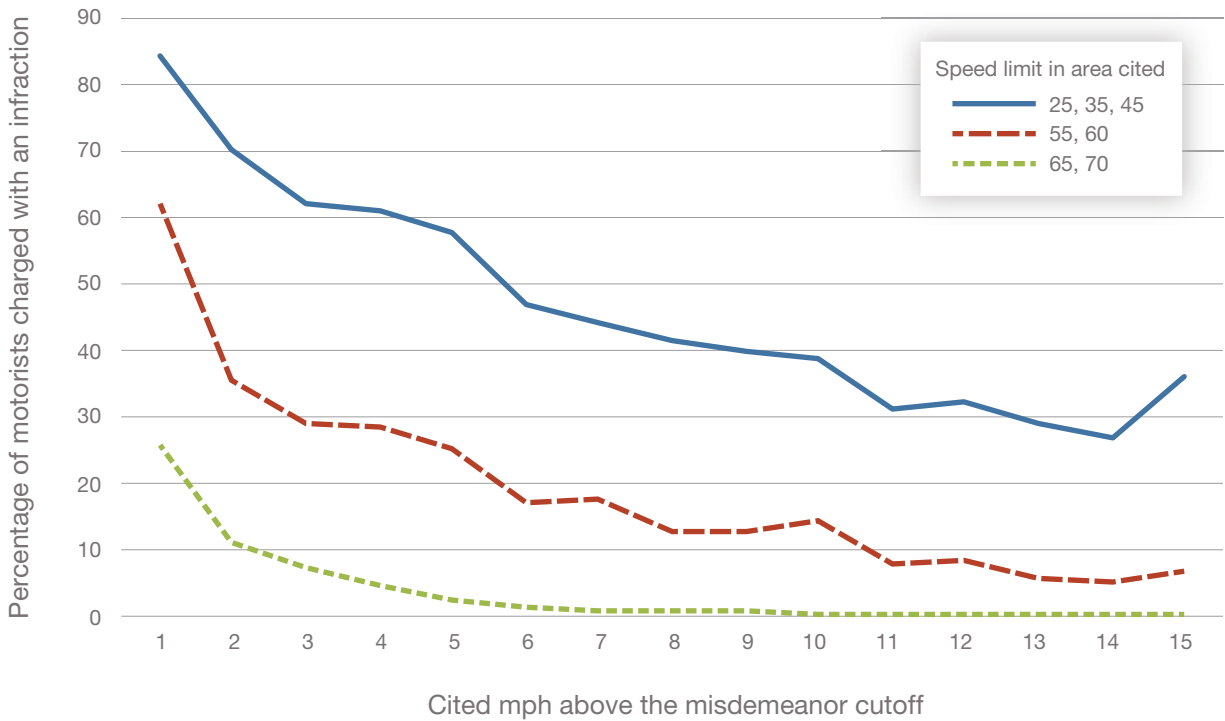
Despite the potential limitations of this measure, it is still a useful indication of how the use of discretion by law enforcement varies across groups. The value of this measure (i.e., the number of motorists cited at the misdemeanor cutoff divided by the number of motorists cited between the misdemeanor cutoff and 15 mph above the cutoff) is 48 percent for Figure 3.1, 45 percent for Figure 3.2, and 48 percent for Figure 3.3. In other words, between 45 percent and 48 percent of motorists driving 1–15 mph above the cutoff (potentially) benefited by having their speed reduced to the cutoff.

From this point forward, we refer to the set of motorists cited for speeds between 0–15 mph above the cutoff as those who were cited for speeding *in the misdemeanor (or reckless) range*. As noted earlier, this is not a completely correct statement, because the motorists who were actually driving right at the cutoff speed were not in the misdemeanor range. However, we expect that this was a relatively small percentage of the group, so we refer to this group in this way for simplicity. When we describe conclusions that specifically rely on this assumption, we are more explicit about that fact.

## Discretion in How to Classify Speeds Cited Above the Misdemeanor Cutoff

Even when law enforcement officers cite a motorist for a speed that is above the misdemeanor cutoff, they have discretion in whether they classify this speeding charge as an infraction or a misdemeanor. Note that the law *allows* law enforcement officers to charge a motorist with a misdemeanor but does not *require* them to do so. Figure 3.4 shows the percentage of individuals who were cited for a given speed above the misdemeanor cutoff yet had their charge classified as an infraction. We show the results separately for the three speed limit groupings. As the figure indicates, officers were less likely to downgrade how a charge was classified as the

**FIGURE 3.4**  
**Percentage of Motorists Charged with an Infraction When Cited for a Speed Above the Misdemeanor Cutoff**



motorist’s cited speed got further away from the cutoff. It is also evident that speeding violations above the misdemeanor cutoff were more likely to be classified as an infraction when the speed limit was lower.

### What Factors Affect Outcomes at the Law Enforcement Stage?

The results shown in these figures make clear that law enforcement officers have a lot of discretion when citing motorists for excessive speed; in particular, there are no set laws that perfectly prescribe the charge that must be applied for a given motorist’s behavior. Across all speed limits, 58 percent of motorists cited for speeding 0–15 mph above the cutoff had their charge classified as an infraction, which indicates that officers are discounting charges at a substantial rate. In this section, we consider what factors might influence whether law enforcement officers choose to discount a misdemeanor charge down to an infraction.

Figure 3.4 makes it clear that the speed that an individual is traveling and the speed limit in the area where the motorist is stopped likely play a significant role in the officer’s decision. At the time of the motor vehicle stop, an officer may have access to information about the motorist’s driving record, and if the motorist has any prior driving violations, that might play a factor in the officer’s decision. We were not able to verify the exact information that officers in Virginia check when they pull over a motorist for speeding, and this might vary greatly among the law enforcement agencies that conducted stops in our analysis sample. Although it is standard practice for officers in most states to check for a valid license and registration, it is sometimes left up to the officers’ discretion which databases (e.g., driving records and criminal records) to consult, and the policies regarding which databases are readily available to law enforcement officers in their vehicles vary by state and law enforcement agency. In particular, some states allow officers to access an out-of-state driver’s record in that person’s home state, while other states do not have this capability.

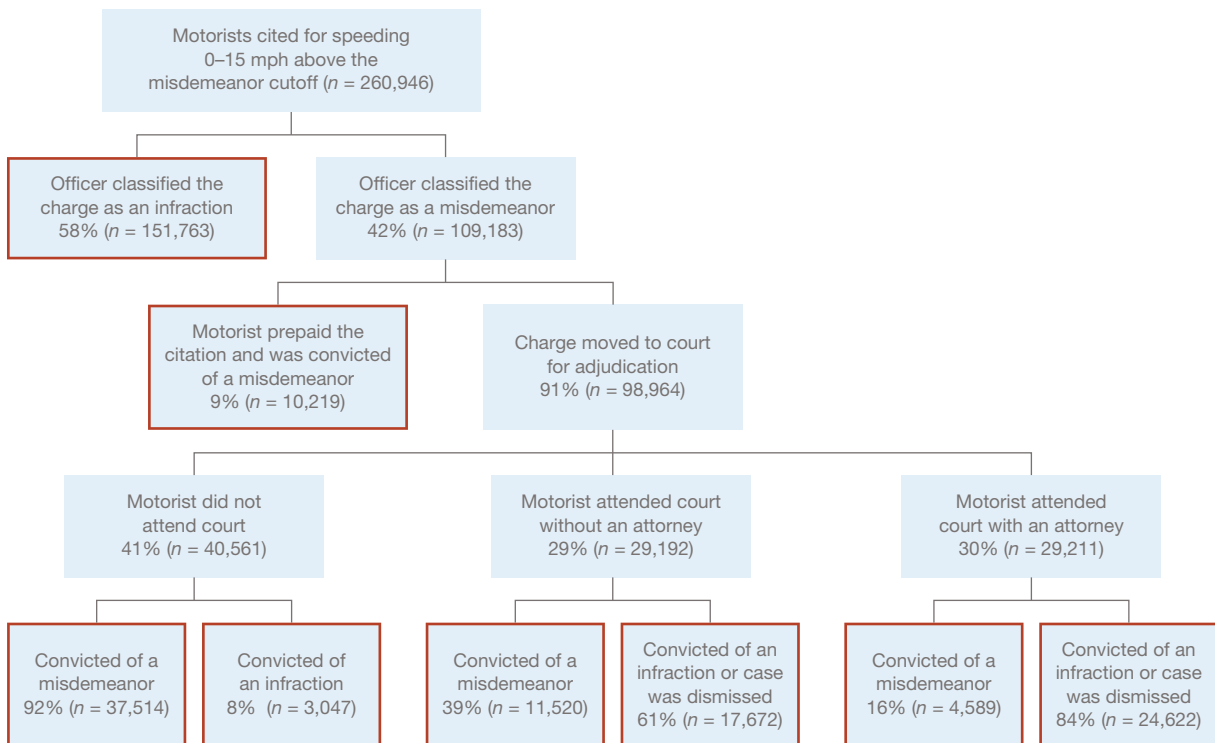
Our discussions with law enforcement officers indicated that they also take into account the full context of the situation when deciding how to charge the individual. For instance, officers noted that, when there is a child in the car or heavy traffic on the road, they are more likely to charge the motorist with a misdemeanor.

Table C.3 in Appendix C shows that, in our sample, the county where the stop occurred also had a large impact on whether officers discounted the charge. For example, among those driving in the reckless range who were cited in areas where the speed limit was 25, 35, or 45 mph, 95 percent of motorists in Chesterfield County had their charge classified as an infraction, while 54 percent of motorists in Prince George County received this benefit.

## The Court Stage

Figure 3.5 presents a process map showing which cases from our main sample (for which a final disposition was observed) moved on to the court stage, as well as how outcomes for these cases were adjudicated in the court system. Each of the boxes highlighted in red represents what we considered to be an end stage of the process. Our main sample begins with the cases in which law enforcement officers cited an individual at a speed between 0 and 15 mph above the misdemeanor cutoff. As noted in the previous section, law enforcement officers in our sample classified 58 percent of these motorists' cases as infractions. Although these motorists could still go to court to try and further reduce their charges, we considered that discounted charge

**FIGURE 3.5**  
**Process Map of How Speeding Citations in the Reckless Range Were Handled**



NOTE: Boxes outlined in red indicate an end stage in the process. We could not identify final adjudication details on 486 of the cases in our full sample of 261,432.

to be an end stage because, regardless of what happened in court, the motorists would not be convicted of a misdemeanor. We thus did not follow what happened to that set of motorists any further.<sup>5</sup>

For the remaining 42 percent of motorists who were charged with a misdemeanor, the charge that they were eventually convicted of (if any) depended on what happened in court. During this process, the court can convict the motorist of the misdemeanor charge, amend the charge downward (typically to an infraction), or dismiss the charge entirely. Next, we discuss in more detail how this process works, as well as the factors that the courts (judges and prosecutors) are likely to consider when making a decision.

## Court Adjudication Process

Although most of the state-level documentation describing the process for motorists charged with a misdemeanor in Virginia indicates that they need to attend court to have their charge adjudicated, officers can allow individuals to prepay the ticket. To do so, officers can check a box on the citation that they give to the motorist during the traffic stop. Individuals who receive this option can then plead guilty and prepay their fine (either by mail or online). These individuals then do not need to go to court, but they are automatically convicted of a misdemeanor. We could not determine the percentage of citations for which the officer allowed the motorist to prepay a ticket, because we observed in the data only whether the motorist prepaid the fine (which means that the officer made the offer and the motorist accepted it). Whether motorists exercised the prepayment option depended heavily on the county of the stop: Almost all instances of prepaid misdemeanor charges occurred in Mecklenburg and Southampton counties. This indicates that certain counties allowed officers to use this option but most counties did not. Across all counties, however, the likelihood that a prepayment option was offered seems relatively slim, so most individuals were required to go to court. As shown in Figure 3.5, 9 percent of motorists charged with a misdemeanor prepaid the ticket.

The remaining 91 percent of the individuals charged with a misdemeanor at the law enforcement stage thus had to go to court to have their case decided. We did not observe whether a prosecutor was present at those hearings, and we expect that a prosecutor's presence likely varied by jurisdiction. If a prosecutor is present, her preferences are likely to affect the outcome, although the judge makes the final decision. For simplicity, we refer to the decisionmaker at this stage as *the court*. Misdemeanor speeding cases are usually disposed of during the initial hearing. Although these cases are relatively straightforward in that the motorist is likely guilty of what the law enforcement officer charged him with, the court can still choose to amend the charge to an infraction even when it seems clear that the motorist is guilty of the original charge. Whether the court does reduce the charge to an infraction depends on a variety of factors that we touch upon here and then explicitly discuss in the next section. If the court does discount the charge, it is typically reduced to speeding at a lower level, improper driving, or defective equipment (e.g., a faulty speedometer), or the charge can simply be dismissed.

We could not observe in our data whether an individual showed up for court, but we used two variables as a proxy for this factor. First, we observed whether an individual had an attorney (the data record the attorney's name). Often, motorists are allowed to have an attorney represent them in court and do not need to show up themselves. This is especially helpful for individuals who are from out of state, because they can hire a local lawyer and not need to travel back for the court date. Thus, for any individual who had a lawyer's name listed, we coded that person as attending court. It is important to note that, in Virginia, the court provides

<sup>5</sup> The court does have the discretion to upgrade an infraction to a misdemeanor if the cited speed is above the cutoff, although this rarely happens in practice. Of the motorists in our sample who were charged with an infraction after being cited at a speed above the cutoff, only 0.06 percent had their charge upgraded by the court to a misdemeanor. None of the individuals with upgraded charges had prepaid their tickets, so the data indicate that an upgrade typically happened only if the individual chose to challenge the original infraction citation in court.

defense representation (i.e., a public defender) only if there is a potential for jail time. Reckless speeding is a Class 1 misdemeanor for which the sentence can be up to one year in jail, but in practice, jail time for these cases is typically waived, so the vast majority of motorists are not provided with defense representation by the court. This implies that almost everyone in our sample that did have an attorney acquired that representation privately.

When cited motorists do not have an attorney, there are several possible case dispositions: A motorist can have her case dismissed, or she can be considered not guilty, guilty, or guilty in absentia. We assume that if an individual did not show up for court and had no attorney, she would have a disposition of guilty in absentia. That assumption requires that the court did not dismiss a charge for a motorist who did not show up, and the court recorded the disposition as guilty in absentia versus guilty. Although these misdemeanor charges technically carry the possibility of jail time upon conviction, prosecutors typically waive jail time in advance, so the judge is free to convict motorists in their absence. This outcome seems to be common. In our sample, 41 percent of the individuals who were supposed to go to court were found guilty in absentia (in Figure 3.5, the motorists who did not attend court). Our classification scheme automatically means that everyone identified as not showing up for court was convicted, but that does not necessarily mean that the person was convicted of a misdemeanor; indeed, in 8 percent of these cases, the motorist was convicted of an infraction.

We assume that the remainder of the cited motorists—those who either had a lawyer or did not have a disposition of prepaid or guilty in absentia—attended court. In Figure 3.5, we further split this group into those who attended with an attorney and those who attended without an attorney. The incidence of having a misdemeanor charge dismissed or downgraded to an infraction was quite frequent among cited motorists who attended court and was even more frequent among those who attended court with an attorney.

## What Factors Affect Outcomes at the Court Stage?

The process outlined in the previous section indicates several factors that are likely to affect whether an individual charged with a misdemeanor speeding violation has the charge downgraded to an infraction or dismissed at the court stage. First, Figure 3.5 makes it apparent that the individual's attendance at the court hearing and the involvement of an attorney significantly increase the likelihood of the charges being downgraded or dismissed. Table 3.1 shows the proportion of motorists with a given characteristic who prepaid the ticket, did not attend court, attended court without an attorney, or attended court with an attorney. We estimated the numbers in this table using the sample of motorists who were charged with a misdemeanor speeding violation by law enforcement. The results indicate that Black motorists were much more likely than White motorists to not attend the hearing, and White motorists were much more likely to attend the hearing with an attorney. Out-of-state drivers were much more likely than in-state drivers to not attend the hearing. Compared with individuals cited in other speed limit groups, motorists cited in areas with a speed limit of 65 or 70 mph were also more likely to not attend the hearing, likely partly because out-of-state drivers constitute a higher percentage of motorists cited in those speed limits than at other speed limits.

Figure 3.6 indicates that, in addition to being influenced by whether the motorist attended court and had an attorney present, the court's final disposition was influenced by how much above the misdemeanor cutoff the individual was cited. To create this figure, we used data from the sample of motorists who were charged with a misdemeanor by law enforcement and who attended the court hearing. We used this subsample because, as shown in Figure 3.5, there was a reasonable amount of variation among this group in who had their charge downgraded to an infraction or dismissed by the court, so it is useful to examine what factors might explain this variation. In contrast, among those who prepaid their citation fine or did not attend court, almost everyone was convicted of a misdemeanor, so other factors likely do not matter much in those situations. Figure 3.6 shows the percentage of motorists at each cited mile per hour above the misdemeanor cutoff who had the charge downgraded to an infraction or dismissed by the court. It is evident that the cited

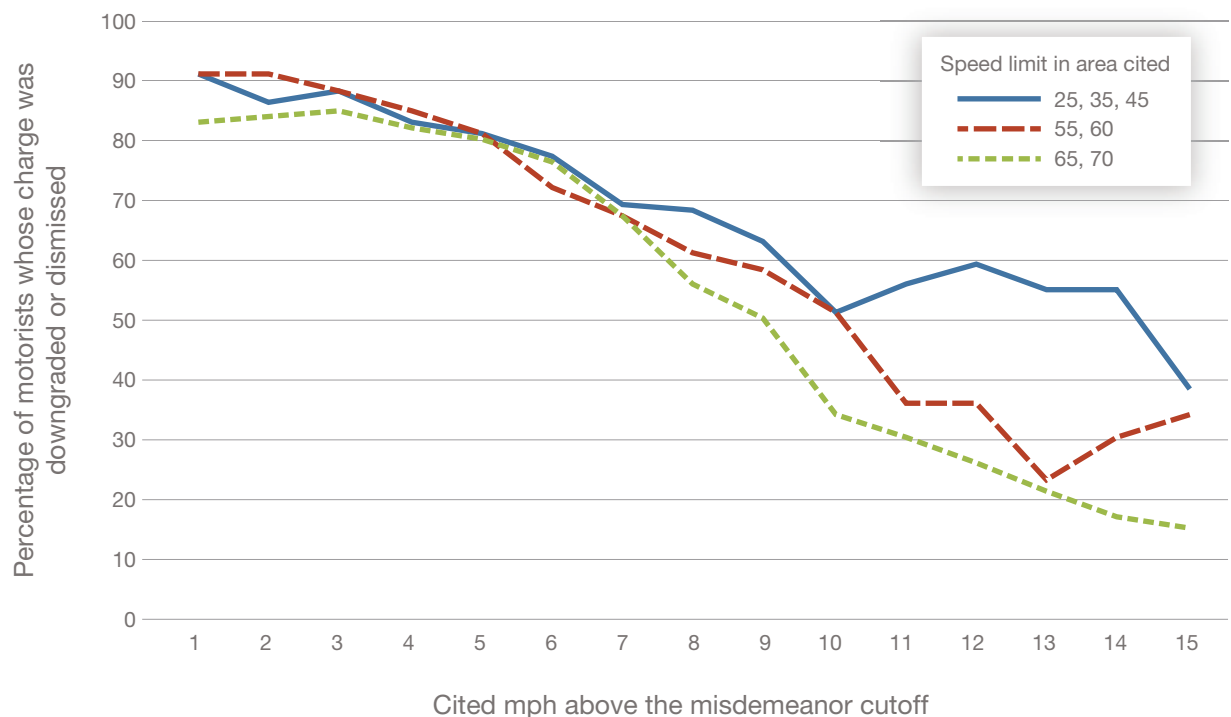


**TABLE 3.1**  
**How Court Pathways Differ Across Motorist and Case Characteristics**

	Prepaid Ticket	Did Not Attend Court	Attended Court Without an Attorney	Attended Court with an Attorney
White motorists	0.080	0.313	0.281	0.326
Black motorists	0.112	0.453	0.248	0.187
Men	0.093	0.369	0.257	0.280
Women	0.094	0.375	0.283	0.248
In-state driver	0.061	0.180	0.497	0.262
Out-of-state driver	0.109	0.458	0.163	0.270
Speed limit in area cited				
25, 35, 45	0.031	0.180	0.537	0.253
55, 60	0.104	0.289	0.375	0.232
65, 70	0.098	0.409	0.216	0.277
Miles per hour above the misdemeanor cutoff				
1–5	0.109	0.372	0.262	0.257
6–10	0.074	0.377	0.275	0.274
11–15	0.057	0.348	0.272	0.324

NOTE: This table restricts the main analysis sample to motorists who were charged with a misdemeanor by law enforcement and for whom we could observe the court outcome ( $n = 109,183$ ). The table shows the proportion of each group in each court pathway.

**FIGURE 3.6**  
**Percentage of Motorists Who Attended Court and Had the Misdemeanor Charge Downgraded or Dismissed**



speed above the cutoff affected the likelihood that charges were downgraded or dismissed, but the speed limit in the area cited did not seem to matter much.<sup>6</sup> Table C.4 in Appendix C shows that the likelihood that an individual's charges were downgraded or dismissed by the court varied substantially across the 18 counties in our sample.

In addition to considering the aforementioned factors, the court likely takes into account the motorist's previous driving history when determining how to adjudicate the charge. According to our discussions with public defenders and motorists who have been through this process, judges in some jurisdictions may expect motorists to complete a driver improvement clinic before showing up at their court hearing. According to the Virginia Department of Motor Vehicles (undated-a), "These eight-hour classroom sessions cost no more than \$100 and are offered at sites around the state and as a computer-based course on the Internet." Judges who have this expectation are extremely unlikely to downgrade the charges for motorists who do not complete the course beforehand. Private attorneys typically know what actions the judges in their jurisdiction expect motorists to take in advance of the hearing; thus, motorists might be likely to take this class mainly because they hired an attorney who advised them to do this. The court may also consider whether the motorist was cooperative with the law enforcement officer during the stop and whether the motorist had any reasonable justification for why he was speeding. However, we were not able to observe these factors (i.e., participation in a driver improvement clinic, cooperation with the officer, and the extenuating circumstances of the stop) in the data.

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<sup>6</sup> Although the pattern for motorists stopped in areas with speed limits of 25, 35, or 45 mph strays somewhat from the downward sloping trend, there were very few observations in the tail for this group (only 483 motorists cited at 11-15 mph above the cutoff).

## The Impacts of Receiving a Misdemeanor Speeding Conviction

Our focus in this chapter is on the impacts of a cited motorist receiving a misdemeanor conviction as opposed to a more lenient disposition. Although individuals convicted of a misdemeanor speeding violation can go to jail and can have their driver's license suspended by the judge, these two outcomes are relatively rare for motorists convicted of reckless speeding and are likely inflicted only on the very riskiest of drivers (who likely would not have been eligible to have their misdemeanor conviction discounted). In particular, of those convicted of a misdemeanor speeding violation in our sample, only 0.6 percent received jail time and 11 percent had their license directly suspended at the court hearing. Thus, we instead focus on the three ways that a misdemeanor conviction likely affects all individuals convicted of the charge: the presence of a criminal record, higher fines and fees, and a worse driving record. Note, however, that even before the final disposition, the intermediate disposition by the law enforcement officer can have important impacts. In particular, motorists who are charged with a misdemeanor are generally required to make an appearance in court, and many of those who appear in court spend significant resources on an attorney.

### Presence of a Criminal Record

First and foremost, individuals who are convicted of a misdemeanor speeding violation by the court will have a criminal record. Whether this conviction shows up on a background check depends on which records are examined. If a background check is conducted through the Federal Bureau of Investigation or through the state (which checks Virginia's Central Criminal Records Exchange), it is unlikely that a reckless driving conviction will show up, because this generally is not an offense that requires taking fingerprints, and those record repositories typically include only offenses for which fingerprints are collected.<sup>1</sup> However, if Virginia court records (which are publicly available online) are searched, this conviction will show up as long as it occurred within the previous ten years of the search. This conviction will also show up on a driver's record check if it occurred within the previous 11 years. Regardless of whether the conviction shows up on a background check, many individuals are asked about whether they have ever been convicted of a misdemeanor when they apply for a job, housing, a security clearance, or a professional license. A reckless driving conviction ensures that these individuals should check yes.

Although it is unlikely that a misdemeanor reckless driving conviction will automatically disqualify someone from what they are seeking (e.g., employment, housing), it is a factor that likely will be considered. To the extent that decisionmakers view this offense as a standard misdemeanor, a conviction could have a detrimental impact on the individual. Furthermore, it is likely that the conviction might do more harm for

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<sup>1</sup> See Virginia State Crime Commission (2018), which notes the types of offenses that are reported to Virginia's Central Criminal Records Exchange (generally, offenses for which fingerprints are collected).

Black applicants than for similar White applicants: A previous audit study by Pager (2008) indicated that the impact of a criminal record on employment opportunities for Black applicants was significantly worse than it was for White applicants.

An additional implication of receiving a misdemeanor conviction is that, under Virginia's sentencing guidelines, it counts as part of an individual's prior record if the person is being sentenced for a new crime.<sup>2</sup> Depending on the situation, having that prior conviction can increase the individual's recommended sentence for the new offense.

## Higher Fines and Fees

An individual convicted of any charge usually has to pay both a fine and a court fee. The fine is determined by the court and can be subject to discretion, whereas the court fee is usually a set cost that the individual must pay, and that number depends on objective factors. When a law enforcement officer charges an individual with a speeding infraction, the fine is often preset, and all cited motorists are given the option to prepay their citation without coming to court. After examining how the fine corresponds to the cited speed (as well as documentation provided from multiple attorney sites online), we found that the fine for these violations before July 2010 was usually \$5 per cited mile per hour over the speed limit and is now usually \$6 per cited mile per hour over the speed limit. Speeding infractions have a maximum fine of \$250.

For motorists convicted of a misdemeanor speeding violation, the charge that is levied is reckless driving, which carries a maximum fine of \$2,500. Although the cited speed and the driver's previous record affect the ultimate fine levied by the court, the court generally has a lot of discretion in setting the fines in these cases. We found that the average fine levied on motorists convicted of a misdemeanor was \$179 and that 99 percent of these motorists received a fine of \$500 or less.

As noted earlier, the court fee is usually more objectively set. These costs can vary across jurisdictions, but within a jurisdiction, the fee is somewhat formulaic and depends on whether the charge is a misdemeanor or an infraction, as well as whether the individual attends court when not prepaying the citation. In our sample, when the individual prepaid the ticket, the average (modal) court cost was \$61. When the individual attended the court hearing and received a misdemeanor conviction, the most common court costs were \$71 and \$81.

As detailed in Chapter Three, there are four main outcomes for individuals cited for speeding in the reckless range: Motorists can be (1) cited for a speed at the misdemeanor cutoff (an automatic infraction charge), (2) cited for a speed above the misdemeanor cutoff but have the charge classified by law enforcement as an infraction, (3) charged with a misdemeanor by law enforcement but have the charge downgraded to an infraction or dismissed by the court, (4) or charged with a misdemeanor by law enforcement and convicted of a misdemeanor by the court. Because the court has so much discretion in how it levies fines for the latter two groups, the most straightforward way to understand the impact that the different outcomes can have on the total amount charged to the individual (fine plus fee) is to compare the average amount charged to motorists in our sample who fell in each of these four groups. Table 4.1 presents these results (excluding motorists whose charges were dismissed). For the three groups that were cited for a speed above the misdemeanor cutoff, we also show how the amount charged varied based on the cited speed.

Table 4.1 makes clear that the best outcome for a motorist is to be cited for a speed at the misdemeanor cutoff. The average amount charged to an individual in our sample who was convicted of a misdemeanor was about \$120 higher. However, among those who were cited for a speed that was 11–15 mph above the cutoff, the

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<sup>2</sup> See Virginia Criminal Sentencing Commission (2014, p. 26), which notes that traffic offenses other than infractions should be included in tabulating the prior offense record.

**TABLE 4.1**  
**Average Fines and Fees Levied for Each of the Four Main Outcomes**

Case Outcome	Overall	Motorists Cited for a Speed 1–5 mph Above the Cutoff	Motorists Cited for a Speed 6–10 mph Above the Cutoff	Motorists Cited for a Speed 11–15 mph Above the Cutoff
Cited for a speed at the misdemeanor cutoff	\$148.77			
Cited for a speed above the misdemeanor cutoff but charge classified as an infraction	\$187.05	\$181.43	\$220.55	\$262.82
Cited for a speed above the misdemeanor cutoff, charge classified as a misdemeanor, but amended to an infraction by the court	\$216.76	\$190.88	\$260.90	\$362.15
Amended to a defective equipment infraction	\$209.07	\$204.74	\$265.44	\$248.25
Amended to an improper driving infraction	\$277.22	\$207.89	\$320.97	\$402.21
Amended to a lesser speeding infraction	\$213.10	\$182.90	\$253.44	\$348.88
Cited for a speed above the misdemeanor cutoff, charge classified as a misdemeanor, and charge not amended by the court	\$268.54	\$215.34	\$301.83	\$446.81

NOTE: This table restricts the main analysis sample to cited motorists who had a final conviction that corresponds to one of the four main outcomes ( $n = 238,528$ ). Individuals who were charged with an infraction but went to court to have their charges reduced and individuals who had the charges dismissed are excluded from these statistics.

amount could be almost \$300 higher than the fee for someone whose speed was reduced to below the reckless range. The total charge was somewhat lower for individuals whose charge was amended to an infraction by the court, although the amount was still higher than if the motorist had been charged by law enforcement with an infraction. For motorists whose charge was amended to an infraction by the court, the fines and fees levied depended on what the charge was amended to and seemingly also on the original speed for which the motorist was cited.

Overall, the results indicate that the decisions made by both law enforcement and the court can have a substantial impact on the final amount charged to a motorist. The individuals in our analysis sample were subject to Virginia's policy that the state could automatically suspend the person's driver's license if fines and fees were not paid. Such suspensions can exacerbate the impacts that these higher fines can have—for example, by decreasing job stability (Alan M. Voorhees Transportation Center, Edward J. Bloustein School of Planning and Public Policy, and New Jersey Motor Vehicle Commission, 2006). That policy was eliminated on July 1, 2019 (Virginia Department of Motor Vehicles, undated-b). Before the policy was eliminated, Virginia suspended more than 360,000 motorists' licenses annually (Natapoff, 2018).

## Worse Driving Record

Virginia uses a point system for its licensed drivers, and the number of points that a motorist has on his driving record is used to determine his insurance premium and whether his license will be suspended. The higher the point value, the better the driving record. Motorists begin with zero points and receive an additional point for every year in which they have a license and do not have any moving violations. The maximum number of points that an individual can have is +5. Every time an individual receives a moving violation, points are subtracted from the point total. Although there is an upward bound on the number of positive points that an individual can have, there is no lower bound. If an individual receives 18 demerit points within 12 months or receives 24 demerit points within 24 months, the person's license is suspended for 90 days. These demerit points stay on the motorist's record for two years from the time of the offense. Motorists are eligible to take driver improvement clinics every two years; these courses can increase the motorist's point total by 5 points (Virginia Department of Motor Vehicles, 2017).

Table 4.2 presents the number of demerit points that would be assigned to each of the likely outcomes for individuals in our sample. The number of demerit points depends only on the final disposition, not the original charge. Among individuals who have their charge reduced to a lesser speeding violation, the demerit points could be 3 or 4 depending on the revised speed level that was cited. If the charge was amended to speeding between 1 and 9 mph above the speed limit, motorists would receive 3 demerit points, and if the charge was amended to speeding between 10 and 19 mph above the speed limit, they would receive 4 demerit points (Virginia Department of Motor Vehicles, 2021). The table indicates that there is a wide range of demerit points that can be assessed; those who are able to reduce the charge in court to a defective equipment violation do the best (0 points), and those who are convicted of a violation (either a misdemeanor or an infraction) that cites them traveling at a speed above the cutoff do the worst (6 points).

**TABLE 4.2**  
**Driver's License Demerit Points for Each Outcome**

Case Outcome	Demerit Points
Cited for a speed at the misdemeanor cutoff	4
Cited for a speed above the misdemeanor cutoff but charge classified as an infraction by law enforcement	6
Cited for a speed above the misdemeanor cutoff, charge classified as a misdemeanor by law enforcement, but charge amended to an infraction by the court	
Amended to a defective equipment infraction	0
Amended to an improper driving infraction	3
Amended to a lesser speeding infraction	3 or 4
Cited for a speed above the misdemeanor cutoff, charge classified as a misdemeanor, and charge not amended by the court	6

## Racial Disparities in Misdemeanor Convictions

All of the analyses in this chapter explicitly compare outcomes for Black motorists with outcomes for White motorists. In the first section, we show that, in our sample, Black motorists stopped for speeding in the reckless range were substantially more likely to be convicted of a misdemeanor than White motorists were and that this disparity can be explained relatively equally by what happened at the law enforcement stage and by what happened at the court stage. Later, we conduct regression analyses at the law enforcement and court stages to investigate the extent to which this racial gap can be explained by differences in the observable behavior and characteristics of racial groups, as well as the extent of the racial gap that is unexplained by any of the factors that we can control for. All regression analyses presented in this chapter have binary dependent variables and are estimated with ordinary least squares (OLS) to make coefficient interpretation simpler. Marginal effects from logit specifications provide similar results for all regression results presented.

Throughout this chapter, we use the process mapping outlined in Chapter Three to guide the factors that are important to account for in our model; these maps also make clear the important factors that we are forced to omit from our model because we lack data. Once we identify the factors that explain a large amount of this racial disparity in misdemeanor convictions, we discuss some of the reasons why racial disparities in those factors might exist.

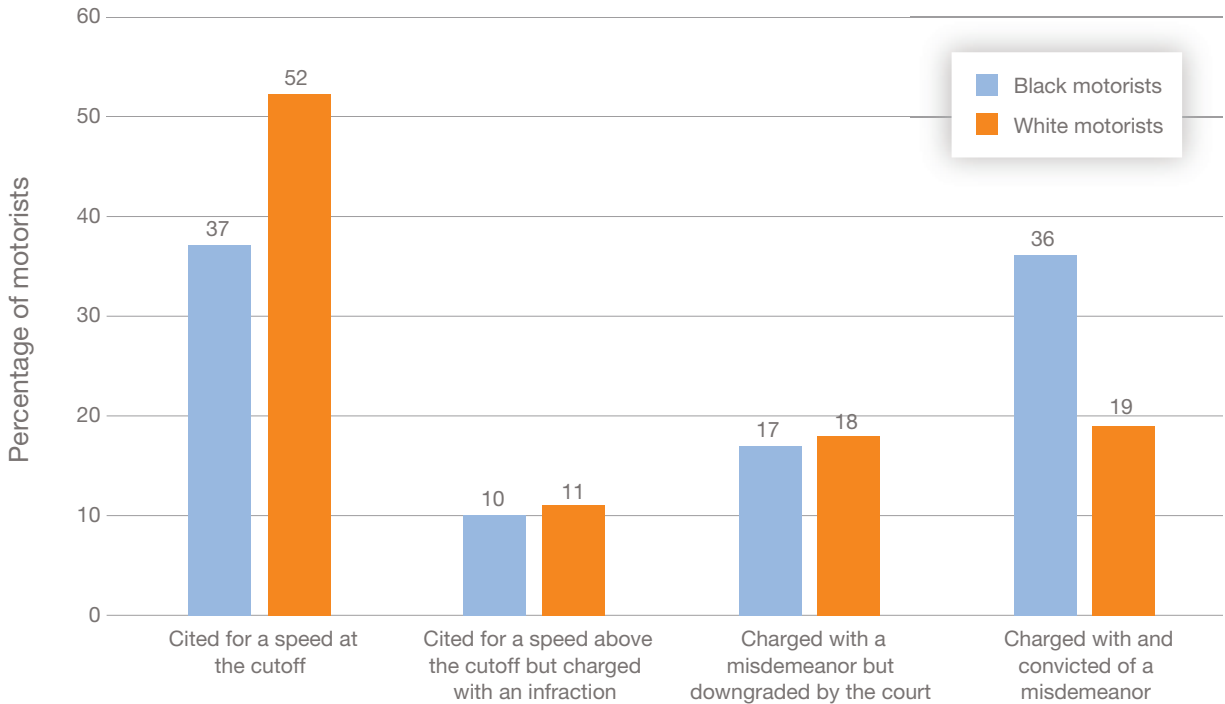
### Raw Racial Disparities

In this section, we examine the *raw racial disparities* in outcomes, which we define as the racial disparities that exist when no other factors are controlled for. As noted in Chapter Three, there are four key outcomes that can occur when an individual is stopped for speeding in the reckless range; they can be

- cited for a speed right at the misdemeanor cutoff and thus automatically charged with an infraction by law enforcement
- cited for a speed above the misdemeanor cutoff but have the charge classified by law enforcement as an infraction
- charged with a misdemeanor by law enforcement but have the charge downgraded to an infraction or dismissed by the court
- charged with a misdemeanor by law enforcement and convicted of a misdemeanor by the court.

In Figure 5.1, we use data on all individuals who were cited for a speeding violation between 0 and 15 mph above the misdemeanor cutoff and examine the percentage of each racial group that ended up with each of the four outcomes. Note that some individuals who were charged with an infraction by law enforcement may have voluntarily decided to go to court to try to get their charges either downgraded or dismissed. In all of the analyses in this chapter, we classify these individuals according to their immediate outcome at the law enforcement stage, because our primary goal is to understand who receives a misdemeanor and who does

**FIGURE 5.1**  
**Raw Disparities in Speeding Citation Outcomes, by Racial Group**



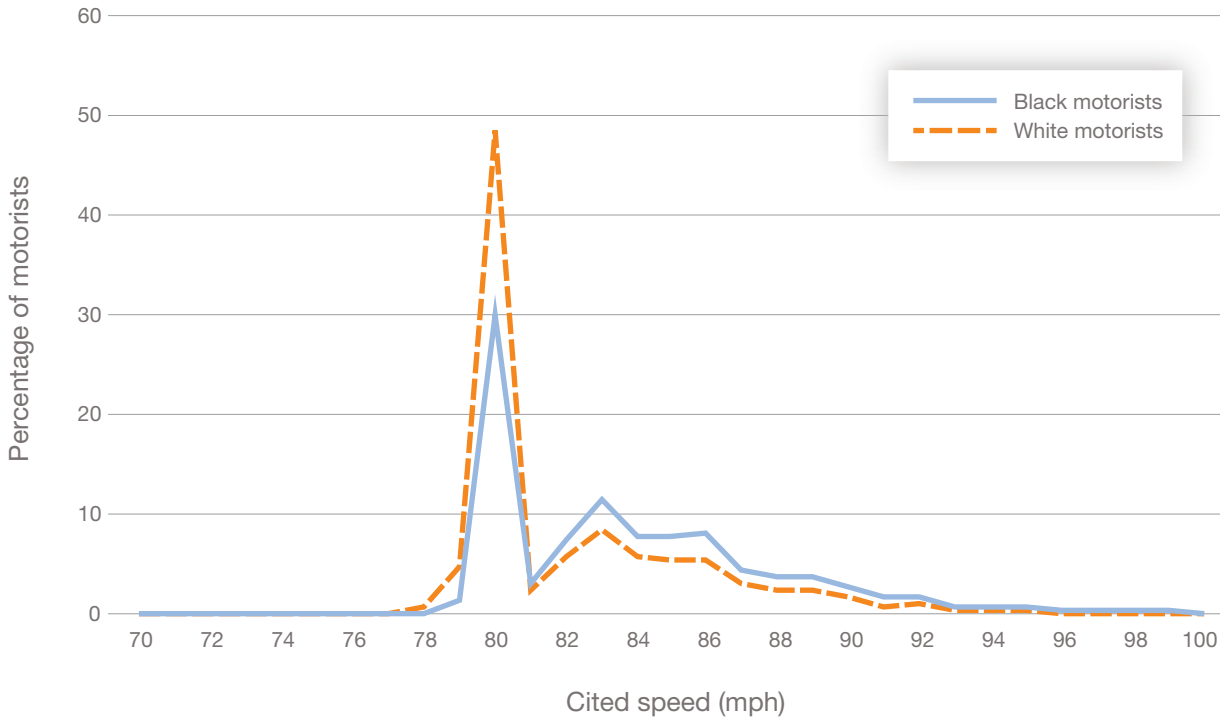
not. We thus do not consider the final outcomes for individuals who were charged with an infraction and attended court because that further outcome is irrelevant for our analysis. Therefore, all motorists in our sample can be classified as having one of the four discussed outcomes.

Figure 5.1 indicates that, among this sample, Black motorists were 17 percentage points more likely to be convicted of a misdemeanor than White motorists were. Given that the base rate for White motorists being convicted of a misdemeanor was 19 percent, another way to state this result is that Black motorists were almost twice as likely as White motorists to be convicted of a misdemeanor. The results indicate that White motorists did substantially better than Black motorists at the law enforcement stage, as 63 percent of White motorists were charged with an infraction (i.e., cited at the misdemeanor cutoff or cited above the cutoff but charged with an infraction) at this stage compared with 47 percent of Black motorists. The fact that such substantial disparities exist at the earliest stages of the process indicates that a much larger percentage of Black motorists than White motorists were forced to go to court to have the charge adjudicated. Furthermore, our discussion in Chapter Four on fines and license points indicates that one of the most preferable outcomes is to be charged with a speed exactly at the misdemeanor cutoff. Figure 5.1 indicates that White motorists were 15 percentage points more likely to get this preferable outcome.

Of our main analysis sample, 43 percent had speeding violations in jurisdictions where the speed limit was 70 mph. Thus, to see how these disparities might arise, it is useful to examine the distributions of cited speeds for all Black and White motorists who were given speeding citations while traveling in areas with this speed limit. Figure 5.2 presents this analysis, expanding the data set used in Figure 5.1 to include individuals cited for speeding at ranges outside of 0–15 mph above the misdemeanor cutoff. Figure 5.2 makes it strikingly clear that White motorists were much more likely to be cited for a speed right at the misdemeanor cutoff than Black motorists were (the relevant cutoff was 80 mph in this case).



**FIGURE 5.2**  
**Cited Speed Distributions in Jurisdictions with a Speed Limit of 70 mph, by Racial Group**



NOTE: The figure truncates speeds that exceeded 100 mph.

It is also useful to examine how much of the raw racial disparity of 17 percentage points in misdemeanor convictions can be explained by what happened at the law enforcement stage and how much can be explained by what happened at the court stage. For this analysis, we run the following regression using the same data that we used to generate Figure 5.1:

$$Misdemeanor\_Conviction_i = \beta_0 + \beta_1 * Black_i + \beta_2 * Misdemeanor\_Charge_i + \varepsilon_i \tag{5.1}$$

$Misdemeanor\_Conviction_i$  is an indicator variable for whether the motorist was convicted of a misdemeanor by the court,  $Misdemeanor\_Charge_i$  is an indicator for whether the motorist was charged with a misdemeanor by law enforcement, and  $Black_i$  is an indicator for whether the motorist was Black (versus White). Note that if we run Equation 5.1 without including the  $Misdemeanor\_Charge_i$  control,  $\beta_1$  just estimates the raw disparity in misdemeanor conviction rates, which was 0.166 (which we refer to as the 17-percentage-point gap). What we are most interested in is how much the  $\beta_1$  estimate declines by when the  $Misdemeanor\_Charge_i$  control is included, because that will indicate how much of the overall racial disparity is explained by what happened at the law enforcement stage. We found the estimate of  $\beta_1$  to be 0.075 in Equation 5.1 when the charge control is added in, which indicates that 55 percent of the overall racial disparity can be explained by what happened at the law enforcement stage  $((0.166 - 0.075) / 0.166 = 0.55)$ , and the remaining 45 percent of the disparity occurred at the court stage. Next, we delve into what factors might explain the racial disparities at each of these stages.

## Regression Analysis at the Law Enforcement Stage

To examine the factors that might account for some of the observed racial disparity in the rate at which individuals were charged with a misdemeanor by law enforcement, we estimate the following regression using the sample of individuals cited for speeding between 0 and 15 mph above the misdemeanor cutoff:

$$Misdemeanor_i = \beta_0 + \beta_1 * Black_i + \beta_2 * Baseline\_Controls_i + \beta_3 * County_i + \varepsilon_i. \quad (5.2)$$

The vector *Baseline\_Controls<sub>i</sub>* includes controls for the motorist's gender, whether she was from out of state, whether she had prior driving violations or non-traffic criminal convictions in the previous three years, the speed limit of the area she was cited in, and a set of indicators that identify which year her hearing date was scheduled in district court.<sup>1</sup> The vector *County<sub>i</sub>* includes indicator controls for the 18 counties that were part of our sample.

The outcome variable *Misdemeanor<sub>i</sub>* takes on the value of 1 if law enforcement officers charged the motorist with a misdemeanor and 0 if they charged the driver with an infraction. As noted earlier, a motorist can be charged with an infraction at this stage if he is cited for a speed exactly at the misdemeanor cutoff or if he is cited for a speed above this cutoff but has the charge classified as an infraction by the officer. Our analysis in this section groups these two situations together because the same decisionmaker (a law enforcement officer) determined both outcomes, and using one specification allows us to more succinctly summarize what happened at the law enforcement stage. The alternative would have been to run two regressions at this stage: The first would use this same sample, and the outcome would be whether the motorist was cited for a speed 1–15 mph above the cutoff. The second regression would have included only the motorists for which the cited speed was between 1–15 mph above the cutoff, and the outcome variable would have been whether this charge was classified as an infraction. For completeness, we present the results from this two-stage analysis alongside our results for estimating the regression in Equation 5.2.

The coefficient  $\beta_1$  measures the extent of the racial difference in the rate at which individuals were cited for a misdemeanor by law enforcement, once controls for the baseline variables and county have been included. This coefficient might reflect *discrimination* by law enforcement officers, which we define as officers using different treatment for motorists of different racial groups with otherwise equivalent characteristics. However, this coefficient can also reflect racial differences in relevant characteristics that we are not accounting for in our model. As we discussed in Chapter Three, these relevant variables include the actual speed at which the motorist was traveling and other contextual factors present at the time of the stop, such as the amount of traffic on the road and whether there were children in the vehicle. Another potentially important omitted variable is the driver's age. Although we do have the cited speed for all individuals in our sample, it is not plausible to control for this variable at this stage because one of the key ways for officers to enact discretion is to alter the cited speed. Thus, for the vast majority of motorists cited with a speed at the misdemeanor cutoff, this cited speed was not an accurate reflection of how fast the person was going. Unfortunately, we could not observe the true speed that each motorist was traveling when an officer decided to stop the vehicle.

Table 5.1 presents the results from this regression analysis. Each number in the table corresponds to the  $\beta_1$  race coefficient in a different regression specification, in which the specifications differ by the dependent variable used, the sample used, and the controls accounted for. We present the results overall, as well as by the speed limit groupings of the area of the citation. Panels A and B correspond to running the model specified in Equation 5.2, and Panels C and D correspond to examining what happened at the law enforcement stage

<sup>1</sup> Some of the included controls are not ones that law enforcement is explicitly supposed to take into account (such as gender), but we controlled for them in order to identify the role that race played separately from these other factors.

**TABLE 5.1**  
**The Impact of Motorist Race on Being Charged with a Misdemeanor at the Law Enforcement Stage**

	OLS Regression Coefficient on the Black Motorist Indicator Variable			
	Overall	Speed Limit: 25, 35, 45 mph	Speed Limit: 55, 60 mph	Speed Limit: 65, 70 mph
<b>Panel A. Dependent variable: charged with a misdemeanor; Sample: full sample</b>				
No controls	0.159 (0.002)***	0.054 (0.004)***	0.067 (0.004)***	0.207 (0.003)***
Add baseline controls	0.135 (0.002)***	0.051 (0.004)***	0.065 (0.004)***	0.168 (0.003)***
Add location controls	0.074 (0.002)***	0.028 (0.004)***	0.051 (0.004)***	0.094 (0.003)***
Proportion of White motorists charged with a misdemeanor	0.365	0.176	0.341	0.426
Sample	261,432	44,536	49,049	167,847
<b>Panel B. Dependent variable: charged with a misdemeanor; Sample: driving record and criminal history sample</b>				
No controls	0.169 (0.003)***	0.055 (0.006)***	0.069 (0.006)***	0.217 (0.003)***
Add baseline controls	0.152 (0.003)***	0.055 (0.006)***	0.075 (0.006)***	0.190 (0.003)***
Add driving record controls	0.151 (0.003)***	0.053 (0.006)***	0.074 (0.006)***	0.190 (0.003)***
Add criminal history controls	0.151 (0.003)***	0.054 (0.006)***	0.074 (0.006)***	0.190 (0.003)***
Add location controls	0.077 (0.003)***	0.029 (0.006)***	0.057 (0.006)***	0.095 (0.003)***
Proportion of White motorists charged with a misdemeanor	0.354	0.178	0.307	0.413
Sample	154,729	25,739	26,546	102,444
<b>Panel C. Dependent variable: cited for a speed above the cutoff; Sample: full sample</b>				
No controls	0.151 (0.002)***	0.053(0.005)***	0.056 (0.005)***	0.204 (0.003)***
Add baseline controls	0.135 (0.002)***	0.043 (0.005)***	0.056 (0.005)***	0.172 (0.003)***
Add location controls	0.075 (0.002)***	0.038 (0.005)***	0.060 (0.005)***	0.092 (0.003)***
Proportion of White motorists cited for a speed above the cutoff	0.477	0.507	0.526	0.455
Sample	261,432	44,536	49,049	167,847
<b>Panel D. Dependent variable: charged with a misdemeanor; Sample: motorists cited for a speed 1–15 mph above the cutoff</b>				
No controls	0.069 (0.002)***	0.063 (0.007)***	0.052 (0.006)***	0.024 (0.002)***
Add baseline controls	0.027 (0.002)***	0.065 (0.007)***	0.049 (0.006)***	0.010 (0.002)***
Add location controls	0.013 (0.002)***	0.017 (0.006)***	0.012 (0.005)**	0.011 (0.001)***
Add speed controls	0.001 (0.002)	0.010 (0.006)*	0.0003 (0.005)	0.002 (0.001)*
Proportion of White motorists charged with a misdemeanor	0.766	0.348	0.649	0.934
Sample	137,896	23,252	26,875	87,769

NOTE: Each entry represents the coefficient estimates on the Black motorist indicator variable from a separate regression. All regressions use OLS and vary by the dependent variable, the sample used, and the controls included. Heteroskedasticity-robust standard errors are in parentheses. \*\*\*, \*\*, and \* indicate that the coefficient is significant at the 1-percent, 5-percent, and 10-percent level, respectively. The specification in the first (overall) column of Panel A uses the main analysis sample, and the remaining specifications restrict the sample as indicated.

in two separate steps (the decision to cite a speed above the cutoff and the decision to classify the citation as a misdemeanor). As discussed in Chapter Two, we did not observe a three-year driving and criminal history for about 40 percent of our sample. Thus, in Panel A, we include the full sample but do not control for the driving and criminal history variables; in Panel B, we do control for these variables but only include the subsample of motorists for whom we could observe these history variables. For each panel, we add controls into the model sequentially to indicate how much of the raw racial gap—which is shown in the specification that includes no controls—is accounted for by the variables being added. To provide more context on the extent of the racial gap, for each of the various samples used in the table, we also present the proportion of White motorists among that subsample who were either charged with a misdemeanor by law enforcement or cited with a speed at the cutoff (depending on the dependent variable used).

The results presented in Panel B of Table 5.1 indicate that driving record and criminal history controls do not seem to explain the observed racial gap in the rate at which law enforcement officers handed out misdemeanors; that is, the coefficient on race after adding these controls is virtually the same as the coefficient with just the baseline controls. As we noted earlier, the seeming non-importance of these variables could be because we did not have a good enough measure of these factors. However, in analyses not shown, we found that improving the accuracy of driving record controls does not change the impact that these controls have on the racial disparity observed. Specifically, we examined the impact of adding prior driving violations from only the originating county versus all 18 counties, and we examined the impact of adding driving record controls separately for both out-of-state and in-state motorists. All scenarios indicated that these controls are unimportant in explaining the racial gap. This could be because motorist-history information is not routinely used by officers when making citation and charge decisions.

Because our motorist-history measures appear to be unimportant in these analyses, we focus on Panel A when discussing our results from the law enforcement stage. There are several striking patterns apparent in these results. First, the raw racial disparity present at the law enforcement stage is large: With no controls included, Black motorists cited for traveling between 0 and 15 mph above the misdemeanor cutoff were 16 percentage points more likely to be charged with a misdemeanor than White motorists were (in the table, this is represented as 0.159). Second, although controlling for the factors accounted for in the baseline controls narrows this gap somewhat, the county in which a motorist was cited seems to explain a substantial amount of this racial gap.<sup>2</sup> This general pattern of results is similar across all of the speed groupings, although the level of the racial disparity is largest among motorists cited in areas where the speed limit was 65 or 70 mph. That speed limit grouping constitutes 64 percent of our sample. Third, the unexplained racial gap is large: After all controls in Equation 5.2 are added, the racial gap still remains at 7 percentage points. The results from panels C and D indicate that the unexplained portion of the gap at the law enforcement stage seems to be driven by the officer's decision of whether to cite the motorist at a speed above the cutoff, and the location control is an important factor in explaining the racial disparity at both of the decision points of law enforcement officers. In Panel D, the racial disparities present for the speed limits of 65 or 70 mph are relatively small; this is likely because law enforcement officers rarely used discretion to classify speeds above the cutoff as an infraction at these high speeds. The low use of discretion implies a low opportunity for racial disparities to arise.<sup>3</sup>

<sup>2</sup> Oaxaca-Blinder decompositions, described in more detail in the section on the court stage, indicate that the racial gap at the law enforcement stage would close by 8 percentage points (which is about half the raw gap) if White motorists were cited in the same areas as Black motorists.

<sup>3</sup> In Panel D of Table 5.1, we also include controls for cited speed because we view all speeds that are above the cutoff to be relatively accurate speed measures. That is because speed discounting typically results in a speed being moved to the cutoff, so the individuals remaining at the higher speeds likely were going those speeds. We discuss this in more detail in the section on the court stage.

The results in Table 5.1 indicate that it is important to examine in more depth why location explains such a large amount of the overall disparity at this stage, as well as to examine what factors might account for the large unexplained disparity. We consider both of these topics next.

### Why Are County Controls So Important?

To gain more clarity on why county controls might account for such a significant amount of the overall racial gap at this stage, we examine in more detail the stops that were conducted in areas where the speed limit was 70 mph. We focus on this subsample primarily because there are very few counties where these stops occurred, making it easier to identify patterns. At this speed limit, the main form of discretion used was whether to cite at the cutoff, so we focus on this decision point. Of the speeding violations where the cited speed was 0–15 mph above the misdemeanor cutoff, 43 percent were in areas where the speed limit was 70 mph, so this group constitutes almost half of our sample. Among these stops, 91 percent occurred in four counties: Mecklenburg, Brunswick, Shenandoah, and Rockbridge. In Table 5.2, we examine the cited stops that occurred in these four counties in more detail. All analyses in this table include all speeding citations that were issued in each county in areas where the speed limit was 70 mph (i.e., we do not restrict the analyses to citations with speeds at or above the cutoff).

Table 5.2 indicates that, in the counties where Black motorists made up a larger share of the stops (Mecklenburg and Brunswick), a much lower proportion of motorists were cited at the cutoff than in counties where White motorists made up a larger share of the stops (Shenandoah and Rockbridge). This implies that location accounts for a large amount of the overall disparity because Black motorists were more likely to be stopped in areas where *all* motorists were less likely to be cited for a speed at the cutoff. Unfortunately, we are unable to determine whether there is a race-neutral reason that, in counties in which a larger share of stops were of White motorists, officers cited more motorists of both races at the cutoff. For example, if Brunswick and Mecklenburg counties had more traffic accidents in high-speed areas, there might be a legitimate reason why officers in those areas engaged less in speed-discounting. Another race-neutral reason for the differences might occur because, as indicated in the columns in Table 5.2 examining the proportion of motorists cited below the cutoff, officers in both Shenandoah and Rockbridge counties seem to have begun enforcement at lower speeds. This would naturally lead to more motorists being cited at the cutoff in those counties because officers were indeed stopping individuals for going exactly 80 mph. In contrast, officers in Mecklenburg and Brunswick counties did not seem to enforce speeding below the cutoff, so it is likely that most of the individuals cited at the cutoff were actually going above it (thus, those counties would have fewer motorists cited at the cutoff).

**TABLE 5.2**  
**Distribution of Cited Speeds in Areas with a Speed Limit of 70 mph, by County**

County	Proportion of Black Motorists Among Stops	Black Motorists		White Motorists	
		Proportion Cited Below the Cutoff	Proportion Cited at the Cutoff	Proportion Cited Below the Cutoff	Proportion Cited at the Cutoff
Mecklenburg	0.567	0.012	0.209	0.019	0.297
Brunswick	0.555	0.001	0.264	0.001	0.372
Shenandoah	0.188	0.081	0.582	0.125	0.646
Rockbridge	0.187	0.042	0.471	0.071	0.556

NOTE: For the four counties specified, we used all speeding citations that occurred in areas with a speed limit of 70 mph.

Although these two motivations for differential enforcement patterns are fairly benign, it is important to consider the potential that some of the reason for the differential enforcement pattern might occur precisely because of who lives or drives in these counties. Specifically, if officers were less likely to engage in speed-discounting in certain areas precisely because there were more Black motorists there, this would reflect structural racism; thus, one should not automatically treat the proportion of the racial disparity that is explained by location as being explained by legitimate differences in behavior or enforcement. Disentangling these various mechanisms requires data on the actual speeds that motorists were driving. This information would allow researchers to identify whether officers in counties that have more White motorists are more likely to engage in speed-discounting or are more likely to be enforcing the speed limit at lower parts of the distribution, which would mean that more cited motorists are actually driving at the cutoff. To the extent that speed-discounting is responsible for the disparity, researchers would need to determine whether there is a legitimate reason why officers in counties with more White motorists engage in this practice more than officers in counties with more Black motorists.

### Can Speed Differences Account for the Unexplained Disparity?

The unexplained racial gap at the law enforcement stage presented in Table 5.1 occurs primarily as a result of whether a motorist is cited at the cutoff (see Panels C and D). This gap might reflect overt discrimination by law enforcement officers, or it might reflect underlying racial differences in omitted variables. One of the key omitted variables in this specification is the speed at which the motorist was actually traveling. To better understand what factor(s) might explain this remaining disparity, it is useful to understand the extent to which motorists who were driving at the exact same speed were treated differently. Although we unfortunately did not have access to the motorists' actual speeds, in Appendix B, we conduct an exploratory analysis using the method developed in Goncalves and Mello (2021). That method relies on comparing (1) the cited speed distribution for officers who did not engage in speed- or charge-discounting with (2) the cited speed distribution for officers who did engage in such discounting for motorists in each racial group. Ideally, comparing these speed distributions would allow us to identify the impact of discounting on the cited speed distribution for each racial group. We view this analysis as exploratory because results in Appendix A show that most officers discounted speeds or charges, which leads to concerns that the stops conducted by officers who did not engage in discounting might be systematically different and thus may not serve as a good control group.

The results from these exploratory analyses indicate that Black motorists were driving somewhat faster than White motorists were (see Appendix B). However, we also found evidence that, conditional on traveling at the same speed as White motorists, Black motorists were less likely to have their speed discounted. These findings indicate that differences in the speeds that different racial groups were traveling, as well as differential treatment by officers, might partly explain the otherwise unexplained gaps.

## Regression Analysis and Oaxaca-Blinder Decompositions at the Court Stage

### Regression Analysis

In our next set of analyses, we examine racial disparities in the rates at which motorists charged with a misdemeanor by law enforcement were convicted of this charge by the court. The analyses in this section use data on only the motorists charged with a misdemeanor by law enforcement, and, as in Chapter Three, we exclude the handful of observations without dispositions (guilty, not guilty, or dismissed). To examine the

raw racial disparity in misdemeanor convictions at the court stage, and to determine the extent to which this raw disparity can be explained by various factors relevant at this stage, we estimate the following model:

$$Misdemeanor_i = \beta_0 + \beta_1 * Black_i + \beta_2 * Baseline\_Controls_i + \beta_3 * County_i + \beta_4 * Cited\_Speed_i + \beta_5 * Prepaid_i + \beta_6 * Attend\_Court_i + \beta_7 * Attorney_i + \varepsilon_i. \quad (5.3)$$

The outcome variable  $Misdemeanor_i$  is an indicator variable that takes on the value of 1 if the motorist was convicted of a misdemeanor by the court and the value of 0 if the motorist was either convicted of an infraction or had the charge dismissed. The vectors  $Baseline\_Controls_i$  and  $County_i$  include the same factors as in the specification in Equation 5.2. However, Equation 5.3 includes several additional controls. First, we include cited speed because it is an essential piece of information observed by the courts. Just like researchers, prosecutors and judges likely observe only the cited speed, not the actual speed the motorist was traveling. Including this control here contrasts with our decision to exclude cited speed from the model in Equation 5.2, but that decision was made because officers do observe the motorist's actual speed. Furthermore, we expect that law enforcement officers mainly use discretion in recording speed among motorists whom they cite at the misdemeanor cutoff; for those who are cited above the cutoff, it is reasonable that officers would cite drivers for the actual speed they were traveling.<sup>4</sup> The vector  $Cited\_Speed_i$  includes 15 separate indicator controls to account for the exact number of miles per hour above the misdemeanor cutoff that the individual was cited for traveling.

The specification in Equation 5.3 also includes controls for whether the individual prepaid the ticket, which would be an automatic conviction of the misdemeanor offense he was charged with. We include further controls for whether the motorist attended court and whether he had a lawyer present; the analyses shown in Chapter Three indicated that these factors greatly explained outcomes at the court stage. The key unobservable variable that we cannot control for in this analysis is whether the motorist had completed a driver improvement course (although this factor might be strongly correlated with whether the motorist had a defense attorney present).

Table 5.3 presents the results from these regression analyses in a setup that is very similar to Table 5.1. The key difference is that we include more controls here and show how the coefficient representing the racial disparity changes as we continue to add more controls to the model. We focus on the results in the first (overall) column of Panel A of Table 5.3. The remainder of the results indicate that neither the speed limit of the area in which the motorist was cited nor the addition of controls for previous driving violations or non-traffic criminal history seem to affect the central results.

The first key result is that, among this sample of individuals charged with a misdemeanor by law enforcement, Black motorists were 16 percentage points more likely to be convicted of a misdemeanor than White motorists were. This indicates that Black motorists fared worse, during both the law enforcement and court stages, at having their misdemeanor charge downgraded. It is important to juxtapose these results with what we saw in Figure 5.1, which indicated that, among the full analysis sample, Black and White motorists were almost equally likely to have a misdemeanor charge downgraded by the court (17 percent versus 18 percent, respectively). Note that, because a smaller percentage of Black motorists benefited from speed-discounting by law enforcement, a higher percentage of these motorists were available to receive beneficial discretion at the court stage. Thus, even though Black motorists who reached the court stage were significantly less likely to have their charges downgraded by the court (as seen in Table 5.3), the fact that there were more Black motor-

<sup>4</sup> This rationale is further exemplified by the fact that the cited speed distributions in Figure 3.1 were relatively continuous beyond the misdemeanor cutoff, which is what one would expect if motorists in those groups were cited at the exact speed they were traveling.

**TABLE 5.3**  
**The Impact of Motorist Race on Being Convicted of a Misdemeanor at the Court Stage**

	OLS Regression Coefficient on the Black Motorist Indicator Variable			
	Overall	Speed Limit: 25, 35, 45 mph	Speed Limit: 55, 60 mph	Speed Limit: 65, 70 mph
Panel A. Dependent variable: convicted of a misdemeanor; Sample: charged with a misdemeanor				
No controls	0.160 (0.003)***	0.129 (0.011)***	0.134 (0.007)***	0.162 (0.003)***
Add baseline controls	0.138 (0.003)***	0.130 (0.011)***	0.125 (0.007)***	0.140 (0.003)***
Add location controls	0.148 (0.003)***	0.130 (0.011)***	0.120 (0.007)***	0.154 (0.003)***
Add cited speed controls	0.131 (0.003)***	0.124 (0.011)***	0.109 (0.007)***	0.135 (0.003)***
Add prepaid control	0.136 (0.003)***	0.125 (0.011)***	0.121 (0.007)***	0.140 (0.003)***
Add attendance control	0.054 (0.002)***	0.074 (0.009)***	0.059 (0.005)***	0.053 (0.002)***
Add attorney control	0.032 (0.002)***	0.054 (0.009)***	0.041 (0.005)***	0.030 (0.002)***
Proportion of White motorists convicted of a misdemeanor	0.518	0.311	0.449	0.557
Sample	109,183	8,511	17,988	82,864
Panel B. Dependent variable: convicted of a misdemeanor; Sample: driving record and criminal history sample				
No controls	0.168 (0.004)***	0.117 (0.014)***	0.139 (0.011)***	0.171 (0.004)***
Baseline controls	0.146 (0.004)***	0.126 (0.014)***	0.130 (0.010)***	0.149 (0.004)***
Add driving record controls	0.144 (0.004)***	0.120 (0.014)***	0.128 (0.010)***	0.148 (0.004)***
Add criminal history controls	0.144 (0.004)***	0.120 (0.014)***	0.127 (0.010)***	0.147 (0.004)***
Add location controls	0.158 (0.004)***	0.118 (0.014)***	0.121 (0.011)***	0.165 (0.004)***
Add cited speed controls	0.140 (0.004)***	0.112 (0.014)***	0.111 (0.010)***	0.146 (0.004)***
Add prepaid control	0.144 (0.004)***	0.108 (0.014)***	0.118 (0.010)***	0.150 (0.004)***
Add attendance control	0.050 (0.003)***	0.048 (0.011)***	0.055 (0.007)***	0.049 (0.003)***
Add attorney control	0.031 (0.003)***	0.032 (0.011)***	0.039 (0.007)***	0.029 (0.003)***
Proportion of White motorists convicted of a misdemeanor	0.476	0.272	0.375	0.518
Sample	63,300	4,958	8,826	49,516

NOTE: Each entry represents the coefficient estimates on the Black motorist indicator variable from a separate regression. All regressions use OLS and vary by the sample used and the controls included; heteroskedasticity-robust standard errors are in parentheses. \*\*\*, \*\*, and \* indicate that the coefficient is significant at the 1-percent, 5-percent, and 10-percent level, respectively. The specification in the first (overall) column of Panel A restricts the main analysis sample to motorists who were charged with a misdemeanor and for whom we observed the court outcome. The remaining specifications restrict the sample further as indicated.

ists who made it to the court stage means that the overall percentage of Black motorists in the full analysis sample who benefited from downgrading at the court stage was similar to that for White motorists.

The remainder of the results in Table 5.3 indicate that the majority of the racial disparity observed at this stage is explained by the controls included. Because so much of the racial disparity is explained at this stage, and because several different factors can explain the disparity, the next section presents Oaxaca-Blinder decomposition results to determine how much of the overall gap each control variable can explain (Oaxaca, 1973; Blinder, 1973). This analysis allows us to determine which factors were most responsible for the observed raw disparity. Although the results in Table 5.3 provide an indicator of which variables were



likely most responsible (by examining how the coefficient on race drops as more controls are added in), some of these variables are likely correlated with each other and will pick up the effect of others in a situation where we sequentially add in controls. The Oaxaca-Blinder decomposition method accounts for these correlations and can determine the independent contribution of each covariate to the overall disparity.

## Oaxaca-Blinder Decomposition Analysis

The Oaxaca-Blinder decomposition method is a regression-based technique centered on the idea that a racial gap in an outcome variable  $Y$  between Black and White individuals (denoted as  $B$  and  $W$ ) can be split apart into two terms (Jann, 2008):

$$\overline{Y}_B - \overline{Y}_W = (\overline{X}_B - \overline{X}_W) \beta_W + \overline{X}_B (\beta_B - \beta_W). \quad (5.4)$$

$\overline{X}_B$  and  $\overline{X}_W$  represent the average values of all covariates included in Equation 5.3, and  $\beta_B$  and  $\beta_W$  represent the coefficients one would obtain if Equation 5.3 were run separately for Black and White motorists. The first term in Equation 5.4 is denoted as the explained proportion of the racial gap in the outcome variable because it indicates how much the gap in  $Y$  results from racial differences in the values of the covariates in  $X$ . The second term represents the unexplained variation because it indicates how much of the disparity in  $Y$  results from a differential return on a given set of characteristics.

There are other decompositions that weight the covariate differences with different coefficients, but we use the method shown in Equation 5.4, which uses the coefficients for White motorists, because that corresponds to the thought experiment that we are interested in carrying out. Specifically, when these coefficients are used, the explained term will reveal how much higher the misdemeanor rate for White motorists would be if they had the same covariate values as Black motorists. However, the results would not change appreciably if we were to use a pooled coefficient instead.

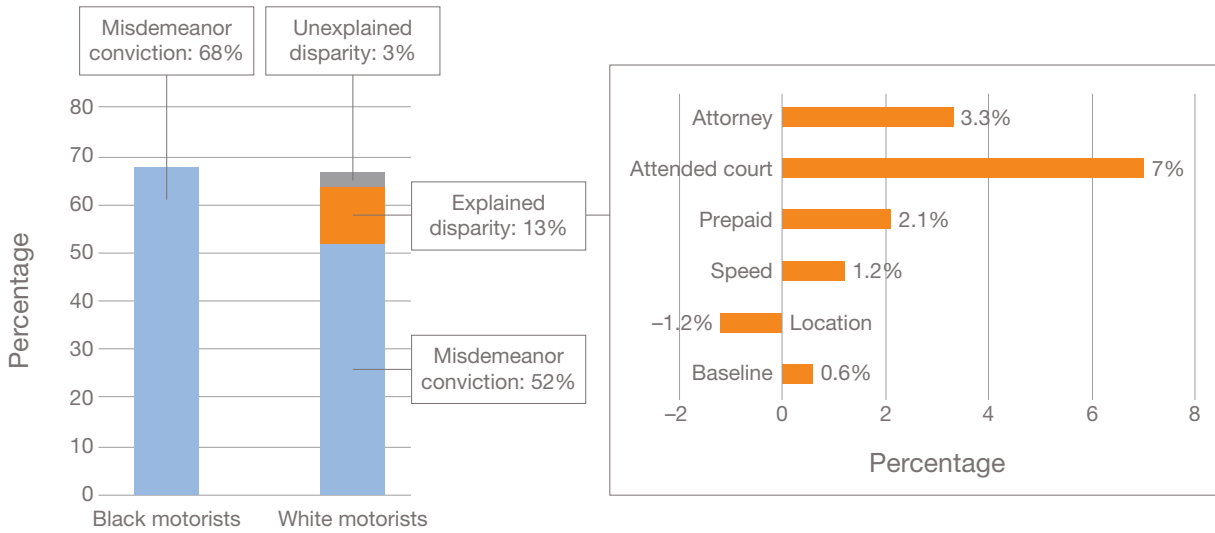
Figure 5.3 presents the results from Oaxaca-Blinder decompositions applied to the specification presented in the first column of Panel A in Table 5.3. The chart on the left of the figure shows that 68 percent of Black motorists who were charged with a misdemeanor at the law enforcement stage were convicted of a misdemeanor by the court, while 52 percent of White motorists had this outcome. The decomposition results indicate that, if White motorists were to have exactly the same average values as Black motorists on the covariates included in Equation 5.3, the rate at which White motorists would be convicted of a misdemeanor would be 13 percentage points higher than what it actually was; this is the *explained disparity*. The remaining 3 percentage points of the full 16-percentage-point disparity are unexplained by group covariate differences, and this can reflect either disparate treatment or the impact of unobserved variables.

The main benefit of the decomposition method is that it allows us to break out the explained part of the disparity further to see which characteristics were driving the disparity. The chart on the right of Figure 5.3 presents these more-detailed decomposition results. Each value shows how much the misdemeanor conviction rate for White motorists would change if they had the same average values as Black motorists for the subset of covariates being considered. Note that, by definition, these values sum to 13 percentage points (the value of the explained disparity).<sup>5</sup>

The results indicate that court attendance was the largest driver of the racial disparity observed at the court stage. The racial gap in misdemeanor conviction rates would close by 7 percentage points if White

<sup>5</sup> A negative decomposition value attached to a covariate indicates that, if White motorists had the same values as Black motorists for that covariate, the racial gap would widen by that amount (i.e., the misdemeanor rate for White motorists would fall by that amount).

FIGURE 5.3

**Oaxaca-Blinder Decomposition Results for Racial Disparities at the Court Stage**

and Black motorists attended court at the same rate; this is 44 percent of the overall disparity of 16 percentage points. Recall that Table 3.1 indicates that Black motorists were 17 percentage points more likely than White motorists to not attend court, and Figure 3.5 indicates that not showing up to court led to a 92-percent chance that a motorist would be convicted of the misdemeanor charge. It is thus important for future work to delve more into why there is such a substantial difference in court appearance rates. One potential reason could be informational differences regarding the necessity of court appearances: Generally, traffic tickets do not require a court appearance, and many motorists may not be aware that they need to show up for court. Law enforcement officers likely play an important role in explaining to motorists the next step in the process when a motorist is charged with a misdemeanor. To the extent that officers provide differential information to motorists regarding the next steps in the process, this might lead to Black motorists being less aware that they need to attend court to avoid a misdemeanor conviction. Even conditional on understanding the necessity of attending court, there may be racial differences in motorists' ability to attend court, such as differences in the ability to miss work or the need for child care (Corey and Lo, 2019). Furthermore, if there are racial differences in the expected benefit from showing up to court (i.e., the perceived chance that the misdemeanor charge will be downgraded), this can also lead to racial differences in court appearance rates.

Figure 5.3 indicates that racial differences in the rate of having an attorney were also an important driver of the racial disparity in our sample; this racial gap in misdemeanor conviction rates would close by 3.3 percentage points if both Black and White motorists obtained attorneys at the same rates. As noted earlier, motorists in Virginia generally are not provided indigent defense representation because the potential for jail time on these cases is typically waived in advance. Anecdotal evidence suggests that retaining a private attorney for these types of cases can cost about \$500, although there is likely to be a reasonable amount of variation in attorney cost. Because socioeconomic status is known to be correlated with race, we expect that a key reason that there were racial differences in who had an attorney is related to the ability to pay for one.

Figure 5.3 also indicates that another driver of racial disparities at this stage was the differential rates at which Black and White motorists prepaid their tickets. Table 3.1 indicates that, while 8 percent of White motorists prepaid their tickets, 11 percent of Black motorists did; prepaying a ticket resulted in an automatic misdemeanor conviction. This racial difference in prepayment rates appears to be driven by the fact that Black motorists in our sample had a higher proportion of their stops occur in the two counties that somewhat commonly used this prepayment option—Mecklenburg and Southampton. In analyses not shown, we found

that, once we controlled for the county in which the citation was issued, the racial difference in prepayment rates reversed, such that Black motorists within a given county were actually less likely than White motorists to prepay their misdemeanor ticket.

Finally, it is important to note that 3 percentage points of the overall racial disparity at this stage cannot be explained by any of the factors listed in Figure 5.3. In Chapter Three, we detailed all of the potential factors that might affect outcomes at the court stage, and we were generally able to control for all of these, with the exception of whether the motorist completed a driver improvement clinic before the court hearing. The remaining racial disparity might be due to racial differences in this variable, or it might be due to disparate treatment by the court. It is also possible that this omitted variable can influence the effect that we have attributed to court appearance. Specifically, it is possible that motorists who go to court (without an attorney) were more likely to have taken the driver improvement clinic; the strength of this relationship depends on how common it was for this class to be taken. So, what we have attributed to be the impact of court appearance could actually be partly due to the impact of taking the driver's clinic. It is unlikely that this connection would drive the majority of the court appearance effect, because taking this class likely is more highly correlated with having a lawyer, but the impact of a lawyer is half the impact of attending court.<sup>6</sup> However, from a policy perspective, it is important to more precisely disentangle these impacts to determine the most effective intervention. That is, is it mainly important to implement interventions that encourage people to go to court or that get individuals to complete the driver's clinic? A necessary first step is for the court to record when drivers complete the improvement course so that the mechanisms driving the overall racial disparity at the court stage can be more concretely identified.

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<sup>6</sup> We expect that attending court with an attorney is positively related with completing a driver improvement clinic, but, in this case, it makes sense to attribute the clinic impact to the attorney because the motorist likely would not have known to take the class without an attorney telling them to.



# Conclusions and Policy Implications

## Summary of Key Conclusions

Law enforcement officers and the courts have a significant amount of discretion in whether to charge a motorist speeding in the reckless range with a misdemeanor and then convict the person of that charge. There are stark racial differences in who benefits from this discretion. Of motorists in our sample cited for speeding between 0 and 15 mph above the misdemeanor cutoff, 19 percent of White motorists were convicted of a misdemeanor, while 36 percent of Black motorists were—a misdemeanor conviction rate that is almost double that of White motorists. Racial disparities were present at both stages of the process; 55 percent of the overall disparity occurred at the law enforcement stage, and 45 percent occurred at the court stage.

Although it was not possible to conclusively identify every factor that contributed to this large racial disparity, we identified several factors that explain the majority of it. At the law enforcement stage, half of the disparity is explained by the location in which motorists were cited; law enforcement officers were much less likely overall to engage in charge-discounting practices when they were policing in a county where Black motorists made up a larger share of the cited motorists than in other counties (see Table 5.2). The large county effect signifies the importance of including multiple jurisdictions in racial disparity analyses, because focusing on only one jurisdiction can underestimate the disparities present at a broader level. The remainder of the disparity at the law enforcement stage seems to have been driven both by racial differences in speed traveled and by disparate treatment by officers toward Black motorists.

At the court stage, almost half of the racial disparity in misdemeanor conviction rates was driven by Black motorists attending court at a lower rate than White motorists did. Significant amounts of this disparity were also caused by racial differences in having an attorney present at the hearing, as well as racial differences in prepaying the ticket in advance. Disparate treatment by the court toward Black motorists may also have played a role here. Overall, we were able to explain a higher percentage of the disparity at the court stage than at the law enforcement stage.

## Data Limitations

All of our conclusions necessarily focus on racial disparities in misdemeanor speeding convictions conditional on motorists being cited for speeding. To evaluate the full racial disparity present, one would ideally like to examine racial differences in who is convicted of a misdemeanor among all individuals who committed this offense; however, we could observe only the motorists cited for speeding, not everyone who was indeed speeding. Our analysis showed significant racial disparities at all observable parts of the process from the citation through court adjudication. To the extent that there are additional racial differences in who is stopped for speeding, as well as who is cited after being stopped, our analyses might underestimate the full extent of the racial disparity.

Our analyses also could have drawn stronger conclusions about the source of racial disparities at the law enforcement stage if the true speed that the motorist was traveling had been recorded. This information would have allowed a much simpler decomposition to determine how much of the disparity resulted from racial differences in speed traveled. Another limitation of the data was our somewhat noisy measure of a motorist's previous driving record and non-traffic criminal history, as well as the lack of information on a motorist's age. Having all of these variables would have allowed us to more accurately measure the extent of disparate treatment.

## Implications for Policy

For this project, we went into great depth trying to understand the sources of racial disparities in misdemeanor speeding conviction rates because policies cannot be successful at reducing disparities unless they address the root causes of those disparities. Speeding is one of the most-common factors involved in motor vehicle crashes (NTSB, 2017), so excessive speeding is not an offense that can just be ignored by law enforcement and the courts, as is happening with some non-violent, low-level offenses (Cheney, 2018). However, enforcement of speeding laws can be pursued in ways that are potentially more equitable.

A large percentage of racial disparities at the law enforcement stage was shown to have occurred because some counties were more lenient than others in how charge-discounting discretion was used. The remaining half of the disparity at the law enforcement stage was explained by either omitted variables or disparate treatment. One potential way to remove the option for disparate treatment, and to ensure that motorists in different counties are policed in the same way, would be to move to a statewide system of automated speed enforcement, in which cameras are set up to identify and send citations to speeding vehicles. These automated enforcement methods, which are common in Europe, are widely considered to reduce speeding-related crashes, fatalities, and injuries (NTSB, 2017; Wilson et al., 2010). Automated methods of enforcement have not been as common in the United States, and many states have laws that either prohibit or restrict this type of enforcement (NTSB, 2017; May, 2021). Virginia has been considering the option of automated speed enforcement for at least 30 years, but the use of cameras to cite motorists speeding in school and work zones has only recently been approved (Lynn et al., 1993; Lawton, 2020). Our results indicate that, when debating the merits of these automated enforcement policies going forward, an additional benefit to consider is their potential ability to reduce racial disparities by eliminating law enforcement officers' use of discretion in their charging decisions. Automated enforcement also would eliminate law enforcement's ability to use discretion in determining who to stop and cite and would reduce the likelihood of having tense encounters between law enforcement officers and motorists that can sometimes lead to fatal outcomes.

Implementing policies that automate speed enforcement in this manner will require thought about the overall level of enforcement desired. Currently, the discretion that law enforcement officers use helps both Black and White motorists, and the issue is that it is helping White motorists more. From an equity perspective, the ideal situation is one in which both Black and White motorists benefit from this discretion in an equitable way, not a situation that eliminates the benefits from discretion entirely. Thus, although automated enforcement methods have the ability to identify every motorist speeding above the cutoff and charge them with a misdemeanor, it may be optimal to include some leniency in the thresholds used. Many jurisdictions using, or proposing to use, automated enforcement allow a buffer zone above the speed limit before a penalty is applied (Traxler, Westermaier, and Wohlschlegel, 2018; May, 2021).

Another key implication of our study is that a large percentage of the racial disparities at the court stage occurred because of racial differences in who attended the court hearing. A first-order question is to better understand why these racial differences in court appearance rates occur so that policy options can be tailored to the root cause of that issue. For example, if this pattern of results is caused by racial differences in

being aware that court attendance is required, the citation issued to motorists can be restructured to make the next steps in the process more clear, and text message reminders for upcoming court dates can be sent to motorists. Fishbane, Ouss, and Shah (2020) examined the impact that these two interventions had on court appearance rates for misdemeanor summons in New York City and found that redesigning the summons form reduced failures to appear by 13 percent, and text message reminders reduced failures to appear by 21 percent. Similar policies could be implemented for speeding citations as well.

Finally, there might also be racial differences in individuals' ability to go to court, which can be due to transportation difficulties, a need for child care, or an inability to miss work. Many jurisdictions have started to develop online platforms so that court hearings for traffic violations can occur remotely (Prescott, 2017). Often, these platforms allow interactions between the motorist and the judge to occur asynchronously; for instance, motorists submit relevant information to judges through the platform, and judges examine the information at their own convenience and make a decision. Such platforms might also result in a more standardized process, which might lessen the importance of attorneys—another driver of the overall racial disparity observed at the court stage. Furthermore, these platforms could hide the race of the motorist from the judge, potentially reducing judges' ability to engage in disparate treatment.





## Identifying Officers Who Did Not Discount Speeds When Issuing Citations

For a few of the analyses presented in this report, we relied on identifying the law enforcement officers who were not discounting the speed when citing a motorist for speeding. This appendix discusses how we identified those officers. Our methodology relies on (1) identifying what we would expect Figures 3.1, 3.2, and 3.3 (the distribution of cited speeds around the misdemeanor cutoff, by speed limit grouping) to look like if officers were not discounting speeds and then (2) selecting the officers who met these criteria. Because the expected distributions for the higher speed limits are different from those expected for the lower speed limits, we discuss these scenarios separately. Our approach is adapted from the methodology developed in Goncalves and Mello (2021), although our criteria to identify nondiscounting officers are somewhat different because the distributions (and the way that the cutoffs interact with these distributions) are different in our setting. The analyses described in this appendix use the entire sample of speeding violations at a given speed limit, as opposed to focusing on just the violations at or above the misdemeanor cutoff.

To classify officers who made stops in areas with speed limits between 25 and 60 mph, we used only officers who had more than 200 stops for a given grouping of speed limits in one county. Because we were classifying officers based on what their distribution of cited speeds looked like, it was important that each officer had enough stops to identify this distribution. This restriction dropped 33 percent of the observations in areas where the speed limit was 25–60 mph.<sup>1</sup> The hallmark of officers speed-discounting when issuing citations is that there is bunching right at the misdemeanor cutoff. Thus, to identify the officers in our sample who were speed-discounting (i.e., *discounting officers*), we required the percentage of motorists cited at the cutoff in the officer's distribution to be greater than the percentage of motorists cited 1 mph below the cutoff.<sup>2</sup> Of the remaining sample, 63 percent of motorists were stopped by an officer whom we classify as engaging in speed-discounting.

To identify the officers who were not discounting speeds when citing motorists in speed limit zones between 25 and 60 mph, we first determined what the speed distribution should look like if officers were not discounting speeds, based on Figures 3.1 and 3.2, as well as our discussion of the determinants of this distribution (see the section on discretion in cited speed, Chapter Three). We would expect the peak of this non-discounting distribution to occur at 4 mph below the misdemeanor cutoff, and then the distribution would continuously decline from that point on. To select the officers who appeared to not be discounting speeds, we wanted to put in as few restrictions as possible that would generate a distribution of cited speeds that fit this pattern. We used the following requirement to identify officers not discounting speeds: Between the range of 2 mph below the misdemeanor cutoff to 2 mph above the cutoff, the percentage of motorists cited at

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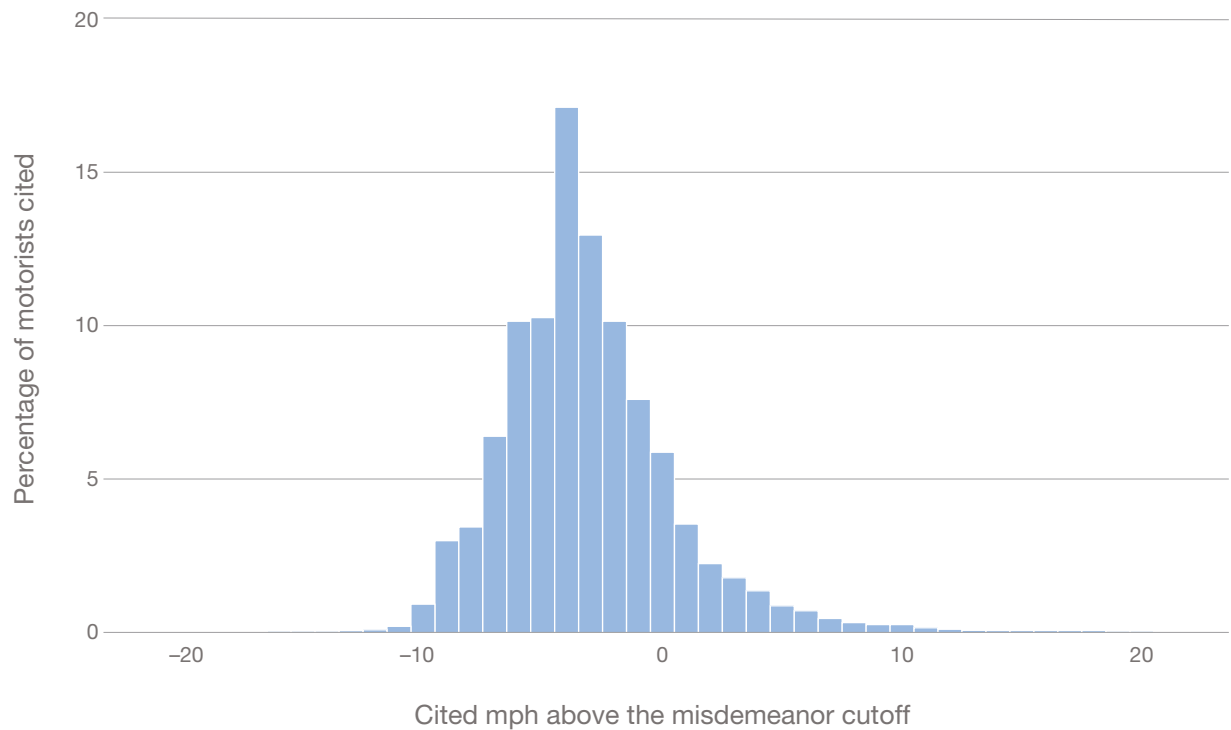
<sup>1</sup> One of the primary reasons why so many officers had 200 or fewer stops seems to be because a given officer's name might be written differently across citations. The data provide the officer's last name and first initial and sometimes the officer's department and rank. A given officer's name could easily be written or spelled several different ways.

<sup>2</sup> This was based on a simple comparison of percentages and not on a hypothesis test.

a given speed needs to be declining as cited speed increases. For instance, the percentage of motorists cited at a speed 1 mph below the cutoff needed to be lower than the percentage cited at 2 mph below the cutoff, the percentage of motorists cited at exactly the cutoff needed to be lower than the percentage cited at 1 mph below the cutoff, and so on. With this classification, 11 percent of the citations were handed out by officers whom we classified as not engaging in speed-discounting (i.e., *nondiscounting officers*). Note that our definition of *nondiscounting officers* is not simply the opposite of the definition of *discounting officers*, so 26 percent of citations were given out by officers who were not classified in either category. The patterns among these nonclassified officers did not cleanly fit either group, so we did not use these observations in analyses that compare outcomes for motorists stopped by officers who did and did not discount speeds.<sup>3</sup> Figure A.1 shows the distribution of cited speeds in speed limit zones of 25–60 mph and among motorists cited by officers whom we classified as not discounting speeds.

We conducted a similar exercise for officers making stops in areas where the speed limit was 70 mph, although the requirements to identify these officers are naturally different from the requirements for the earlier analysis. That is because the distribution looks different at this higher speed, and the misdemeanor cutoff

**FIGURE A.1**  
**Distribution of Cited Speeds in Speed Limit Zones Between 25 and 60 mph Among Motorists Cited by Officers Who Did Not Discount Speeds**



<sup>3</sup> Many of the officers whom we did not classify in either category had cited speed distributions that were close to what we required for nondiscounting officers, although the pattern was not perfect, likely because of the random noise that would be expected given that the sample sizes for many officers were close to 200. Note that this often means that very few observations are in the tail of the distribution, which is where our requirements for identifying nondiscounting officers are. For other officers who were not classified in either category, their distributions exhibited bunching at both the cutoff and 1 mph below the cutoff. For these officers, the percentage of motorists cited at 1 mph below the cutoff was higher than the percentage cited at 2 mph below the cutoff, although the percentage cited at exactly the cutoff was below the percentage cited at 1 mph below the cutoff. It seems that these officers might have been discounting motorists to both the cutoff and 1 mph below the cutoff.

occurs closer to the speed limit than at lower speed limits. For these analyses, we selected all officers who had more than 100 stops in areas where the speed limit was 70 mph.<sup>4</sup> Figure 3.3 indicates that there was not much enforcement of the speed limit below the misdemeanor cutoff; thus, if no discounting was occurring, we would expect the distribution of cited speeds to begin a couple of miles per hour below the misdemeanor cutoff and then be roughly the shape of a normal distribution. This implies that the percentage of motorists cited at the misdemeanor cutoff should be less than the percentage of motorists cited 1 mph above the cutoff. With this classification, only 2 percent of motorist stops were conducted by officers who were not discounting speeds.<sup>5</sup> The key reason that we want to identify the nondiscounting officers is so that we can compare the outcomes of their stops with the outcomes of stops by officers who did discount speeds. The fact that such a small subsample of the stops were conducted by officers who did not discount speeds indicates that this comparison is not likely to be too useful, because this small subsample may be different from the remaining sample in other ways. Thus, when we conducted analyses that rely on identifying the officers who discounted speeds, we focused only on stops conducted at speed limits between 25 and 60 mph.

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<sup>4</sup> We allowed officers to have fewer stops than we did for speed limits of 25–60 mph because our requirements here are relevant to the main part of the distribution (as opposed to the tail of the distribution in the other analysis).

<sup>5</sup> One reason why more speed-discounting was likely to be used in areas with a speed limit of 70 mph is because the misdemeanor cutoff was closer to the speed limit, so a much larger percentage of motorists in these areas were likely to be driving above the cutoff.



## Disentangling Differences in Motorist Speed from Disparate Treatment at the Law Enforcement Stage

In this appendix, to better understand whether the unexplained disparity at the law enforcement stage presented in Table 5.1 occurs because of disparate treatment or because of racial differences in motorist speed, we conduct an exploratory analysis using the method developed in Goncalves and Mello (2021). Their method relies on comparing the cited speed distribution for officers who did not discount speeds with the cited speed distribution for officers who did discount speeds for motorists in each racial group. In Appendix A, we detailed how we identified the officers who did and did not discount speeds. Because almost all officers discounted speeds when they cited motorists in areas where the speed limit was 70 mph, we can conduct this analysis only for the motorist stops that occurred in speed limit zones between 25 and 60 mph. Furthermore, as described in Appendix A, we identified whether an officer engaged in speed-discounting only if the officer conducted more than 200 stops in areas with these speed limits. This reduced our sample further to 43,646 citations in which the cited speed was between 0 and 15 mph over the misdemeanor cutoff; only 14 percent of these citations were conducted by officers who did not appear to have discounted speeds. Because of the relatively small sample sizes here, as well as the fact that we could not include stops conducted in areas with the highest speed limits (which is where Table 5.1 indicates the largest racial disparities occurred), the analysis presented in this appendix should be considered exploratory.

The first four columns of Table B.1 present the proportion of Black and White motorists stopped at a given speed at or above the misdemeanor cutoff when using the samples of officers who did and did not discount speeds. Because there were differences in the locations where Black and White motorists were cited that need to be controlled for, Table B.1 does not present straight speed tabulations for each of the four officer and motorist combinations, although the numbers can be interpreted in that way. Rather, the numbers presented in each row are derived from the following series of regressions, which allow us to identify these speed distributions while controlling for location:

$$Speed\_Indicator_{i,l} = \beta_0 + \beta_1 * White\_NoDisc_{i,l} + \beta_2 * Black\_Disc_{i,l} + \beta_3 * White\_Disc_{i,l} + \gamma_l + \varepsilon_i. \quad (B.1)$$

$Speed\_Indicator_{i,l}$  takes on a separate value for each row in Table B.1. In the first row, this variable is an indicator for whether the motorist was cited at 0 mph above the cutoff; in the second row, this variable is an indicator for whether the motorist was cited at 1 mph above the cutoff; and so on. We control for location  $\gamma_l$  using a fixed-effects specification. Thus, in the first row,  $\beta_0$  represents the proportion of Black motorists cited for a speed of 0 mph above the cutoff when officers did not discount speeds. The fixed-effects estimator identifies this proportion within a county and then averages this proportion across counties. To get the proportion of White motorists cited at 0 mph above the cutoff when officers did not discount speed, we summed the estimates of  $\beta_0$  and  $\beta_1$ . In this way, we are able to generate the cited speed distributions in each of the four officer and motorist combinations while controlling for location.

The core idea behind the analysis presented here is that, if officers were not discounting speeds, the proportion of Black motorists cited at each speed above the cutoff should be what is shown in column 1. Compar-

TABLE B.1

**Comparison of the Distribution of Cited Speeds by Law Enforcement Officers Who Did and Did Not Discount Speeds**

Miles Per Hour Above the Cutoff	Proportion of Motorists Cited When				Proportion of Motorists Whose Speed Was Discounted to Exactly the Cutoff		<i>p</i> -value (7)
	Officers Did Not Discount Speeds		Officers Discounted Speeds		Black Motorists (5)	White Motorists (6)	
	Black Motorists (1)	White Motorists (2)	Black Motorists (3)	White Motorists (4)			
0	0.327	0.353	0.506	0.551			
1	0.198	0.188	0.093	0.093	0.530	0.505	0.375
2	0.112	0.127	0.080	0.073	0.286	0.425	0.006
3	0.098	0.096	0.074	0.069	0.245	0.281	0.601
4	0.076	0.076	0.057	0.055	0.250	0.276	0.847
5	0.051	0.046	0.042	0.038	0.176	0.174	0.915
Observations	2,153	3,756	13,986	23,751			

NOTE: The sample corresponds to stops that occurred in areas with a speed limit between 25 and 60 mph and that were made by officers for whom we could identify whether they discounted speeds. The *p*-value corresponds to a hypothesis test of whether, for a given mile per hour above the cutoff, the rate that Black motorists' speed was discounted was different from the rate that White motorists' speed was discounted.

ing columns 1 and 3 indicates that speed-discounting increases the proportion of Black motorists who were cited at the cutoff and reduces the proportion who were cited at speeds 1–5 mph above the cutoff (because these motorists' speeds were being moved to the cutoff). In column 5, we calculate the proportion of Black motorists whose speed was discounted to the cutoff from each mile per hour above the cutoff. For example, we would expect 20 percent of Black motorists to have been cited at 1 mph above the cutoff (because column 1 indicates 0.198 here), but when we look at citations by officers who discounted speeds, only 9 percent of Black motorists were cited at that speed (0.093 in column 3). Thus, 53 percent of the Black motorists who should have been cited at this speed likely had their speed discounted to the cutoff  $((0.198 - 0.093) / 0.198 = 0.530$ , column 5). We conducted similar analyses to determine the proportion of Black motorists who received discounting at speeds 2–5 mph above the cutoff. We conducted analogous analyses for White motorists, and these speed-discounting percentages are shown in column 6. The last column presents the *p*-values from testing whether the proportion of Black motorists who received speed-discounting at a given speed above the cutoff was different from the proportion of White motorists who received such discounting. We do not present estimates for the proportion of the sample cited at 6–15 mph above the cutoff, because the estimates become considerably noisier as the event rate declines.

The results presented in Table B.1 indicate that part of the reason for the unexplained racial disparities in our findings might be racial differences in the speed that motorists travel, as well as differential treatment by officers. A comparison of columns 1 and 2 indicates that, among motorists cited between 0–5 mph above the cutoff, Black motorists were driving somewhat faster than White motorists were. For example, 33 percent of Black motorists were cited for driving at the cutoff speed, while 35 percent of White motorists were;

this difference is statistically significant at the 5 percent level.<sup>1</sup> This indicates that some of the reason that White motorists were more likely than Black motorists to be cited at the cutoff is because White motorists were more likely to be going that speed. However, a comparison of columns 5 and 6 provides some evidence that officers were more likely to discount the speed of White motorists. Specifically, among those driving at 1 mph over the reckless cutoff, White motorists were significantly more likely to have their speed reduced to the cutoff than Black motorists were.

As noted at the beginning of this appendix, we treat this analysis as exploratory because we were able to include only a small (and somewhat nonrepresentative) portion of our full sample. Furthermore, the research design relies on comparing cited speed distributions among officers who did and did not discount speeds; because most officers engage in speed-discounting, there is a concern that the citations issued by officers not discounting speeds might be systematically different in ways other than what we accounted for here. Finally, although we attempted to control for motorist speed, we could not control for other unobservable differences that might influence the final citation written, such as level of traffic or the presence of a child.

At a minimum, the difficulty in disentangling the source of this relatively large unexplained disparity reinforces the need for actual speed to be recorded on the citation along with the speed being charged. If this speed were to be recorded, it could be added as an additional control to the specification in Equation 5.2, and we could easily identify the remaining disparity net of speed differences.

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<sup>1</sup> For speeds above the cutoff, we compared the proportion of a given racial group that was driving at a speed at or below that many miles per hour above the cutoff. The proportion for White motorists was significantly lower than that for Black motorists for speeds 2–5 mph above the cutoff, further indicating that Black motorists seem to have been driving slightly faster. These results are consistent with observational studies that have also found evidence that Black motorists might be speeding at higher levels (for a review of this literature, see Cherkaskas, 2011). It is important to note that we did not observe the time of day of the citations; motorists of different races might tend to be on the road at different times of the day, which can affect the level of speeding (e.g., if heavier traffic slows drivers).





## Additional Tables

**TABLE C.1**  
**Summary Statistics for the Speeding Citations Dropped from the Main Analysis Sample**

	Speeding Below the Misdemeanor Cutoff			Speeding More Than 15 mph Above the Misdemeanor Cutoff		
	Overall	Black	White	Overall	Black	White
Black motorist	0.296	1.000	0.000	0.499	1.000	0.000
White motorist	0.704	0.000	1.000	0.501	0.000	1.000
Male motorist	0.580	0.545	0.596	0.739	0.711	0.764
Out-of-state motorist	0.371	0.384	0.365	0.615	0.721	0.509
Speed limit in the area cited						
25, 35, 45	0.331	0.312	0.338	0.121	0.085	0.156
55, 60	0.571	0.625	0.548	0.258	0.226	0.290
65, 70	0.099	0.062	0.114	0.621	0.688	0.554
Location						
Accomack	0.053	0.050	0.054	0.047	0.041	0.054
Amherst	0.073	0.049	0.084	0.044	0.032	0.055
Bedford	0.048	0.021	0.059	0.027	0.007	0.047
Brunswick	0.112	0.156	0.093	0.181	0.258	0.104
Chesterfield	0.064	0.076	0.059	0.020	0.020	0.020
Essex	0.072	0.080	0.069	0.008	0.006	0.010
Fluvanna	0.018	0.011	0.021	0.005	0.002	0.008
Fredericksburg	0.021	0.019	0.022	0.015	0.011	0.018
Halifax	0.048	0.065	0.041	0.028	0.023	0.034
Louisa	0.034	0.017	0.040	0.031	0.018	0.044
Madison	0.042	0.022	0.050	0.028	0.014	0.041
Mecklenburg	0.054	0.070	0.047	0.183	0.252	0.115
Prince George	0.035	0.043	0.032	0.034	0.039	0.029
Rockbridge	0.040	0.012	0.051	0.083	0.051	0.115
Shenandoah	0.053	0.015	0.069	0.091	0.061	0.122
Southampton	0.174	0.260	0.137	0.088	0.104	0.072
Warren	0.019	0.005	0.025	0.040	0.015	0.064
York	0.043	0.030	0.048	0.047	0.045	0.049
Sample	392,728	116,107	276,621	2,956	1,475	1,481

**TABLE C.2**  
**Racial and Speeding Citation Composition, by County**

Location	Racial Composition			Number of Speeding Citations in the Sample	Proportion of Speeding Violations Where the Speed Limit Was			Proportion of Speeding Violations Classified as a Misdemeanor by Law Enforcement
	Black	White	Hispanic		25, 35, or 45 mph	55 or 60 mph	65 or 70 mph	
Accomack	0.288	0.599	0.091	30,172	0.573	0.428	0.000	0.088
Amherst	0.191	0.749	0.024	38,529	0.272	0.553	0.176	0.074
Bedford	0.072	0.876	0.024	24,361	0.412	0.588	0.000	0.047
Brunswick	0.548	0.407	0.025	88,759	0.087	0.461	0.453	0.319
Chesterfield	0.245	0.606	0.095	35,606	0.604	0.309	0.087	0.038
Essex	0.374	0.549	0.039	33,163	0.210	0.790	0.000	0.059
Fluvanna	0.153	0.776	0.038	9,561	0.513	0.226	0.261	0.039
Fredericksburg	0.241	0.591	0.109	11,040	0.964	0.000	0.036	0.077
Halifax	0.363	0.597	0.022	25,116	0.418	0.583	0.000	0.049
Louisa	0.156	0.781	0.033	22,473	0.225	0.361	0.415	0.112
Madison	0.093	0.843	0.032	22,257	0.018	0.982	0.000	0.073
Mecklenburg	0.346	0.600	0.031	59,321	0.144	0.283	0.574	0.447
Prince George	0.326	0.542	0.086	23,818	0.377	0.152	0.471	0.249
Rockbridge	0.033	0.919	0.020	53,648	0.083	0.096	0.821	0.289
Shenandoah	0.029	0.872	0.074	52,509	0.150	0.054	0.796	0.166
Southampton	0.347	0.610	0.020	84,249	0.194	0.809	0.000	0.076
Warren	0.050	0.860	0.053	16,607	0.503	0.109	0.387	0.101
York	0.138	0.701	0.069	25,927	0.575	0.087	0.338	0.105

SOURCE: Racial composition data were obtained from U.S. Census Bureau, 2019. Other data were estimated using the full sample of 657,116 speeding citations.

**TABLE C.3**

**Proportion of Reckless Speeding Violations That Law Enforcement Charged as an Infraction, by County**

Location	Speed Limit of 25, 35, or 45 mph			Speed Limit of 55 or 60 mph			Speed Limit of 65 or 70 mph		
	Cited at the Cutoff	Cited Above the Cutoff but Classified as an Infraction	Total Who Received an Infraction	Cited at the Cutoff	Cited Above the Cutoff but Classified as an Infraction	Total Who Received an Infraction	Cited at the Cutoff	Cited Above the Cutoff but Classified as an Infraction	Total Who Received an Infraction
All counties	0.478	0.331	0.809	0.452	0.181	0.633	0.477	0.029	0.506
Accomack	0.527	0.260	0.787	0.568	0.046	0.614	N/A	N/A	N/A
Amherst	0.727	0.134	0.861	0.649	0.139	0.788	0.518	0.052	0.570
Bedford	0.314	0.586	0.900	0.340	0.341	0.681	N/A	N/A	N/A
Brunswick	0.631	0.114	0.745	0.499	0.030	0.529	0.333	0.006	0.339
Chesterfield	0.418	0.528	0.946	0.479	0.359	0.838	0.550	0.215	0.765
Essex	0.475	0.281	0.756	0.489	0.046	0.535	N/A	N/A	N/A
Fluvanna	0.406	0.512	0.918	0.380	0.412	0.792	0.679	0.142	0.821
Fredericksburg	0.650	0.092	0.742	N/A	N/A	N/A	0.374	0.030	0.404
Halifax	0.406	0.491	0.897	0.413	0.326	0.739	N/A	N/A	N/A
Louisa	0.399	0.314	0.713	0.398	0.294	0.692	0.735	0.014	0.749
Madison	0.255	0.510	0.765	0.405	0.331	0.736	N/A	N/A	N/A
Mecklenburg	0.393	0.222	0.615	0.399	0.065	0.464	0.263	0.010	0.273
Prince George	0.442	0.094	0.536	0.325	0.046	0.371	0.380	0.010	0.390
Rockbridge	0.541	0.186	0.727	0.588	0.054	0.642	0.592	0.001	0.593
Shenandoah	0.389	0.518	0.907	0.460	0.168	0.628	0.677	0.043	0.720
Southampton	0.321	0.409	0.730	0.419	0.156	0.575	N/A	N/A	N/A
Warren	0.744	0.150	0.894	0.640	0.031	0.671	0.795	0.005	0.800
York	0.367	0.400	0.767	0.299	0.416	0.715	0.319	0.367	0.686

NOTE: This table uses the main analysis sample of 261,432 observations. In each of the three vertical panels, the third column is the sum of the first two columns. N/A indicates that the county did not have any stops that occurred at that speed limit (likely because it had no areas at those speed limits within that jurisdiction).

**TABLE C.4**  
**Proportion of Cited Motorists in Various Case Pathways Whose Charge Was Downgraded to an Infraction or Dismissed by the Court, by County**

Location	Motorist Did Not Attend Court	Motorist Attended Court Without an Attorney	Motorist Attended Court with an Attorney
All counties	0.075	0.605	0.843
Accomack	0.018	0.709	0.794
Amherst	0.109	0.535	0.604
Bedford	0.124	0.597	0.851
Brunswick	0.009	0.722	0.951
Chesterfield	0.072	0.770	0.761
Essex	0.091	0.779	0.952
Fluvanna	0.039	0.750	0.764
Fredericksburg	0.052	0.722	0.902
Halifax	0.199	0.715	0.926
Louisa	0.015	0.591	0.638
Madison	0.087	0.858	0.826
Mecklenburg	0.101	0.380	0.855
Prince George	0.042	0.375	0.873
Rockbridge	0.071	0.557	0.634
Shenandoah	0.206	0.644	0.795
Southampton	0.168	0.828	0.969
Warren	0.094	0.379	0.862
York	0.059	0.502	0.752

NOTE: This table restricts the main analysis sample to motorists who were charged with a misdemeanor by law enforcement, who did not prepay the ticket, and for whom we observed the court outcome ( $n = 98,964$ ). Each value shows the proportion of motorists who were not convicted of a misdemeanor.

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