SURVIVING NIBRS: RESTORING AMERICA'S UNREPORTED HOMICIDES AND EXPLORING THE INFLUENCES FOR LAW ENFORCEMENT'S DECLINING COOPERATION IN CRIME REPORTING

by

Thomas Kirk Hargrove

A Thesis
Submitted to the
Graduate Faculty
of
George Mason University
in Partial Fulfillment of
The Requirements for the Degree
of
Master of Arts
Criminology, Law and Society

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Date: _____ Fall Semester 2023
George Mason University
Fairfax, VA

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A Thesis submitted in partial fulfillment of the requirements for the degree of Master of Arts at George Mason University

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DEDICATION

To my wife, Anne, for her constant and unwavering support. When I announced that her 65-year-old husband wanted to go back to school to get a master's degree, Anne immediately and enthusiastically agreed. For the uncounted meals and chores she had to perform alone while I puzzled through hundreds of peer-reviewed articles, I am eternally grateful.

ACKNOWLEDGEMENTS

My deepest thanks and appreciation to Dr. Beidi Dong, who patiently and consistently supported this project, always asking the right questions and teaching me statistical procedures I hadn't learned yet. Thanks, also, to the other members of my committee: David B. Wilson and Cesar Jon Rebellon. Finally, my gratitude also goes to my first academic advisor, Catherine Gallagher, who suggested I try to obtain homicide data that hundreds of police departments were unable to report to the FBI.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

National Incident Based Reporting System ..... NIBRS
National Vital Statistics System .....NVSS
Summary Reporting System .....SRS
Supplemental Homicide Report ..... SHR
Uniform Crime Report .....UCR

ABSTRACT

SURVIVING NIBRS: RESTORING AMERICA'S UNREPORTED HOMICIDES AND EXPLORING THE INFLUENCES FOR LAW ENFORCEMENT'S DECLINING COOPERATION IN CRIME REPORTING

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George Mason University, 2024

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FBI adoption of the National Incident Based Reporting System (NIBRS) in 2021 as the mandatory reporting standard for crime data resulted in an unprecedented decline in police reporting to the federal government. Only 57 percent of the nation's homicides were reported that year. This study obtained more than 6,000 unreported homicides from local and state police agencies using Freedom of Information Act and Open Record Act requests. The study compares FBI data and the study's augmented dataset for accuracy and completeness using the National Vital Statistics System as a reference. This study also used a 3,134-county regression analysis to explore the socioeconomic factors associated with police decisions to participate, or to decline participation, in the more complex NIBRS program.

CHAPTER 1: INTRODUCTION

James Comey, director of the Federal Bureau of Investigation, addressed the 2015 annual meeting of the International Association of Chiefs of Police by warning that homicides and other violent crimes were rising unexpectedly in dozens of major cities. Comey said much of the increase focused on black-on-black violence in the aftermath of racial unrest in Ferguson, Missouri, and many inner-city neighborhoods following the fatal shootings by police of Michael Brown and a growing list of other black victims. "We have a crisis of violent crime in some of our most vulnerable communities across the country," Comey told thousands of police chiefs and supervisors meeting in Chicago (Lowery, 2015). Police officers were increasingly disconnected from the communities they serve, prompting lawlessness amid widespread doubts about their legitimacy, the FBI chief said (Comey, 2018).

Then Comey ended his speech – which made headlines nationwide – on an unusual note. "I know data is a boring word. But it gives us a full view of what happens," he said. "For decades we have all relied upon the Uniform Crime Reports. But they aren't comprehensive or timely enough to be useful to us. Not long after the Ferguson riots, I asked my staff: 'Can you tell me the data, show me how many African American people are being shot by law enforcement and sort it for me.' They couldn't do it. We have no

such data. … How can we address a rise in violent crime without good information?" (Comey, 2015).

That same day, the International Association of Chiefs of Police – in conjunction with the Major Cities Chiefs Association, National Sheriffs' Association, and the Major County Sheriffs' Association – issued a joint position paper calling for modernization of U.S. crime data and expressing strong support for the adoption of the National Incident-Based Reporting System (NIBRS) to replace the 85-year-old Summary Reporting System (SRS) of the Uniform Crime Report (UCR). For generations, the voluntary UCR asked local police to report simple summaries of how many violent crimes like homicide, robbery and assault occurred in each police jurisdiction and how many cases were cleared through the arrest of offenders (National Crime Statistics Exchange, 2017). The NIBRS system would seek case-level details on millions of major crimes each year like homicide, aggravated assault, sexual assault, and robbery. Police would be asked to submit details like the sex, race, age, and ethnicity for every victim and (if an arrest was made) for every offender. Also expected were details like the weapon used, time the crime occurred, date of offender arrest, relationship between victim and offender and circumstances (police theory of motivation) for each crime. NIBRS represented an enormous increase in the sheer volume of data police were asked to voluntarily provide.

The FBI Criminal Justice Information Services' Advisory Policy Board recommended a mandatory transition to NIBRS-only data collection by 2021. Comey officially accepted that recommendation in February 2016 (National Crime Statistics Exchange, 2017).

Six years later, the Uniform Crime Report was in tatters.

Inter-agency cooperation between local police and sheriff's departments to report crime data to the FBI deteriorated to the point that more than 43 percent of the nation's homicides were not reported by police to the federal government for crimes committed in 2021 (see Table 1). This calculation is based upon a comparison between the number of homicides police voluntarily reported to the FBI against the number of homicides medical examiners reported to the Centers for Disease Control and Prevention (CDC) through legally required death certificates.

Even before NIBRS became mandatory in 2021, federal authorities realized that a great many departments would not achieve NIBRS compliance. The Bureau of Justice Statistics collaborated with the FBI to create the National Crime Statistics Exchange NIBRS Estimation Project to "help the FBI and the BJS produce national estimates with NIBRS data" (FBI, 2019). The Bureau has conceded that future official crime reports, as found in the annual *Crime in the United States* and other documents, will be based upon these estimates rather than actual data received.

Table 1 shows the decline in homicide reporting by police according to the FBI's Summary Reporting System (SRS) and the Bureau's Supplementary Homicide Report (SHR) compared to that of medical authorities who reported homicides to the CDC during the run-up to mandatory NIBRS reporting in 2021:

Table 1: Homicide counts by CDC and FBI from 2010-2021

Year	CDC NVSS	FBI SRS	SRS Missing	Missing Percent	FBI SHR*	SHR Missing	Missing Percent
2010	16,259	14,577	1,682	10.3	13,806	2,453	15.1
2011	16,238	14,551	1,687	10.4	13,439	2,799	17.2
2012	16,688	14,822	1,866	11.2	13,671	3,017	18.1
2013	16,121	14,103	2,018	12.5	13,127	2,994	18.6
2014	15,872	13,923	1,949	12.3	12,983	2,889	18.2
2015	17,793	15,594	2,199	12.4	14,506	3,287	18.5
2016	19,362	16,891	2,471	12.8	16,035	3,327	17.2
2017	19,510	17,004	2,506	12.8	16,296	3,214	16.5
2018	18,830	15,877	2,953	15.7	14,969	3,861	20.5
2019	19,141	15,449	3,692	19.3	14,746	4,395	23.0
2020	24,576	19,719	4,857	19.8	18,529	6,047	24.6
2021	26,031	14,715	11,316	43.5	15,196	10,834	41.6

The declining participation rates for police crime reporting occurred during a period of increasing violent crime in the United States, especially homicides, as Table 1 documents for homicide reporting after 2018. Much news coverage was focused upon the UCR and CDC when the 2020 data were released showing homicide had increased nearly 30 percent, the largest one-year increase on record. The murder surge continued into 2021, although the actual data coming into the FBI from local police falsely suggested a substantial decline as shown when FBI and CDC homicide counts are compared. Historically, the FBI received more complete reporting to its Summary Reporting System since this was the minimum participation requirement for local police to qualify for federal Assistance to Law Enforcement Grants, a powerful incentive for UCR

* To make SHR homicide counts comparable to the SRS and CDC counts, only those incidents reported as "murder or nonnegligent manslaughter" were included. Omitted from the SHR counts were "manslaughter by negligence" which could include conditions such as the negligent handling of a firearm or the death of an offender who was threatening police officers or civilians.

participation. Federal grant approval did not require participation in SHR reporting, however, and many police agencies did not report such case-level details. Participation rates for the SHR actually improved relative to the SRS in 2021 because any agency meeting the NIBRS standard was automatically reporting case-level details needed to assemble the SHR.

The purpose of this master's thesis project is to seek to recover the historical record of homicide in the wake of declining police participation in crime reporting to the FBI. The thesis that will be tested is: **Can a nongovernmental intervention for the collection of crime data produce a homicide dataset that is more complete and reliable than the data released by the FBI for 2021 murders? Further, can analyses of recovered data help our understanding of the influences for law enforcement's declining cooperation in crime reporting?** Toward these goals, the author has contacted dozens of state law enforcement agencies and local police departments, seeking homicide records (both SRS summaries and Supplemental Homicide Report case data) that were not reported to the FBI.

This project will make a detailed study of the historical failures of the Uniform Crime Report (chapter 2), documenting the patterns of non-compliance by local police in reporting to the FBI even before NIBRS became an issue. We will examine patterns in the types of homicides that have been under-reported (chapter 5) as well as the statistical nature of communities with police agencies that do not report data to the FBI. This analysis will examine how that these cooperative failures are influenced by local homicide rates, poverty, population size, other population characteristics, state traditions

of participation in federal data reporting, politics, and agency proximity to FBI field offices (chapters 6 and 7).

The project will demonstrate the non-ignorable errors that resulted from a 43% undercount in homicide reporting when NIBRS became mandatory in 2021, challenging any use of uncorrected Uniform Crime Reporting data for reputable research (chapter 8). Finally, we will examine the limitations in the author's attempts to augment the FBI's most recent datafiles through records obtained directly from local and state law enforcement under state Freedom of Information Acts or other local open records ordinances. The author's augmented SRS and SHR datafiles will be offered to the public at no cost through George Mason University's data libraries and through Internet portals the author maintains as founder of the nonprofit Murder Accountability Project (see www.murderdata.org).

CHAPTER 2: LITERATURE REVIEW OF REPORTING ERRORS IN THE UNIFORM CRIME REPORT

Congress created the Uniform Crime Report (UCR) in September 1930 when it approved the language currently codified in 28 U.S. Code § 534 to empower the U.S. attorney general to "acquire, collect, classify, and preserve" information for "criminal identification, crime, and other records." Federal lawmakers took the action at the urging of the International Association of Chiefs of Police (IACP) which, at the recommendation of Detroit Police Commissioner William P. Rutledge, had created a Committee on Uniform Crime Records in 1927 to construct a national system of crime reporting (Leonard, 1954). The police chiefs recognized that local crime statistics had become a mishmash of conflicting legal definitions and reporting rules that made comparisons between police jurisdictions virtually impossible (Tibbitts, 1932; Barnett-Ryan, 2007; Mosher et al., 2011).

But the IACP also hoped the data would "help reduce media pressure on local jurisdictions and police chiefs from sensational or sporadic increases in crime" (Congressional Research Service, 2008). In fact, one of the primary motivations behind the UCR's creation was a desire by many local law enforcement executives to have credible and authoritative statistics they could cite to dispute lurid claims of "crime wave!" made by newspaper tabloids and the rapidly growing electronic news medium of amplitude-modulated radio (O'Brien, 1985; Lohr, 2019; Mosher et al., 2011).

But the police chiefs did not ask – and Congress did not require – that UCR reporting be mandatory, complete, or even accurate. The earliest federal publications of

what professed to be the nation's crime statistics faced immediate academic denigration. University of Chicago academic Clark Tibbitts noted the data published in the 1931 UCR faced "considerable criticism" from his colleagues "on the basis that they do not always represent complete reporting and that their publication by a government agency implies a degree of accuracy that does not exist" (Tibbitts, 1932). He found at least some solace that the UCR included data from 1,127 cities and towns with a combined population of nearly 46 million, which Tibbitts estimated represented about 80 percent of the urban population of the United States. He did not publish estimates of the much lower reporting rate from rural areas.

Other crime scholars – very much aware of the maculate conception of the UCR – in the earliest days of federal crime statistics published their suspicions about the reliability of the data police provided voluntarily. George B. Vold in 1935 questioned whether increases in major crime occurrences reported by the St. Paul Police Department were real or the result of better counting practices from previous years. "It has been impossible for the present writer to determine whether this represents an actual increase in serious crime in this part of the country, or merely much needed improvement in police statistics," Vold wrote (Vold, 1935; Mosher et al., 2011). Others, like Ronald H. Bettie in his 1941 review of the sources of crime statistics, conjectured that crime numbers would wax or wane according to the exigencies of the reporting departments. "Traditionally, police departments are anxious to make a good showing in their annual figures, and there is, therefore, a natural tendency to record and report those facts which show a good

administrative record on the part of the department," Bettie said (Beattie, 1941; Mosher et al., 2011).

A growing body of scholars, with the venerable psychologist Donald T. Campbell leading, warn of a generally perverting influence when statistics become both official and important. "The more any social indicator is used for decision making, the more subject it will be to corrupting pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor," Campbell warned (Campbell, 1971; Johnston & Carley, 1981). Even A.E. Leonard, an accountant by training and one of the first chiefs of the FBI's Statistical Section, admitted to the social pressures local police executives face when making crime summaries publicly available in an annual national report. "While of special interest to police, crime is nonetheless also a primary concern of legislators and sociologists and a burden upon the entire community," Leonard wrote in 1954. "The crime picture of a community may not be an attractive one, but its details should not be obscured on that account. The crime record is everybody's business and everybody should know the score" (Leonard, 1954).

Suspicions over the reliability of Uniform Crime Report data were never allayed and became a source of bitterness on Capitol Hill in the coming decades. The 1931 Wickersham Commission on Law Observation and Enforcement recommended that Congress direct that a "complete body of statistics covering crime, criminals, criminal justice, and penal treatment be assigned at the federal level to a single agency" (House Subcommittee on Census and Statistics, 1968; Mosher et al., 2011). Lyndon Johnson's Presidential Commission on Law Enforcement and the Administration of Justice

complained 36 years later that "had this (Wickersham) recommendation been adopted, the present commission would not have been forced in 1967 to rely so often on incomplete information or to conclude so frequently that important questions could not be answered" (House Subcommittee on Census and Statistics, 1968). Even 78 years after the UCR's inception, congressional auditors concluded that the methodologies still employed by the crime statistics program "are subject to limitations and sources of error that can affect the quality, accuracy and reliability of their estimates" (Congressional Research Service, 2008).

One of the major reforms proposed by President Johnson's crime commission was the creation of the National Crime Victimization Survey (NCVS) administered by the United States Census to supplement at least some of the deficiencies of the Uniform Crime Report which, at best, could only report crimes "known to police." Scholars increasingly worried about the "dark figure of crime" and suspected that most offenses do not appear in official data (Mosher et al, 2011; Biderman et al., 1991) The president's commission, led by U.S. Attorney General Nicholas Katzenbach, reviewed the results of three pilot surveys conducted in Boston, Chicago and Washington, D.C., and concluded that "these surveys show that the actual amount of crime in the United States today is several times that reported in the UCR" (President's Commission, 1967, page 21.) The Washington pilot study focused on three urban police precincts and concluded the actual crime rates for residents 18 years or over ranged, depending on the offense, from 3 to 10 times more than the number contained in UCR police statistics (Ibid, p 21).

The crime commission hoped that the NCVS would become "a new yardstick to measure the extent of crime in our society as a supplement to the FBI's Uniform Crime Reports." Commissioners envisioned the survey would be sufficiently extensive to allow detailed calculation of different kinds of crime rates within a major city or within a state in much the same way as the Labor Department and Census Bureau plot the rate of local unemployment. "Just as unemployment information is essential to sound economic planning, so someday may criminal information help official planning in the system of criminal justice," commissioners concluded (Ibid, report introduction, page "x").

Despite the high hopes for the NCVS, crime survey data never became sufficiently reliable as to be able to fix crime rate estimates either to the state-level or to specific police jurisdictions. The first national surveys were conducted in 1972 among 60,000 households containing about 136,000 respondents and 15,000 businesses. The enormous project included 12,000 households in 26 major cities. But crime surveys of businesses and subsamples of major cities were terminated in the mid-1970s to reduce costs in light of concerns that the central-city subsamples were undersized and other performance concerns (Rennison & Rand, 2007; Mosher et al., 2011).

Academics over the decades have made many comparisons between the UCR and NCVS that produced wide-ranging findings of comparability and reliability. Blumstein et al. (1991) found a "strong relationship" between the two reporting systems when concentrating on fluctuations in each and concluded they "behave similarly over time" (see also McDowall & Loftin, 1992). But Menard and Covey (1988) concluded after making spatial and temporal comparisons between the UCR and the victimization survey

that the two systems were so divergent that "the official statistics appear to have been measuring two different phenomena."

Michael D. Maltz in a 1999 project for the Bureau of Justice Statistics attempted a study for "Bridging the Gaps in Police Crime Data" and concluded that the NCVS is a "very reliable indicator of national trends in crime" but cannot provide local information on crime, which is meant to be provided by the UCR. "The quality of the data provided to the FBI, however, is uneven." Reporting from many police jurisdictions is still voluntary. "Moreover, despite the efforts of the FBI to maintain their quality, there are many gaps in the data that make their use questionable," he concluded (Maltz, 1999). A four-decade trend study from a team led by criminologist Janet Lauritsen generally agreed with Maltz. They concluded the UCR and NCVS showed similar trends for crimes like robbery, burglary and motor vehicle theft, but the two reporting systems diverged significantly for rape, aggravated assault, or other serious violent offenses. Their bottom line: "The NCVS is a more valid indicator of long-term trends in violence for crimes other than robbery" (Lauritsen et al., 2016).

Since the fundamental concerns with the Uniform Crime Report are its incompleteness and worries that it has been manipulated by parochial and political pressures within police departments, an alternative and overlapping data source judged to be more complete than the UCR could be a valuable tool in spotlighting exactly where crime reporting to the FBI is deficient. Scholars soon realized there is an even older reporting system whose accuracy and completeness are mandated by law (Barnett-Ryan, 2007; Loftin et al., 2008; Loftin et al., 2017.) The National Vital Statistics System

(NVSS) is maintained by the National Center for Health Statistics at the Centers for Disease Control and Prevention (CDC). It gathers and disseminates data obtained from death certificates. In most jurisdictions in the United States, it is unlawful to transport and dispose of human remains without a death certificate. Failure to report a human death can – and often does – result in criminal prosecution. For example, in the state of Texas, the superintendent or general manager of any health care institution is required to "provide notice of the death of an individual" under their care, custody or control according to Articles 49.24 and 49.25 of the Texas Code of Criminal Procedure. Failure to do so is a class B misdemeanor punishable by a fine of up to $2,000 and imprisonment up to 180 days. Texas has other death reporting requirements, including mandates that any death that "may have been caused by unlawful means" must be reported and result in an inquest by a justice of the peace (Texas Code of Criminal Procedure, Article 49.04).

The Centers for Disease Control and its federal predecessors confronted death reporting challenges similar to the crime reporting hurdles faced by the FBI. But unlike the crime reporting system, medical authorities aggressively labored to standardize and improve death reporting for more than a century. Since there are many thousands of different causes of death, the International Statistical Institute during its 1893 meeting in Chicago ratified the first worldwide systematic classification of causes of death (World Health Organization, 2021.) There have been many upgrades to the International Classification of Diseases (ICD) since then, and ICD Version 10 developed in partnership between WHO and CDC is currently the reporting standard used by NVSS. The ICD-10 was adopted as the nation's death-reporting definitional yardstick in 1999 and will

eventually be replaced by ICD-11 (Ventura, 2018, p 44). At the same time, the U.S. health system developed and refined a nationally standardized death certificate. The Department of Health and Human Services approved the current standard in 2003 which has been ratified by all 50 states and the District of Columbia (Ibid, p 50). Also, the federal-state partnership for vital records evolved in 2010 under the optimistic title of the "Getting from Good to Great Partnership" with a goal of developing "a reengineered, responsive, and nimble vital statistics system" that included robust use of electronic record exchange (Ibid, p 23).

Criminologists have repeatedly studied the increasingly state-of-the-art system of national vital records against the FBI's homicide reporting system that was little changed since the days of J. Edgar Hoover (Regoeczi et al., 2014; Ventura, 2018; Rennison & Rand, 2007). The superiority of the vital records report became apparent over time. One of the first scholars to attempt the comparison was George Vold, also one of the UCR's earliest critics. He compared the annual homicide rates during the period 1933 through 1951 as provided by the Office of Vital Statistics at the U.S. Public Health Service against the rate of murder and non-negligent manslaughter from the UCR. There were 9.7 homicides per 100,000 people reported by vital records in 1933 against only 7.1 murders per 100,000 reported by the FBI. The two systems were in equilibrium by 1944. FBI murder rates then surpassed vital records homicide rates and by 1951 claimed 4.9 murders per 100,000 against the vital records claim of 4.5 per 100,000. Vold suggested the "principal factor" for rising FBI murder reporting rates was a significant improvement in UCR participation rates. He said only 1,264 city police departments reported UCR data

in 1933, while 2,421 cities reported crime data by 1951 (Vold, 1952). This was one of the last times the UCR would compare favorably to the rapidly evolving national system of vital records.

In recent decades, the homicide counts provided by the NVSS consistently outperformed the still erratic reporting rate found in the UCR and SHR, prompting crime scholars to look to medical examiners for a more complete (although not without error) accounting of homicide. A comparison for the period 1976-1982 found the vital records system "routinely had a greater number of homicides than the UCR" with an annual difference of 1,791 homicides (Rokaw et al., 1990). The study also reported Black victims were more likely to be reported in both systems than white victims, although the lowest reporting was for victims of "other" races. These other race victim data had high variability "due in part to the relatively low frequencies being compared." One of the most recent comparisons covered the period 1981-2011 and also cited significantly greater reliability to the vital records: "The NVSS consistently shows a higher number and rate of homicides in the United States compared to the SHR (and UCR), likely due to the differences in coverage and scope and the voluntary versus mandatory nature of the data collection," the scholars concluded (Regoeczi et al., 2014).

Scholarly comparisons between the medical-versus-police data collection systems in recent years have uniformly found larger homicide counts through the NVSS. But there also can be erratic results during county-by-county comparisons. Wiersema et al. (2000) reported a review of homicide counts from 1980 through 1988 found police in 28% of counties reported a larger number of homicides than did medical authorities. "The

NVSS and SHR differ somewhat in their definition of cases, and other disagreements result from ambiguities in or failures to follow data collection procedures within each system" (Wiersema et al., 2000, p. 317). Yet this study, too, found the NVSS "generally exceeds" the homicide counts reported by police. Scholars have not conducted much analysis on the county-level patterns for crime reporting by police to the FBI, although Maltz and Targonski (2002) generally warn that smaller counties are much more likely to have "extensive reporting deficiencies" than larger counties (p. 313).

This consistently and significantly larger homicide count in the NVSS became especially noticeable to the general public in 2021 when both medical and police reporting systems concluded homicides experienced a nearly 30% increase in 2020, the largest single-year increase on record. Robert Anderson, Chief of the NCHS Mortality Statistics Branch, was asked why CDC data showed nearly 4,900 more homicides than the FBI's accounting, even though both systems showed a similar surge over the previous year. "The vital statistics data, of course, is coming from the death certificate" which is required by law, the federal statistician explained. But the FBI's reporting is "a voluntary system (and) not all law enforcement agencies report" (Anderson, 2021).

Although crime scholars for 93 years have questioned the accuracy of the nation's official accounting of crime, most have not considered these errors could result from inter-agency disputes or deliberate noncooperation between local police and the FBI. Yet growing scholarship into organizational structure suggests such competitions and cooperative challenges and failures are not only likely but inevitable (Bardach, 1998; McChrystal et al., 2015).

TRADITIONAL ORGANIZATIONAL AND COOPERATIVE THEORY

German sociologist, historian and political economist Max Weber was among the first to systematically study the nature and structure of the rapidly developing business and governmental institutions that we today call bureaucracies. Weber concluded the internal records of such systems are the holiest of holy grails. “The management of the modern office is based upon written documents which are preserved in their original and draught form,” Weber wrote. “There is, therefore, a staff of subaltern officials and scribes of all sorts.” These files along with a body of public officials and associated apparatus “make up a bureau,” he concluded (Weber, 1946, p. 196-198). The extent to which any bureaucratic organization will openly and freely exchange details about the contents of “the files” is a matter of considerable organizational theory and study (Lutzker, 1982).

Organizational cooperative theorists generally recognize that “one of the primary tasks” any organization faces is its relationships with other organizations, sometimes termed the dyadic environment. Broadly, organizations would be expected to adopt “the least constraining” of any inter-organizational associations “sufficient to maintain autonomy and ensure access to critical resources” (Scott & Davis, 2007, p. 242-244). This focus on access to resources developed into the formal resource dependence theory (RDT) which demonstrates how the external resources of an organization influences the practices and behavior of the organization (Pfeffer & Salancik, 1978). Procurement of external resources is an important principle of both the strategic and tactical management of any organization and the give-and-take of such relationships can easily result in

"power imbalances" (Scott & Davis, 2007, p. 243). Put most simply, agency collaboration is much more likely with another agency that controls resources.

Even the mere act of communication between cooperating agencies can be problematic. Public policy scholar Eugene Bardach used network theory to describe the capacities that facilitate efficient communications and information exchange between government agencies for particular purposes such as delivering services to citizens and seeking out partners with complementary resources. He noted, as the old joke goes, collaboration between government agencies is an unnatural act committed by nonconsenting adults. Bardach suggested that current public opinion favoring more results-oriented government makes collaboration more natural, but still far from easy (Bardach, 1998).

A more recent analysis of state- and local-government inter-agency cooperation found that such efforts might seem a beneficial way for state governments to capitalize on local knowledge, the "benefits to local government are less clear" (Mullins & Daley, 2010, p. 757). Local agency personnel may often have goals that diverge from their state counterparts and make significant constraints on their resources, forcing them to consider the opportunity costs of collaboration. Interorganizational collaborative capacity theory (ICC) suggests efforts to sustain interagency systems in pursuit of collective outcomes can become more problematic with perceived distance between governmental levels. Getting distant agencies to "cohere and create functionality" becomes a greater challenge (Comiskey, 2020, p. 112; Bardach, 1998). Successful collaboration requires iterative cycles of discovery and determination to develop trust, but all too often "organizational

cultures and rivalries, regulations and inadequate training could impede interagency collaboration" (Comiskey, 2020, p. 113).

Police agencies operating at different levels of government will, generally, have different organizational cultures not ideally suited to the development of effective countermeasures against crime and the related problems each agency targets (Geller and Morris, 1992). As shall be seen, the lines of authority, resource control, communication and cooperative benefits have become complicated between local law enforcement agencies and the federal government in general – and the FBI in particular.

WARNING SIGNS FROM EUROPE: WHEN POLICE AGENCIES DON'T COOPERATE

Recent European scholarship has provided important insight into the sources of cooperation or non-cooperation between police agencies. The studies have contrasted Europol, officially called the "European Union Agency for Law Enforcement Cooperation" headquartered at the Hague, and Frontex, officially the "European Border and Coast Guard Agency," also an agency of the European Union headquartered in Warsaw, Poland. At issue was why Europol suffered extensive turf-protective tendencies and a general lack of cooperation to share information about criminal activity while Frontex experienced much smoother cooperation and extensive information sharing about criminal activity at European border crossings.

The conclusion of one scholar was that at Europol "cooperation depletes important reputational resources of national authorities, threatening their 'reputational uniqueness' and triggering turf-protective tendencies" (Busuioc, 2016, p. 41). In other words, open sharing of information about criminal activities in each European nation

threatened the reputation both of the nation itself and of its criminal justice agencies. The reputation an agency cultivates is "the primary source of its power, which can allow it to enlist public support, build its autonomy, protect it from external attacks, and ultimately help ensure its survival. Organizations therefore expend a great deal of time and effort cultivating this valuable political asset" (ibid.)

In contrast, Frontex experienced vertical and horizontal cooperation efforts to bring important gains to national authorities' abilities to discharge their tasks successfully and, thus, their reputation-building efforts. In short, information sharing between nations was crucial to maintaining secure borders. Such complete and open exchange about criminal activities was perceived to enhance the reputations both of the reporting and information-receiving nations (Busuioc, 2016, p. 41).

But the cooperative failures within Interpol became endemic at the outset of the organization's creation in 1998. National police authorities were "reluctant to share information" with the international agency (Groenleer, 2009, p. 296). The failure became politically embarrassing. "I cannot influence the member states to insert more data. I appeal, I remind them all the time and now they are getting very tired," concluded one Europol director. "The system is by far not filled as it should be" (Busuioc, 2013, p. 147). Qualitative interviews concerning what one European police official termed the "information dehydration" of crime reporting to Interpol proved enlightening. There is a tendency of local police to proclaim, "It's my data" and to express concerns of losing control of both the information and the criminal case itself. One respondent said local

police “are afraid that by cooperating someone will steal the case” and that “I want to have all the credit from this one” (Busuioc, 2016, p. 48).

MEANWHILE, IN AMERICA, DISCONTENTMENT WITH THE FBI

Law enforcement agencies in the United States are no more immune from turf wars, reluctance to share detailed case information and reputational concerns than are their European colleagues. One of the central tensions for this problem is what scholars have termed the “lack of a rational basis” for the delineation of federal and nonfederal jurisdictions that inhibits strategic planning for efficient, effective, coherent anticrime efforts (Geller & Morris, 1992, p. 231). The “federated” structure of national, state, and local government means that most law enforcement in America is a mishmash of overlapping jurisdictional authority. This naturally resulted in a “chaotic state of affairs” throughout police jurisdictions and in development of “different organizational cultures” at various levels of government that challenge development of effective countermeasures for crime (Geller & Morris, 1992, p. 232).

Much of the inter-governmental tensions for law enforcement have focused upon the degree of information sharing between local police and the FBI, the nation’s largest and best-funded law enforcement agency. “Local police have complained for many years about being patronized, alienated, upstaged or simply ignored by FBI agents” (MaGuire & King, 2011, p. 322). The observation extends back decades. According to many “practitioners and observers” there is a historic pattern in which federal agencies, especially the FBI, were “principally information takers but not information providers” when working with local law enforcement (Geller & Morris, 1992, p. 266; also see

Morgan, 1983; Lupsha, 1991). Even when inter-agency law enforcement partnerships did work well, local and state agencies working with the FBI often "felt that information was a one-way street" (Weiss & Davis, 2002, p. 80).

Expectations for inter-governmental cooperation changed enormously in the aftermath of the international terrorist attack against New York's World Trade Center and the Pentagon in Washington, DC, on September 11, 2001. In fact, failure to maintain "good lines of communication" between federal agencies such as the FBI and Central Intelligence Agency was cited by the 9/11 Commission Report as a contributing factor in the terrorist acts that took nearly 3,000 U.S. lives (National Commission on Terrorist Attacks Upon the United States, 2004). The commission called for "unity of effort in sharing information" as a critical priority to prevent such foreign attacks in the future. Although the "relationship between the FBI and state and local police is the most obvious and visible issue in federal-local coordination for homeland security" there was a wide-spread concern in the aftermath of the 9/11 attack as to how the federal government's "alphabet soup of agencies" can work cooperatively with all levels of government to secure the homeland (Maguire & King, 2011, p. 322).

Yet even in the context of responding to 9/11 security issues, cooperative failures quickly re-emerged between local police and the FBI. Interagency cooperation with the FBI collapsed in Portland, Oregon, and were deeply strained in Dearborn, Michigan, home of the nation's largest Arab population. Federal authorities sought surveillance of foreign-born populations by local police, a goal that quickly ran afoul of local political interests. The Dearborn case illustrated "how surveillance and information-gathering can

have chilling effects on a city's social life that may undermine trust and cooperation with police" (Thacher, 2005, p. 644).

Unlike the era of the 1930s when the Uniform Crime Report was created and when the Federal Bureau of Investigation was a very new and little-known agency, the modern FBI is widely understood and suffers a deeply checkered history of cooperative information sharing with state and local police. It is against this relational backdrop that the Bureau is asking police departments to dramatically expand the level of federal oversight into crime investigation at the local level. The much more complex level of reporting requires most police departments to adapt to expensive, technologically challenging records management systems that will be especially burdensome to small and mid-sized police agencies (Strom & Smith, 2017; Smith, 2017; Addington, 2004).

Organization theory suggests such changing technical requirements and expanded information sharing conditions can, and probably will, cause stress to the strength of association bonds between local, state, and federal agencies. Practical police studies have confirmed the theory. Manning (1996) reported that technological changes frequently "destabilize the power balance between organizational segments by altering communication patterns, role relationships, the division of labor, established formats for organizational communication, and taken-for-granted routines" (Manning, p. 54). Sometimes the reactions within police agencies can be severe. Chan (2001) found that forced, from-on-high technology changes "alter the balance of power between workers and supervisors and between sworn officers and civilians. When officers feel that their

autonomy is threatened by internal surveillance or external interference, they are likely to resort to resistance or sabotage where possible" (Chan, 2001, p. 146).

POLICE COOPERATION AND THE NATIONAL INCIDENT BASED REPORTING SYSTEM

Recent comparisons between the total homicides reported by police to the FBI and the number of murders reported by medical examiners to the CDC's National Vital Statistics System show a steadily declining reporting rate by police from 2010 through 2020 (see Table 1). By 2020, local police and sheriff's departments failed to report nearly 1 in every 5 murders (19.8%) to the official federal accounting of major crime, a much greater failure rate than the 10.3% of murders not reported in 2010. Yet none of the reporting calculations in recent years match the estimates in the 1980s and 1990s when scholars believed the UCR was about 91% complete (Rokaw et al., 1990). Rokaw also found reporting rate variances according to victim gender and race, with female and Black murders more likely to be reported than male and white killings.

The widely cited cause in this downturn in police reporting is the FBI's adoption of the National Incident Based Reporting System (NIBRS) which is a much more robust and complex accounting than the old Summary Reporting System (SRS) under the traditional UCR. For most police departments, their annual UCR report could easily fit into a manila envelope. But under NIBRS, police are asked to provide a much larger depth of reporting for thousands of individual crimes in their jurisdiction, an unprecedented exchange of information with the federal government (Strom & Smith, 2017; Rantala & Edwards, 2020).

Former FBI Director James Comey, before he was dismissed by President Trump, set a transition date of January 1, 2021, when adoption of the NIBRS standard became mandatory for all police agencies reporting crime data to the federal government (National Crime Statistics Exchange, 2017; Comey, 2015 and 2018). NIBRS seeks case-level information for all eight "Part I" major crime offenses counted in the UCR: Murder and nonnegligent manslaughter, forceful rape, robbery, aggravated assault, burglary, larceny, motor vehicle theft and arson. Under the old UCR program, only case level details for murder were sought under the program's Supplemental Homicide Report. NIBRS also seeks arrest data for the 21 "Part II" offenses that include crimes like fraud, forgery, embezzlement, vandalism, gambling, drug possession and driving under the influence (Rantala & Edwards, 2020).

The FBI – according to a December 9, 2020, press release – received NIBRS data for crimes committed in 2019 from 8,497 law enforcement agencies whose jurisdictions covered more than 146.5 million U.S. inhabitants. But this represented only 51% of the 16,551 law enforcement agencies that submitted data to the UCR Program in 2019 (FBI, 2020). As it became clear that a great many departments would not achieve NIBRS compliance by 2021, the Bureau of Justice Statistics collaborated with the FBI to create the National Crime Statistics Exchange NIBRS Estimation Project to help the FBI and the BJS produce national estimates with NIBRS data (FBI, 2019). The Bureau has conceded that future official crime reports, as found in the annual Crime in the United States and other federal documents, will be based upon these estimates rather than actual data received.

LOCAL POLICE OBJECTIONS TO NIBRS REPORTING

To understand the nature and depth of local and state resistance to expanded, incident-based crime reporting to the federal government, the FBI and Bureau of Justice Statistics conducted a series of focus groups with local law enforcement officials from 64 agencies attending regional discussions held in five cities in 1996 (Roberts, 1997). The concerns about NIBRS that local police expressed at those meetings reinforced the cooperative failures predicted by organizational theory.

Since cooperative theory predicts that agency collaboration is much more likely with another agency that controls – or at least partially provides – resources (Pfeffer & Salancik, 1978; Scott & Davis, 2007), it's hardly surprising the number one objection to NIBRS raised by local police was the financial and labor costs of voluntarily providing dramatically expanded crime data to the federal government. "There is a general and widespread perception that implementing NIBRS is very costly for local law enforcement," the authors of the focus-group study concluded (Roberts, 1997, p. 9). Local police complained they will require larger data entry staff, will need to significantly modify their records management systems, and will need increased staff training, even down to street-level officers, to accommodate the "substantive increases" in case data acquisition and processing (Roberts, 1997, p. 10).

The transition to NIBRS forced local police to reassess their level of commitment to the federal reporting program, especially considering the costs involved. The Bureau of Justice Statistics in 2017 requested estimates from private records management vendors and concluded the top two venders would upgrade a local mid-sized police department's

records system to NIBRS compliancy at an initial cost of $367,000 to $377,000 with annual maintenance costs of $48,000 to $53,500 for every year thereafter (Smith, 2017). It's hardly surprising that 180 police departments opted out of the entirely voluntary federal crime reporting program from 2017 to 2019 during the run-up to the more expensive NIBRS program (UCR, 2022).

Studies into the European police reporting failures to Europol concluded that data-sharing cooperation would threaten the "reputational uniqueness" of each nation and, therefore, triggered a "turf-protective tendency" (Busuioc, 2016, p. 41). Likewise in the United States, local police reported they feared a "potential public relations disaster for local law enforcement agencies and government officials" if they participated in NIBRS reporting (Roberts, 1997, p. 10). This complaint demonstrated a cunning understanding of the statistical effect of the changes in crime reporting that the NIBRS standard presents. Under the old UCR Summary Report, a crime was counted only one time according to a hierarchy rule with homicide at the apex. Thus, an incident in which a victim was robbed, sexually assaulted, and killed would only be counted as a single homicide under the old UCR rules and as three offenses under the new procedures. Local officials expressed a widespread belief that crime will appear to surge in their jurisdictions, if for no other reason than that NIBRS allows the reporting of multiple offenses within an incident (Roberts, 1997). Local agencies complained the transition to incident-based reporting "will give the appearance that an agency's crime rate has increased" because NIBRS does not impose the hierarchy rule and since it "captures data

on a wide range of criminal offenses" (Strom & Smith, 2017, p. 1035; see also James & Council, 2008; Watson, 2000).

Just as importantly, the federal study into local resistance to NIBRS found widespread proof of the "different organizational cultures" found in federal versus non-federal police (Geller & Morris, 1992; Mullins & Daley, 2010; Comiskey, 2020; Bardach, 1998). There was widespread doubt of the benefits to local governments if they commit resources to NIBRS. Each of the regional focus groups concluded there was "no clear operational value" at the state and local level. NIBRS only has value in "macrolevel analyses" at the national level, they concluded (Roberts, 1997, p. 10). Even law enforcement officials sympathetic to NIBRS warned that the national reporting systems "can make your department look like it is failing." Retired Colorado Police Chief Joel F. Shults cautioned his colleagues with the old wisdom that a man can drown in a river that is 6 inches deep – on average (Shults, 2019).

FBI Director James Comey tried to address all three issues – the transitional costs, public perceptions that crime increased because of differing counting procedures and the operational value of NIBRS – during his 2015 speech to the annual meeting of the International Association of Chiefs of Police. "A lot of folks worry that if they move to NIBRS, there will be a political hit because it will look like crime went up," Comey said. Police must "explain to our political leaders, the media and our citizens (that) it isn't crime going up, we are just counting it in a different way." He also said "I know cost is a concern. You've had some lean years and now you think the feds are rolling in saying, 'Hey, how about a new reporting system?' It's short-term pain for long-term gain that

will help all of us. A whole lot of chiefs and sheriffs and their organizations are behind this" (Comey, 2015 and 2018).

Ironically, the FBI director pledged to work steadfastly in the coming years with local police to fix the political and funding challenges to transition to NIBRS. "The good news is that I have a 10-year term and you are stuck with me for another eight. And I am not going to stop talking about this," he pledged. But 18 months later, Comey was fired by President Trump and no longer in a position to keep those promises. History will never know if Comey, who set the bureaucratic machinery in motion to make NIBRS mandatory, personally could have succeeded in convincing and cajoling local and state police to make a smoother and more complete transition to the new crime reporting system.

It is against this backdrop of inter-governmental mistrust, conflicting organizational cultures, fears of reputational damage, and local agency resource concerns that participation in the 91-year-old Uniform Crime Report dropped to the point that police documented just 56.5% of the nation's homicides in 2021 when NIBRS became mandatory, the worst reporting rate on record (see Table 1).

CHAPTER 3: METHODOLOGY

This research project seeks to determine whether a nongovernmental intervention for the collection of crime data can produce a homicide dataset that is more complete and reliable than the data released by the FBI for 2021 murders. Further, can analyses of recovered data help our understanding of the influences for law enforcement's declining cooperation in crime reporting? This chapter will summarize, step by step, the methodology employed in this project.

Step One: Data Acquisition. An analysis will be made of the total number of homicides reported in all 50 states and the District of Columbia using the National Vital Statistics System based upon information obtained from legally mandatory death certificates. The CDC's WONDER online application (https://wonder.cdc.gov) provides access to NVSS data that can be filtered according to the International Classification of Disease's Injury Intent and Mechanism which reports the cause of each fatality as one of five possibilities: Unintentional, Suicide, Homicide, Undetermined or the result of Legal Intervention/Operations of War. There were 26,031 homicides reported nationally in 2021. The FBI received reports of 14,715 homicides. The analysis will determine how much of the 11,316-homicides difference between the two reporting systems occurred in each state.

State and local law enforcement agencies will be contacted, informed of their apparent reporting deficiencies, and asked – under the local Freedom of Information Act or Open Records Act – to provide records they could not report to the FBI because of

lack of compliance to the mandatory National Incident Based Reporting System standards. These agencies will be asked to provide data under the previous Uniform Crime Report standards for the Summary Reporting System (SRS) for homicides and case-level details in the Supplemental Homicide Report (SHR).

Step Two: Analyze UCR Historic Reporting Biases. To establish a baseline of understanding into the limitations of the traditional Uniform Crime Report at a time when police reporting was operating normally, an analysis of the SRS and SHR for the years 2010 through 2019 will be made by comparing their summary findings to the summaries of the larger numbers of homicides reported by medical authorities to the NVSS. SRS data will be examined to identify geographic patterns for under-reporting. For example, do some states or regions of the nation have historically higher or lower rates of crime reporting when compared to the NVSS? Are there patterns of crime reporting among counties of varying population sizes such as more than 1 million residents or those of 25,000 or fewer residents? (As found by Maltz & Targonski, 2002.)

The SHR case-level data will be compared to NVSS according to demographic information about victims. For example, are the homicides of men and women equally likely to be reported by police to the FBI? Are homicide reporting rates uniform among the various races or ages of victims? (Both trends first documented by Rokaw et al., 1990).

Step Three: Compare FBI and Augmented Data for 2021. The previous analysis will be repeated looking at the FBI's much-reduced SRS and SHR data for 2021 as released by the Bureau's Criminal Justice Information Services Divisions when crime

reporting under the National Incident Based Reporting System standards became mandatory. These FBI reports were 43% and 42% (respectively) smaller than the number of homicides counted by the NVSS in 2021, representing the largest undercounts by law enforcement on record (see Table 1). Also to be analyzed are the augmented datasets obtained from state and local police under local Freedom of Information Acts or Open Records Acts. The 2021 SRS homicide counts were augmented with 6,031 murders that were not reported to the FBI. The SHR was augmented with 5,376 cases that were not reported to the federal government.

This analysis will repeat Step Two's review of geographic reporting patterns (state, region and counties grouped by population size) in the SRS and the demographic (victim sex, race, age) reporting patterns in the SHR. The analysis will examine all three datasets: NVSS, FBI and this study's augmented data for 2021 homicides. The central issues are:

1. Were there significant anomalies between NVSS data and the geographic and demographic characteristics of murder cases obtained by the FBI in 2021?
2. If there are anomalies, did the augmented dataset bring police-reported crime data in closer agreement with NVSS, documenting that the augmented data are more reliable?
3. How much was the improvement in the statistical pictures painted by the augmented datasets compared to those released by the FBI? (This is needed to quantify the extent of improved reliability.)

All of the analyses used in Step Two will be repeated here to determine if the augmented datasets improved or degraded the accuracy of police-reported homicides compared to the mandatory NVSS data provided by medical authorities.

Step Four: County-Level Regression Analysis. Finally, this study will evaluate the factors that seem to influence whether police departments are willing (or able) to report homicide data to the FBI. This will be done using a regression model to assess and predict how well the police departments in the nation's 3,134 counties perform in reporting murder data.

The **dependent variable** will be a value called MISSING, an index score ranging from 0 to 100 based on the percentage of homicides reported to the NVSS that were not reported by local police through the FBI's SRS which had the most complete reporting history when compared to the SHR. The formula for MISSING is: ((NVSS Count – SRS Count) / NVSS Count) * 100. If local police report more homicides than are reported by medical authorities, the value MISSING will be reported as 0 rather than as a negative number. Counties where medical authorities and police departments reported no homicides will be excluded from the analysis.

The following is a histogram showing the results of the MISSING formula for counties where medical authorities reported at least one homicide to the CDC from 2010 to 2019. This visually displays the rate at which police within these 2,875 counties failed to report murders. There were 259 counties where medical authorities did not report any murders during the decade and so were not included in this chart.

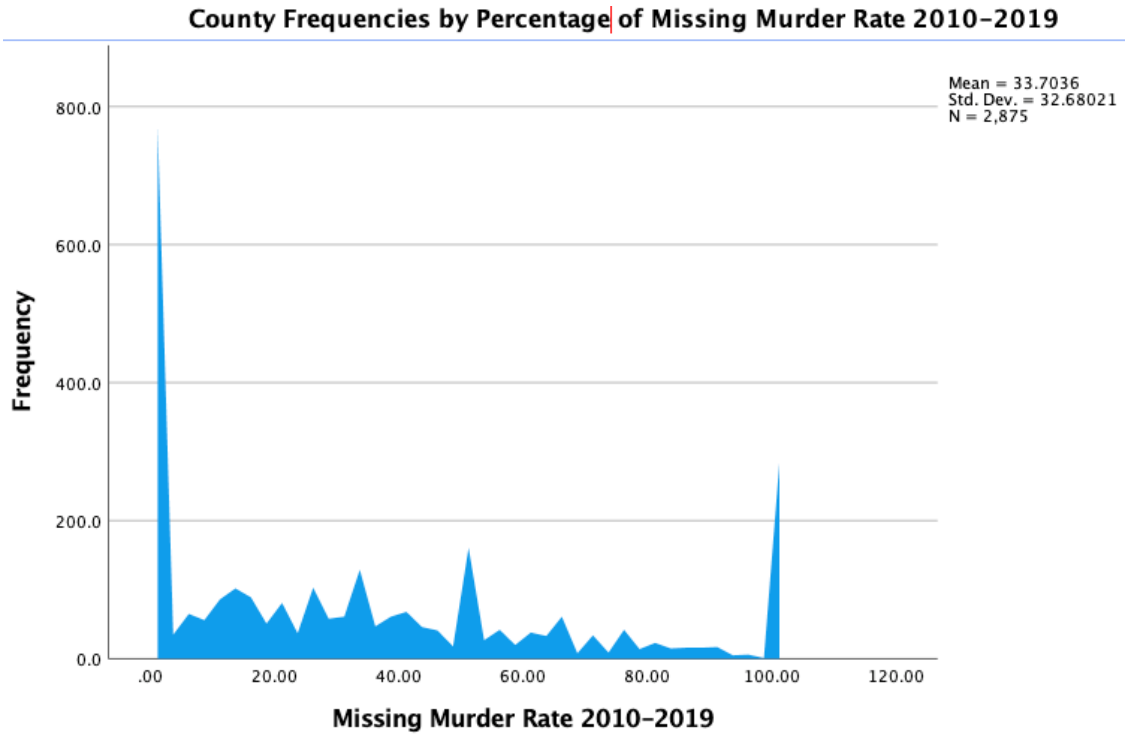


Figure 1: Histogram Showing Frequency of Missing Murders by County

The six types of **independent variables** used in this analysis will test the second aspect of this research thesis: can analyses of recovered data help our understanding of the influences for law enforcement's declining cooperation in crime reporting? Here we will test some of the reporting issues and biases already referenced in the literature review and found is this study's demographic and geographic analysis of homicide reporting rates (Steps Two and Three). The regression's findings of positive or negative associations will inform us as to whether the independent variable is associated with improved or diminished homicide reporting. The six types of independent variables fall into two broad categories:

Resource Issue: County Population.

Resource Issue: County Socioeconomic factors such as poverty rate, median household income, education, median age, proportion of population in high-crime-committing ages (15-24), proportion of population that is male or of racial minorities.

Resource Issue: County Homicide Rate per 100,000 population based on NVSS Count.

Political Issue: State culture of crime reporting to FBI (State Dummy Variables).

Political Issue: Attitudes toward FBI via proximity to any of the 55 FBI Field Offices.

Political Issue: Attitudes toward federal government using averaged percentage for GOP presidential vote in 2012, 2016 and 2020 presidential votes.

In all, 64 independent variables will be tested in the model including dummy variables (fixed effects) for 49 states and the District of Columbia using worst-performing Mississippi as the reference group. Because MISSING is a continuous index value, an ordinary least squares analysis will be performed to determine overall model significance and calculate R^2 score that indicates the percentage of variance explained by the model. The model will also be tested for multi-collinearity to assure the independence of predictive variables and to determine if outliers significantly distort the results.

The county-level regression analysis will be made using the historic SRS for the years 2010-2019 and will be repeated using the FBI 2021 SRS-equivalent counts (as released by the Bureau) and the augmented counts obtained from non-reporting state and local police agencies. The quality of the prediction lines for all three models will be assessed and compared.

CHAPTER 4: DATA ACQUISITION

At the heart of this study is the effort to acquire homicide records that were not reported by local and state police agencies to the FBI in 2021 when the Bureau mandated that all crime data be conveyed under National Incident Based Reporting System (NIBRS) standards. The research question (thesis) at issue is to test whether a nongovernmental intervention for crime data collection can produce a homicide dataset that is more complete and reliable than the data released by the FBI for 2021 murders. Further, can analyses of recovered data help our understanding of the influences for law enforcement's declining cooperation in crime reporting?

Medical authorities, using a nationally standardized death certificate protocol created by the Centers for Disease Control and Prevention, reported there were 26,031 deaths attributed to fatal assaults in the United States in 2021. However, the FBI reported that local and state police agencies provided data on only 14,715 cases of "murder or nonnegligent manslaughter" that same year. This suggests 11,316 homicides were not reported to the Justice Department, or about 43.5% of the total CDC records (see Table 1). This is the largest apparent undercount in the history of the federal crime reporting program (Anderson, 2021).

The first step in any attempt at data-collection remediation is to determine the location of unreported cases. In other words, where should we start digging for America's missing murders? An estimate was made of the 2021 police reporting rate for every state and for major local jurisdictions within each state. This was accomplished by comparing

the number of homicides reported to the CDC by medical authorities against the number reported to the FBI by police agencies. States where police failed to report large numbers of homicides were identified and contacted first. This calculation was made using the Summary Reporting System (SRS), the oldest and most widely cited of the measures taken by the Uniform Crime Report (see Table 2).

Table 2: Homicide Counts for 2021 from FBI's SRS and CDC's NVSS

State	FBI	CDC	Missing	Percent
Alabama	370	751	381	50.7%
Alaska	18	48	30	62.5%
Arizona	190	557	367	65.9%
Arkansas	321	328	7	2.1%
California	124	2,516	2,392	95.1%
Colorado	358	381	23	6.0%
Connecticut	148	159	11	6.9%
Delaware	94	98	4	4.1%
District of Columbia	132	267	135	50.6%
Florida	0	1,489	1,489	100.0%
Georgia	728	1,216	488	40.1%
Hawaii	6	35	29	82.9%
Idaho	36	41	5	12.2%
Illinois	546	1,442	896	62.1%
Indiana	438	640	202	31.6%
Iowa	70	97	27	27.8%
Kansas	87	179	92	51.4%
Kentucky	365	403	38	9.4%
Louisiana	447	934	487	52.1%
Maine	18	21	3	14.3%
Maryland	138	677	539	79.6%
Massachusetts	132	151	19	12.6%
Michigan	747	819	72	8.8%
Minnesota	203	224	21	9.4%
Mississippi	149	612	463	75.7%
Missouri	593	753	160	21.2%
Montana	31	44	13	29.5%
Nebraska	25	68	43	63.2%

Nevada	232	272	40	14.7%
New Hampshire	14	15	1	6.7%
New Jersey	139	397	258	65.0%
New Mexico	168	308	140	45.5%
New York	124	904	780	86.3%
North Carolina	928	967	39	4.0%
North Dakota	14	23	9	39.1%
Ohio	824	1,024	200	19.5%
Oklahoma	290	343	53	15.5%
Oregon	188	221	33	14.9%
Pennsylvania	525	1,106	581	52.5%
Rhodes Island	38	41	3	7.3%
South Carolina	548	649	101	15.6%
South Dakota	26	43	17	39.5%
Tennessee	672	850	178	20.9%
Texas	2,064	2,400	336	14.0%
Utah	85	90	5	5.6%
Vermont	8	10	2	20.0%
Virginia	562	598	36	6.0%
Washington	326	341	15	4.4%
West Virginia	95	115	20	17.4%
Wisconsin	314	349	35	10.0%
Wyoming	17	15	-2	-13.3%
Total	14,715	26,031	11,316	43.5%

Among the states with the highest percentages of apparent undercount for FBI homicide reports were Florida, where police reported no homicides whatsoever in 2021, New York State where the police undercount was about 86% of that of medical authorities, and California for which about 95% of CDC-reported murders were missing from the UCR. Only departments in the San Diego area reported data from California. New York State suffered the third highest percentage of missing homicides, but this resulted mostly from the absence of any reports from the New York City Police Department which historically accounts for about half of the Empire State's murders. In

all, 15 states and the District of Columbia failed to report most of their murders to the FBI in 2021. There were some large-population states with low undercounts. Michigan reported all but 9% while the undercount in Texas was only 14%. Virginia and Colorado had undercounts of just 6%.

Wyoming was the only state in which police reported more homicides than were documented by medical authorities. However, this appears to be the result of double counting by local jurisdictions and the Wyoming Department of Criminal Investigation. "Because we have so many small (police) departments, it is not uncommon for the agency of jurisdiction to request DCI to take over the case at the outset of the investigation," explained state Rep. Art Washut, chairman of the Judiciary Committee of the Wyoming House of Representatives.[*] "It also happens where an agency of jurisdiction will consult with DCI but maintain their jurisdiction over the case."

Jurisdictions with significant numbers (or percentages) of unreported homicides were contacted under local Freedom of Information Act or Open Records Act procedures. State and local agencies were told: "We are trying to restore the historical record of homicide in the wake of reporting disruptions caused by the FBI's mandatory adoption of National Incident Based Reporting System (NIBRS) standards. Many hundreds of law enforcement agencies throughout the United States were unable to report complete crime data because of this mandatory transition." Each agency was informed of the number of homicides reported by the CDC compared to the number reported by the state or local

[*] From an April 3, 2023, email exchange between the author and Wyoming state Rep. Art Washut. The author believes this open and cooperative exchange between local and state investigators probably contributes to Wyoming's best-in-the-nation clearance rate of 85% for all homicides committed from 1965 through 2021.

police department to the FBI. Agencies were asked to provide SRS summary counts of homicide occurrences and clearances as well as SHR case-level details.

Statewide law enforcement agencies in 17 states were contacted, as were 12 local police departments. Louisiana officials responded that the state ceased collecting any data under the former UCR program but advised that the bulk of the unreported homicides could be obtained from the local departments in New Orleans, Shreveport, and Lafayette. All three cities promptly provided both SRS and SHR data after receiving a $10 processing fee, as required by state law. Some states withheld some data elements normally reported to the FBI. California, so far, has declined to provide demographic descriptions for arrested offenders. New York State had declined to provide descriptions of the weapons employed in each homicide. New York Records Access Officer Brian Garvey reported the state considers descriptions of the weapon employed by offenders to be "confidential information related to a criminal investigation"[*] although he acknowledged this information historically has been released by the state to the FBI which makes it public. The rule is only applied to Freedom-of-Information-Law requests, he said.

Several state and local agencies refused to honor the FOIA requests. Alabama refused to process any records requests unless made by a resident of the state. The New Jersey State Police closed the FOIA request because the timing of data availability was uncertain. The state UCR Unit was working to "merge the current National Incident

[*] From a November 14, 2022, email exchange between the author and Brian Garvey over the redaction of homicide weapons in the SHR dataset provided by the state.

Based Reporting System (NIBRS) data with the previously reported UCR historical data … to provide accurate UCR data," said New Jersey State Detective Richard Echevarria.[*] "Please note this is a manual process." State UCR officials in Georgia, Maryland, Indiana, and Illinois also have not responded to FOIA/Public Record requests. However, local SRS data were obtained from Baltimore, Chicago, and Gary, Ind. Officials with the Jackson, Miss., Police Department at first refused to provide any information with the position it had "no responsive records." However, Jackson agreed to produce SRS counts following a formal appeal challenging that it was "absurd" to claim Jackson Police had no information as to the number of homicides and homicide clearances in 2021.

Table 3 shows the number of SRS homicide records that were obtained from state and local authorities under public records requests (the "Added" column) and the percentage of homicides that appear still to be missing in each state after the augmented counts:

Table 3: 2021 SRS Homicide Counts Added through Public Records Requests

State	CDC	FBI	Added	Total	Missing	Percent
California	2,516	124	2,253	2,377	139	5.5
New York	904	124	753	877	27	3.0
Florida	1,489	0	747	747	742	49.8
Pennsylvania	1,106	525	448	973	133	12.0
Illinois	1,442	546	433	979	463	32.1
Louisiana	934	447	345	792	142	15.2
Arizona	557	190	338	528	29	5.2
Maryland	677	138	335	473	204	30.1
Mississippi	612	149	157	306	306	50.0

[*] From a December 7, 2022, email exchange between the author and Detective Echevarria.

D.C.	267	132	118	250	17	6.4
Indiana	640	438	48	486	154	24.1
Nebraska	68	25	32	57	11	16.2
Alaska	48	18	24	42	6	12.5
50-State Total	26,031	14,715	6,031	20,746	5,285	20.3

Augmentation was least successful in Florida and Mississippi, each showing nearly half of CDC-reported homicides were still missing from police counts despite Open Records/Freedom of Information Act requests. The Florida Department of Law Enforcement reported a significant reduction in data reporting from local police following FBI mandatory adoption of NIBRS and FDLE's announcement that the state would not be NIBRS compliant for 2021 data. Mississippi is still organizing a statewide reporting system under the Mississippi Department of Public Safety and historically has suffered the nation's lowest UCR reporting rate. The state's largest law enforcement agency, the Jackson Police Department, eventually provided SRS counts.

Table 4 shows the homicide counts for cases reported through the Supplementary Homicide Report and augmented SHR data (the "Added" column) obtained through FOIA requests. Because many police jurisdictions historically have not participated in SHR reporting, the FOIA process yielded only 5,376 new homicide records obtained in seven states and the District of Columbia. Fortunately, the large states of California, Florida and New York were able to release significant numbers of SHR files they no longer could report to the FBI since they were not produced through the NIBRS standard.

Table 4: 2021 SHR Homicide Counts Added through Public Records Requests

State	CDC	FBI	Added	Total	Missing	Percent
California	2,516	126	2,290	2,416	100	4.0
Florida	1,489	0	776	793	696	46.7
New York	904	124	773	897	7	0.8
Illinois	1,442	548	429	977	465	32.2
Louisiana	934	448	348	796	138	14.8
Maryland	677	134	335	485	192	28.4
Arizona	557	193	308	501	56	10.1
D.C.	267	132	117	249	18	6.7
50-State Total	26,031	15,196	5,376	20,572	5,459	21.0

The states of Arizona, California, Florida, New York, and the District of Columbia provided all available SHR data from their reporting agencies. Illinois was augmented only through a complete report provided by the Chicago Police Department; Louisiana was enhanced by reports from the cities of New Orleans, Shreveport, and Lafayette; and Maryland by a complete SHR report from the Baltimore Police Department.

Overall, the data acquisition effort succeeded in significant reductions of the FBI's 2021 homicide undercounts. The Bureau released SRS data that were 43.5% smaller than the NVSS accounting and SHR data that were 41.6% smaller, again, the largest FBI undercounts on record (see Table 1). The data augmentation process was able to reduce the undercount to 20.3% for the SRS and 21.0% for the SHR. This nongovernmental data acquisition effort cut in half the size of the undercount, matching the FBI's collection rate in 2020 before NIBRS became mandatory.

Of course, more data does not automatically imply better data. The following chapter will provide a historical review of past reporting bias in the UCR looking at data

from 2010 through 2019 using comparisons of victim demographics and geography between the FBI and NVSS. Chapter Six will examine the FBI's much-reduced 2021 UCR release followed by an examination of the augmented data obtained in this study using the same measures and methods as in Chapter Five. Chapter Seven will provide a county-level regression analysis of murder reporting rates and the factors that seem to influence those rates.

CHAPTER 5: DOCUMENTING HISTORICAL REPORTING BIAS IN THE UNIFORM CRIME REPORT

To understand the deficiencies of the FBI's much-diminished Uniform Crime Report and Supplementary Homicide Report for 2021, it is necessary to first document how voluntary crime reporting by police to the federal government has historically been biased when compared to legally mandated homicide reporting by medical authorities through the National Vital Statistics System. To accomplish this, a decade-long compilation of homicide reports covering the years 2010 through 2019 will be used to compare demographic and geographic trends between the two reporting systems.

Although women are much less likely to be murdered than are men (2.2 female homicides per 100,000 population compared to a rate of 8.9 for men, based on CDC data), female homicides are slightly more likely to be reported by police than are male murders. This trend is a continuation of the nearly identical gender reporting rates found by Rokaw et al. (1990) in their demographic comparisons of SHR and NVSS data for the years 1976 to 1982.

Table 5: Homicide Reporting Rates (SHR) by Victim Sex 2010-2019

Sex	CDC	SHR	Missing	Percent	CDC Rate Per 100,000
Male	139,353	113,152	26,201	18.8%	8.9
Female	36,461	30,132	6,329	17.4%	2.2
Unknown	0	204	--		
Total	175,814	143,578	32,236	18.3%	5.5

This gender bias also has been consistent across different racial groups, with female murders of Black, white, Asian, and Native American victims somewhat more likely to be reported than for male murders, a pattern also documented by Rokaw's team. There is no clear explanation for this modest but consistent bias found in peer-reviewed literature. This finding is somewhat at odds with historical concerns that society often discounts or under-appreciates crimes against women, especially minority women (see Cheryl Neely's *You're Dead – so What? Media, Police, and the Invisibility of Black Women as Victims of Homicide*.)

However, more explanation and detail is available to understand the dramatic reporting bias among homicide victims of different races as documented in Table 6:

Table 6: Homicide Reporting Rates (SHR) by Victim Race 2010-2019

Race	CDC	SHR	Missing	Percent	CDC Rate Per 100,000
American Indian	2,870	1,401	1,469	51.2%	6.3
Asian *	3,471	2,529	942	27.1%	1.8
Black	89,010	73,149	15,861	17.8%	20.0
White	80,463	64,550	15,913	19.8%	3.2
Unknown	0	1,949	--	--	--
Total	175,814	143,578	32,236	18.3%	5.5

Although it might be surprising to some, murders of African Americans are more likely to be reported to the FBI than are homicides of any other race. Rokaw et al. also documented a slightly higher reporting rate for Black murders compared to whites but

* Note: Pacific Islanders added to Asians in SHR data to allow comparison to CDC race data.

noted correctly that the lowest reporting rate was among victims of "other" races. The team attributed at least a part of this to increased statistical variance since there are much smaller populations of Asian and American Indian homicide victims (Rokaw et al., 1990, p. 452).

However, more is now known about under-reporting of America's "other" races. This more-recent review found that a majority of Native American homicides (51%) went unreported by police. At least some of this under-reporting may be the result of racial misclassification of homicide victims, although this is conjecture since the under-reporting of Indian homicides has not received peer-reviewed study. But it's also certain a significant number of Native American murders were not reported by federal law enforcement agencies, especially the FBI and Bureau of Indian Affairs, which have primary jurisdiction to investigate violent crimes on many of the nation's more than 500 Indian reservations. Congress passed a law in 1988 requiring all federal law enforcement to report data to the Uniform Crime Report, a directive that was entirely ignored by the FBI since the Bureau has failed to reported even a single homicide from the period 1989 (when Congress' act took effect) through 2019.[*]

The elevated rate of non-reporting for Asian murder victims is probably the primary result of racial misclassification since local police have certainly classified

[*] The nonprofit Murder Accountability Project (MAP) filed two lawsuits in U.S. District Court in Washington, DC (see *MAP vs. Department of Justice et al.*, 19-cv-02478 and 20-cv-03186) seeking past unreported crimes under Congress' Uniform Federal Crime Reporting Act of 1988 (See 34 U.S. Code § 41303). The FBI, for the first time, began reporting homicides after the lawsuits were filed in 2019 and 2020. So far, the Bureau has reported acting as lead agency for investigations of 123 murders, 78 of which involved Native American victims. The lawsuits are still pending before U.S. District Judge Amy Berman Jackson as of this writing.

homicides of victims of Middle Eastern and South Asian descent as "white" or "unknown" races based upon spot checks of killings found in jurisdictions with significant numbers (10 or more) of CDC-designated Asian murders. The FBI's *Uniform Crime Reporting Handbook* is vague on racial categorization, only requiring that local police must use "only these race designations" of White; Black; American Indian or Alaskan Native; and Asian or Pacific Islanders (see FBI, 2004, p. 104).

This review found even more worrisome discrepancies when CDC and FBI homicide data were compared according to the age of the victims (see Table 7.) Murders of infants were the least likely crimes to be reported by police, with nearly 40% missing from the Uniform Crime Report despite being documented by medical authorities. Previous scholarship raises complex social and medical issues that surround and complicate infant death investigations.

Table 7: Homicide Reporting Rates (SHR) by Victim Age 2010-2019

Age Group	CDC	SHR	Missing	Percent Missing	CDC Rate Per 100,000
Infant	2,794	1,691	1,103	39.5%	7.1
1 year	1,355	1,089	266	19.6%	3.4
2-4 years	2,130	1,645	485	22.8%	1.8
5-14	2,962	2,233	729	24.6%	0.7
15-24	46,537	38,587	7,950	17.1%	10.7
25-34	47,496	39,529	7,967	16.8%	10.9
35-44	29,239	23,874	5,365	18.3%	7.2
45-54	20,756	16,518	4,238	20.4%	4.8
55-64	12,954	10,082	2,872	22.2%	3.2
65-74	5,643	4,167	1,476	26.2%	2.1
75-84	2,727	2,000	727	26.7%	1.9
85+	1,166	838	328	28.1%	1.9
Unknown	55	1,325	--	--	--
Total	175,814	143,578	32,236	18.3%	5.5

There has been considerable academic debate as to whether injuries and deaths of young children are more likely to be reported for criminal investigation by state child protective service agencies simply because they come from economically disadvantaged families. Drake and Zuravin (2010) found considerable statistical evidence that poverty is closely associated with "high levels" of child mistreatment (see also Jonson-Reid, Drake & Kohl, 2009; Pelton, 1989). But the FBI data show police reported more infant homicides among White families than among racial minorities. Nearly 59% of police-reported infant homicides during the period 2010-2019 involved white babies and 34% were Black infants. This contrasts to the overall racial breakdown for homicides which were 45% White and 51% Black for victims of all ages. It is currently not known whether FBI data accurately reflect infant homicide rates among black and white families or are the result of less aggressive investigations by police (or reduced witness cooperation with investigators) in cases of black infant murder.

Police certainly face unusual challenges in evaluating the reliability of medical findings of infant homicide. The most common weapon police described as the cause of infant death are "personal weapons including beating" which accounted for nearly half (48%) of all police reports to the Supplementary Homicide Report for the period 1976 to 2020. But there has been robust medical debate as to the reliability of so-called Shaken Baby Syndrome (SBS). Sauvageau et al. made headlines worldwide when they warned in 2008 that the subdural hematoma, retinal hemorrhage, brain swelling, and diffuse axonal injury which are typical of SBS can be produced by motor-vehicle accidents and falls

from a significant height. The team reported a case study of a deceased 2-year-old boy who presented with “all the classic autopsy findings of SBS” but actually died as the result of a “playground rocking toy shaken by an older child” (Sauvageau et al., 2008, p. 479).

Also worrisome are the apparent declining police reporting rates for homicide victims 65 or older with the largest decline (28%) among the oldest cohort of 85 and older. This may reflect an aspect of the globally recognized problem of elder abuse, especially for persons institutionalized in elder care facilities. Steve Moore (2019) presented two studies in England that revealed “continued underreporting and sometimes active concealment of abuse” in private-sector care homes for older people (Moore, 2019, p. 35). Similar findings have been made in the United States, India, Germany, and other nations (see Bonnie & Wallace, 2003).

Just as worrisome as findings of victim demographic bias in the types of homicides being reported to the FBI are very strong patterns of geographic reporting bias. Every aspect of geography tested in this study (state, region, and counties grouped by population size) found significant patterns as to whether police in these areas voluntarily participated in crime reporting. Rokaw et al. were among the first to find state-level bias during the 1970s and 1980s. States like Maine and Maryland actually reported more homicides than did medical authorities while most murders went unreported by police in states like Vermont and South Dakota.

Table 8: Homicide Reporting Rates (SRS) by State 2010-2019

State	CDC	SRS	Missing	Percent	CDC Rate
USA	175,814	152,791	23,023	13.1	5.5
Alabama	4,753	3,040	1,713	36.0	9.8
Alaska	526	455	71	13.5	7.2
Arizona	3,984	3,609	375	9.4	5.9
Arkansas	2,340	1,873	467	20.0	7.9
California	19,350	17,970	1,380	7.1	5.0
Colorado	2,144	1,778	366	17.1	4.0
Connecticut	1,150	1,068	82	7.1	3.2
Delaware	582	514	68	11.7	6.2
D.C.	1,183	1,306	-123	-10.4	17.9
Florida	12,186	10,363	1,823	15.0	6.1
Georgia	7,211	5,855	1,356	18.8	7.1
Hawaii	307	270	37	12.1	2.2
Idaho	334	329	5	1.5	2.0
Illinois	9,124	8,113	1,011	11.1	7.1
Indiana	4,002	3,335	667	16.7	6.1
Iowa	733	580	153	20.9	2.4
Kansas	1,313	1,054	259	19.7	4.5
Kentucky	2,398	2,068	330	13.8	5.4
Louisiana	5,848	5,098	750	12.8	12.6
Maine	240	231	9	3.8	1.8
Maryland	4,953	4,520	433	8.7	8.3
Massachusetts	1,581	1,508	73	4.6	2.3
Michigan	6,256	5,919	337	5.4	6.3
Minnesota	1,226	1,039	187	15.3	2.2
Mississippi	3,358	1,664	1,694	50.4	11.3
Missouri	5,172	4,753	419	8.1	8.5
Montana	347	327	20	5.8	3.4
Nebraska	607	523	84	13.8	3.2
Nevada	1,758	1,767	-9	-0.5	6.1
New Hamp.	208	180	28	13.5	1.6
New Jersey	3,730	3,487	243	6.5	4.2
New Mexico	1,663	1,349	314	18.9	8
New York	6,962	6,477	485	7.0	3.5
N. Carolina	6,113	5,035	1,078	17.6	6.1
North Dakota	170	184	-14	-8.2	2.3
Ohio	6,747	5,265	1,482	22.0	5.8
Oklahoma	2,815	2,201	614	21.8	7.3
Oregon	1,145	908	237	20.7	2.8
Pennsylvania	7,012	6,627	385	5.5	5.5
Rhode Island	245	263	-18	-7.3	2.3

S. Carolina	4,057	3,533	524	12.9	8.3
South Dakota	276	211	65	23.6	3.2
Tennessee	4,927	4,266	661	13.4	7.5
Texas	14,807	12,776	2,031	13.7	5.5
Utah	637	611	26	4.1	2.1
Vermont	118	103	15	12.7	1.9
Virginia	3,861	3,813	48	1.2	4.6
Washington	2,239	1,943	296	13.2	3.1
West Virginia	956	700	256	26.8	5.2
Wisconsin	1,967	1,783	184	9.4	3.4
Wyoming	193	147	46	23.8	3.3

Table 8 documents police reporting rates by state during the 2010-2019 period. Mississippi is the only state in this study that reported less than half the number of homicides as were reported by medical authorities to the CDC, making Mississippi the only state where most murders go unreported to federal authorities. Mississippi at that time did not have a state-run coordinated crime reporting program. Local law enforcement agencies voluntarily reported summary information directly to the federal government.

Also experiencing significantly reduced homicide reporting are Alabama, West Virginia, Wyoming, and South Dakota. The reduced murder counts in Wyoming and South Dakota are likely the result, at least partially, of the reporting failures by the FBI and Bureau of Indian Affairs for major crimes that occurred in their jurisdictions in Native American reservations.

Local police seemed to report more homicides than were documented by medical authorities in the District of Columbia, North Dakota, Rhode Island, and Nevada. This apparent over count was especially large in the District where police reported 10% more

murders than were documented by medical examiners. These anomalies were exasperated by the complexities in how to assign the geographies of murder victims. The CDC has recently permitted data review of its mortality files according to both the residence and place of occurrence for homicide victims. In 2021, for example, there were 223 residents of the District who were fatally assaulted, but 267 homicides were counted in the District, including killings of residents of other states. Further complicating the counting process is the question of where homicide victims actually die. In the case of the District of Columbia, there are no hospital trauma centers in the city's Ward 7 and Ward 8, areas with elevated rates of violent crime. Many badly injured victims are transported to emergency room facilities in neighboring Maryland where they are declared dead or subsequently perish from their injuries.

The broad geographic patterns to police homicide reporting become more apparent when the data are grouped according to Census Standard regions as demonstrated by Table 9:

Table 9: Homicide Reporting Rates (SRS) by Region 2010-2019

Region	CDC	SRS	Missing	Percent	CDC Rate Per 100,000
Northeast	21,246	19,944	1,302	6.1	3.8
South	82,348	68,625	13,723	16.7	6.8
Midwest	37,593	32,759	4,834	12.9	5.5
West	34,627	31,463	3,164	9.1	4.6
USA	175,814	152,791	23,023	13.1	5.5

Police agencies in northeastern and western states have superior reporting rates when compared to departments in the Midwest and South. It is intriguing to note that homicide reporting is reduced in regions that have elevated rates for the occurrence of murder. Many causal factors are suggested by these patterns, such as whether police reporting is influenced by population size, economic affluence or poverty of the local population, rate of violent crime and even politics since the Northeast and West, broadly, have concentrations of Democratic voters while the Midwest and South tend to be more dominated by Republican voters.

These crime reporting patterns become even more stark using the Census Bureau's eight-region divisions as demonstrated by Table 10:

Table 10: Homicide Reporting Rates (SRS) by Region 2 for 2010 to 2019

Region 2	CDC	SRS	Missing	Percent	CDC Rate Per 100,000
New England	3,542	3,353	189	5.3	2.4
Mid Atlantic	24,422	22,931	1,491	6.1	5.0
Far West	25,325	23,313	2,012	7.9	4.6
Plains	9,497	8,344	1,153	12.1	4.5
Rocky Mountain	3,655	3,192	463	12.7	3.1
Great Lakes	28,096	24,415	3,681	13.1	6.0
Southwest	23,269	19,935	3,334	14.3	5.8
Southeast	58,008	47,308	10,700	18.4	7.1
USA	175,814	152,791	23,023	13.1	5.5

Only three regions show single-digit percentile discrepancies between NVSS and FBI homicide reporting: New England, the Mid-Atlantic states, and the Far West. The worst reporting rates were the Southeast and Southwest.

Population density, regardless of region, also seems to be an important dividing line in crime reporting, as shown in Table 11:

Table 11: Homicide Reporting Rates (SRS) by County Population 2010-2019

County Population	CDC	SRS	Missing	Percent	CDC Rate Per 100,000
Less than 25,000	8,999	5,618	3,381	37.6	4.8
25,000 to 50,000	9,843	7,346	2,497	25.4	4.4
50,000 to 100,000	11,908	9,381	2,527	21.2	4.3
100,000 to 500,000	46,579	39,789	6,790	14.6	4.9
500,000 to 1 million	41,903	38,230	3,673	8.8	6.3
More than 1 million	56,582	52,427	4,155	7.3	6.3
Total	175,814	152,791	23,023	13.1	5.5

Homicide reporting rates improve in a nearly perfect step pattern as the size of the county population increases, with police in counties of less than 25,000 residents collectively failing to report more than a third (38%) of the homicide victims documented by medical authorities. This certainly corroborates the warning from Maltz and Targonski (2002) that smaller counties have extensive crime reporting deficiencies compared to larger counties. This also strongly suggests police participation in federal crime reporting programs is influenced by the resources available to the departments. When arrayed by population size, we see a reversal in the pattern of police crime reporting when compared to homicide occurrence rates. Here, areas with the highest murder rates per 100,000 population also have the better rates of crime reporting than do rural areas, which generally have reduced murder rates.

Using these findings of some of the historic biases in crime reporting, we will move on to study the effects of the drastically reduced rate of homicide reporting by police following the mandatory adoption of the NIBRS standard and evaluate the successes and deficiencies of this project's augmented homicide datasets using Freedom of Information Act and Open Record Act requests to obtain data not reported to the FBI.

CHAPTER 6: COMPARING FBI 2021 HOMICIDE DATASETS TO GMU'S AUGMENTED RECORDS.

At the heart of this study are the dual questions of: (1) What impact did the significant 2021 decline in crime data reporting by police agencies to the FBI have upon our understanding of homicides that year? (2) Can a nongovernmental intervention for the collection of crime data produce a homicide dataset that is more complete and reliable than the data released by the FBI for 2021 murders? This chapter will repeat the evaluations used in Chapter 5 to study historical bias in police-reported crime data. At issue in the analysis of 2021 data are whether FBI data showed continued bias compared to the NVSS data reported by medical authorities and whether the augmented data acquired thorough Freedom of Information Act and Open Records Act requests improved those biases.

It is important to note that 2021 crime reporting occurred during a period of elevated commission of homicide, a continuation of the widely acknowledged homicide surge in 2020 (Anderson, 2021). The CDC reported that homicides in 2020 rose 28% over 2019 (or 24,576 murders compared to 19,141 murders) and in 2021 rose another 6% over 2020 (or 26,031 versus 24,576). These increases occurred during a period of civil unrest amid the thousands of anti-police demonstrations that occurred following the murder of George Floyd, an African American whose death by slow asphyxiation by Minneapolis Police Officer Derek Chauvin was captured on videos that were watched by many millions of people worldwide (Hill et al, 2020).

Yale University Law School Prof. Tom R. Tyler and a growing number of like-minded colleagues over the last 30 years have advanced the general concept of "Procedural Justice" and its closely associated notion of institutional legitimacy. Tyler reasoned that if citizens regard legal authorities like police officers and court judges to be legitimate then "they are less likely to break any laws, for they believe that they ought to follow them, regardless of potential for punishment." Conversely, concerns of police illegitimacy can promote lawlessness, especially in black communities (Tyler, 1990, p. 4; see also Kirk & Papachistos, 2011; Nagin & Telep, 2020; Tyler, 2004; Walker, 2015; Walters & Bolger, 2019).

As predicted by Procedural Justice theory, the widespread outrage at Floyd's murder brought significant increases in black-on-black violent crime, a pattern FBI Director James Comey noted in the immediate aftermath of demonstrations protesting Michael Brown's death in Ferguson, Missouri, five years earlier (Comey, 2015 and 2018). As a result, homicides committed in 2020 and 2021 tended to involve victims who were disproportionately black, male and a little younger than the averages found in the FBI and CDC data from the 2010-2019 period. With the understanding that this study focuses upon an unusual period for homicide in the United States, the next steps will be to repeat the analysis made previously, looking for bias in the murder data reported by the FBI in 2021 and comparing it to the results of the augmented dataset obtained through Freedom of Information Act and Open Records Act requests.

Table 12 documents the gender of homicide victims in 2021 as reported by the CDC, FBI and the augmented data which will be referenced as GMU or George Mason University which has supported this study.

Table 12: Homicide Reporting Rates (SHR) by Victim Sex 2021

Sex	CDC	FBI	GMU	FBI Missing	FBI Percent Missing	GMU Missing	GMU Percent Missing
Male	21,084	11,949	16,408	9,135	43.3	4,676	22.2
Female	4,947	3,180	4,095	1,767	35.7	852	17.2
Unknown	0	67	69	--	--	--	--
Total	26,031	15,196	20,572	10,835	41.6	5,459	21.0

As in previous years, a female victim reporting bias is seen in the 2021 reported data. Female murders were less likely to go unreported to the FBI than male murders, since only 35.7% of females went unreported compared to 43.3% of male killings. The augmented dataset reduces the number of missing observations (again, using CDC's NVSS values as the reference) by nearly 50 percent, dropping from 10,835 missing homicides in the FBI data to 5,459 missing homicides in the augmented data. Table 13 shows the reduction in the gender bias which was achieved by the augmented GMU dataset.

Table 13: Victim Sex 2021 Percentages

Sex	CDC	FBI	GMU	Absolute Correction
Male	81.0%	78.6%	79.8%	1.2%
Female	19.0%	20.9%	19.9%	1.0%

Unknown	0.0%	0.4%	0.3%	0.1%
Total	100.0%	100.0%	100.0%	2.3%

The NVSS reported that 19% of 2021's homicides involved female victims, while the FBI received data from local police indicating females accounted for 20.9% and the GMU study estimate of 19.9%. The absolute value of the percentage point improvement in the female gender estimate of the GMU augmented data compared to FBI data is 1 percentage point (20.9% minus 19.9%). Just as the FBI data overstated the percentage of female homicides, the official data understated the percentage of male murders. The GMU data achieved a 1.2 percentage point improvement in the male murder percentage and a 0.1% improvement in homicides of unknown gender. Looking at all three categories – male, female and unknown – the collective absolute values of the percentage point corrections add up to a 2.3 percentage point improvement (or Total Absolute Correction) over the FBI's data.

Similarly, Table 14 documents the racial reporting bias in which, as in previous years, African American homicides are more likely to be reported to the FBI than the murders of other races. Police reported data to the FBI which indicated that 39.5% of these cases were unreported when compared to the CDC records from medical authorities, while GMU data reduced the missing records estimate to 20.2%. Likewise, the augmented data set reduced the estimate of missing White murders from the FBI's 44.9% to 21.8% (see Table 13.)

Table 14: Homicide Reporting Rates (SHR) by Victim Race 2021

Race	CDC	FBI	GMU	FBI Missing	FBI Percent	GMU Missing	GMU Percent
American Indian	356	193	194	163	45.8%	162	45.5%
Asian	327	152	244	175	53.5%	83	25.4%
Black	14,554	8,807	11,619	5,747	39.5%	2935	20.2%
Pacific Islander	55	19	19	36	65.5%	36	65.5%
White	10,333	5,693	8,081	4,640	44.9%	2252	21.8%
More than one race	406	--	--	--			
Unknown	--	332	415	--			
Total	26,031	15,196	20,572	10,835	41.6%	5,459	21.0%

While the GMU dataset improved the reporting biases for African American and Caucasian data, it had little impact upon the much smaller numbers of Asian, American Indian and Pacific Islander homicides, as documented in Table 15.

Table 15: Victim Race 2021 Percentages

Race	CDC	FBI	GMU	Absolute Correction
American Indian	1.4%	1.3%	0.9%	- 0.4%
Asian	1.3%	1.0%	1.2%	0.1%
Black	55.9%	58.0%	56.5%	1.5%
Pacific Islander	0.2%	0.1%	0.1%	0.0%
White	39.7%	37.5%	39.3%	1.8%
More than one race	1.6%	--	--	--
Unknown	0.0%	2.2%	2.0%	0.2%
Total	100.0%	100.0%	100.0%	3.2%

The augmented data added only one additional American Indian murder while failing to improve the FBI estimate of Pacific Islander killings at all. Even so, the absolute value of augmented data improvements on race totaled 3.2 percentage points.

Although the improvements are modest in a very small age group of homicide, infants, the augmented dataset added 46 cases of infanticide, bringing the total reported by police up to 140 cases compared to the FBI's estimate of 94 infant killings (see Table 16).

Table 16: Homicide Reporting Rates (SHR) by Victim Age in 2021

Age Group	CDC	FBI	GMU	FBI Missing	FBI Percent Missing	GMU Missing	GMU Percent Missing
Infant	267	94	140	173	64.8%	127	47.6%
1 year	114	80	104	34	29.8%	10	8.8%
2-4 years	195	110	138	85	43.6%	57	29.2%
5-14	486	297	372	189	38.9%	114	23.5%
15-24	6,635	3,969	5,283	2,666	40.2%	1,352	20.4%
25-34	7,571	4,321	6,004	3,250	42.9%	1,567	20.7%
35-44	4,863	2,760	3,799	2,103	43.2%	1,064	21.9%
45-54	2,768	1,597	2,155	1,171	42.3%	613	22.1%
55-64	1,828	1,053	1,411	775	42.4%	417	22.8%
65-74	882	489	647	393	44.6%	235	26.6%
75-84	316	165	219	151	47.8%	97	30.7%
85+	105	63	86	42	40.0%	19	18.1%
Unknown	0	198	214				
Total	26,031	15,196	20,572	10,835	41.6%	5,459	21.0%

Even so, the augmented dataset continued to show a significant bias for reporting rates of infant and elderly murders, albeit much less than the biases in the FBI data. Again, though, the relative percentage point improvement of the age estimates was not insignificant:

Table 17: Victim Age 2021 Percentages

Age Group	CDC	FBI	GMU	Absolute Correction
Infant	1.0%	0.6%	0.7%	0.1%
1 year	0.4%	0.5%	0.5%	0.0%
2-4 years	0.7%	0.7%	0.7%	0.0%
5-14	1.9%	2.0%	1.8%	0.0%
15-24	25.5%	26.1%	25.7%	0.4%
25-34	29.1%	28.4%	29.2%	0.6%
35-44	18.7%	18.2%	18.5%	0.3%
45-54	10.6%	10.5%	10.5%	0.0%
55-64	7.0%	6.9%	6.9%	0.0%
65-74	3.4%	3.2%	3.1%	- 0.1%
75-84	1.2%	1.1%	1.1%	0.0%
85+	0.4%	0.4%	0.4%	0.0%
Total	100.0%	100.0%	100.0%	1.3%

In all three demographic categories – sex, race and age of victims – the augmented GMU dataset painted a more accurate picture of the nature of homicide based upon the NVSS records than did the much-reduced FBI data. The variances are even more acute using the geographic indicators. Since the details of additional records obtained in the augmented GMU data were already summarized in Table 3, here are the adjusted homicide counts presented as percentages by state (Table 18):

Table 18: Homicides by State for 2021 as Percentage of Nation

State	CDC	FBI	GMU	Absolute Correction
Alabama	2.9%	1.4%	1.4%	0.0%
Alaska	0.2%	0.1%	0.2%	0.1%
Arizona	2.1%	0.7%	2.0%	1.3%
Arkansas	1.3%	1.2%	1.2%	0.0%
California	9.7%	0.5%	9.1%	8.7%
Colorado	1.5%	1.4%	1.4%	0.0%

Connecticut	0.6%	0.6%	0.6%	0.0%
Delaware	0.4%	0.4%	0.4%	0.0%
D.C.	1.0%	0.5%	1.0%	0.5%
Florida	5.7%	0.0%	2.9%	2.9%
Georgia	4.7%	2.8%	2.8%	0.0%
Hawaii	0.1%	0.0%	0.0%	0.0%
Idaho	0.2%	0.1%	0.1%	0.0%
Illinois	5.5%	2.1%	3.8%	1.7%
Indiana	2.5%	1.7%	1.9%	0.2%
Iowa	0.4%	0.3%	0.3%	0.0%
Kansas	0.7%	0.3%	0.3%	0.0%
Kentucky	1.5%	1.4%	1.4%	0.0%
Louisiana	3.6%	1.7%	3.0%	1.3%
Maine	0.1%	0.1%	0.1%	0.0%
Maryland	2.6%	0.5%	1.8%	1.3%
Massachusetts	0.6%	0.5%	0.5%	0.0%
Michigan	3.1%	2.9%	2.9%	0.0%
Minnesota	0.9%	0.8%	0.8%	0.0%
Mississippi	2.4%	0.6%	1.2%	0.6%
Missouri	2.9%	2.3%	2.3%	0.0%
Montana	0.2%	0.1%	0.1%	0.0%
Nebraska	0.3%	0.1%	0.2%	0.1%
Nevada	1.0%	0.9%	0.9%	0.0%
New Hampshire	0.1%	0.1%	0.1%	0.0%
New Jersey	1.5%	0.5%	0.5%	0.0%
New Mexico	1.2%	0.6%	0.6%	0.0%
New York	3.5%	0.5%	3.4%	2.9%
North Carolina	3.7%	3.6%	3.6%	0.0%
North Dakota	0.1%	0.1%	0.1%	0.0%
Ohio	3.9%	3.2%	3.2%	0.0%
Oklahoma	1.3%	1.1%	1.1%	0.0%
Oregon	0.8%	0.7%	0.7%	0.0%
Pennsylvania	4.2%	2.0%	3.7%	1.7%
Rhodes Island	0.2%	0.1%	0.1%	0.0%
South Carolina	2.5%	2.1%	2.1%	0.0%
South Dakota	0.2%	0.1%	0.1%	0.0%
Tennessee	3.3%	2.6%	2.6%	0.0%
Texas	9.2%	7.9%	7.9%	0.0%
Utah	0.3%	0.3%	0.3%	0.0%
Vermont	0.0%	0.0%	0.0%	0.0%
Virginia	2.3%	2.2%	2.2%	0.0%
Washington	1.3%	1.3%	1.3%	0.0%

West Virginia	0.4%	0.4%	0.4%	0.0%
Wisconsin	1.3%	1.2%	1.2%	0.0%
Wyoming	0.1%	0.1%	0.1%	0.0%
Total	100%	56.5%	79.7%	23.2%

The quality of the FBI's geographic estimates was sorely hampered by significantly reduced reports from some of the nation's most populous states including Florida, which reported no murders whatsoever, as well as reduced reporting in California (5% of CDC records) and New York (14% of CDC records).

Table 19: Homicide Reporting Rates (SRS) by Region 2021

Region	CDC	FBI	GMU	FBI Missing	FBI Percent	GMU Missing	GMU Percent
Northeast	2,833	1,146	2,347	1,687	59.5%	486	17.2%
South	12,709	7,903	9,605	4,806	37.8%	3,104	24.4%
Midwest	5,662	3,887	4,400	1,775	31.3%	1,262	22.3%
West	4,827	1,779	4,394	3,048	63.1%	433	9.0%
USA	26,031	14,715	20,746	11,316	43.5%	5,285	20.3%

Table 20 demonstrates the more accurate regional estimates produced by the augmented GMU dataset, which produced an absolute value of a 12.8 percentage-point improvement by region for 2021 murders.

Table 20: Homicide Region 2021 Percentages

Region	CDC	FBI	GMU	Absolute Correction
Northeast	10.9%	7.8%	11.3%	2.7%
South	48.8%	53.7%	46.3%	2.4%
Midwest	21.8%	26.4%	21.2%	4.0%

West	18.5%	12.1%	21.2%	3.7%
USA	100.0%	100.0%	100.0%	12.8%

Similarly, Table 21 documents the effect of the improved homicide estimates for the Census Bureau's eight-element Region 2 divisions. New England states, which already were mostly compliant NIBRS standards before they became mandatory in 2021, were little changed between the FBI and augmented GMU dataset. But the recovery of most of Pennsylvania's unreported homicides had a more dramatic effect upon the Mid Atlantic totals. The most dramatically affected region was the Far West, where the addition of almost all of California's unreported killings had a substantial impact.

Table 21: Homicide Reporting Rates (SRS) by Region 2 for 2021

Region 2	CDC	FBI	GMU	FBI Missing	FBI Percent	GMU Missing	GMU Percent
New England	405	358	358	47	11.6%	47	11.6%
Mid Atlantic	3,463	1,152	2,806	2311	66.7%	657	19.0%
Great Lakes	4,301	2,869	3,350	1432	33.3%	951	22.1%
Plains	1,361	1,018	1,050	343	25.2%	311	22.9%
Southeast	8,941	5,185	6,434	3,756	42.0%	2,507	28.0%
Southwest	3,601	2,712	3,050	889	24.7%	551	15.3%
Rocky Mountain	562	527	527	35	6.2%	35	6.2%
Far West	3,397	894	3,171	2503	73.7%	226	6.7%
USA	26,031	14,715	20,746	11,316	43.5%	5,285	20.3%

The cumulative impact of the GMU augmented dataset improved the overall accuracy of the homicide estimates by region using the Census Bureau's Region 2

divisions. The aggregate value of the augmented dataset represented a 16.8 percentage point improvement among all eight divisions.

Table 22: Homicide Percentages by Region 2 for 2021

Region 2	CDC	FBI	GMU	Absolute Correction
New England	1.6%	2.4%	1.7%	0.7%
Mid Atlantic	13.3%	7.8%	13.5%	5.7%
Great Lakes	16.5%	19.5%	16.1%	3.4%
Plains	5.2%	6.9%	5.1%	1.8%
Southeast	34.3%	35.2%	31.0%	- 4.2%
Southwest	13.8%	18.4%	14.7%	3.7%
Rocky Mountain	2.2%	3.6%	2.5%	1.1%
Far West	13.0%	6.1%	15.3%	4.6%
USA	100.0%	100.0%	100.0%	16.8%

However, the augmented dataset failed to improve geographic homicide estimates when looking at counties based upon population size. This is the result of two factors: (1) Police agencies located in large population centers were more amenable to responding to Freedom of Information Act requests than were agencies in smaller communities, and more importantly, (2) Low-population counties in rural areas with widely scattered unreported murders were so numerous as to overwhelm data collection efforts and resources available in this study. As a result, there is a clear population bias in the augmented data favoring large population centers since almost every major city in the nation is represented in the augmented dataset.

Table 23: Homicide Reporting Rates (SRS) by County Population for 2021

County Population	CDC	FBI	GMU	FBI Missing	FBI Percent	GMU Missing	GMU Percent
1 million or more	8,265	4,195	7,514	4,070	49.2%	751	9.1%
500,000 to 999,999	6,303	3,886	5,277	2,417	38.3%	1,026	16.3%
100,000 to 499,999	7,067	3,979	5,140	3,088	43.7%	1,927	27.3%
50,000 to 99,999	1,715	1,093	1,198	622	36.3%	517	30.1%
25,000 to 49,999	1,425	895	937	530	37.2%	488	34.2%
Less than 25,000	1,256	667	680	589	46.9%	576	45.9%
Total	26,031	14,715	20,746	11,316	43.5%	5,285	20.3%

There is some comfort in noting that the augmented dataset improved the homicide counts in all population divisions. The GMU data added 3,319 murders in counties with populations of 1 million or more people, improving the totals so that only falling short of the CDC count by 751 murders. But at the bottom of this population scale, the augmented data only added 13 homicides in counties with populations less than 25,000 residents. Nearly half (45.9%) of CDC-counted homicides in the most rural counties are missing from the augmented dataset, the barest of improvement over the FBI's 46.9% missing records.

Using our scoring system of the absolute values of aggregate differences in comparing FBI and GMU to NVSS data, Table 24 produces the GMU dataset's only negative effect in estimating homicide counts. Not surprisingly, one of the biggest divergences occurred in high population centers where the GMU augmented data was much more effective in capturing large city homicides than was the FBI, producing an

over-estimate of the percentage of urban homicides that was even larger than the Bureau's under-estimate.

Table 24: Homicide Percentages by County Population for 2021

County Population	CDC	FBI	GMU	Absolute Correction
Less than 25,000	4.8%	4.5%	3.3%	-1.2%
25,000 to 49,999	5.5%	6.1%	4.5%	-0.4%
50,000 to 99,999	6.6%	7.4%	5.8%	0.0%
100,000 to 499,999	27.1%	27.0%	24.8%	-2.2%
500,000 to 999,999	24.2%	26.4%	25.4%	1.0%
1 million or more	31.8%	28.5%	36.2%	-1.1%
Total	100.0%	100.0%	100.0%	- 3.9%

Overall, the augmented dataset produced homicide count estimates that were an aggregated 3.9 percentage points less accurate than those percentage estimates using the FBI's much-reduced 2021 data when looking at counties ranked as to population size.

Although the augmented homicide dataset produced significant improvements by providing more accurate representations of victim demographics like sex, age, and race and for most geographic divisions, the data's bias according to county population size deserves more research. Both the FBI and the GMU augmented data experience significant under-representation of rural murders. The possible causes of this pattern, especially in historic FBI data and the Bureau's experience during the 2021 reporting collapse, should be explored more fully. The same analysis should be given to the county-level reporting patterns in the augmented data, to understand the nature and sources of these biases more fully.

CHAPTER 7: REGRESSION MODELS TO PREDICT COUNTY-LEVEL CRIME REPORTING TO THE FBI

The discovery that county-level analysis of crime reporting rates show a significant bias according to population size (see Tables 11 and 23) presents an opportunity to explore other sociodemographic factors that may influence whether police departments in counties with varying characteristics will choose (or even are able) to participate in crime data reporting to the federal government. Regression analysis will also assess how significant and predictive is each county's population size and whether other predictive variables are more influential.

That the least populous counties are also the least likely to report data fully to the FBI suggests multiple factors that should be explored:

1. Do some counties have more resources (population) that provide necessary personnel and finances to meet federal reporting standards than do smaller counties?
2. How predictive are general population characteristics such as poverty, household income, education, median age, proportion of population in high-crime age groups, relative size of male and racial minority populations?
3. Do counties with especially high crime rates (as measured by CDC-reported homicides per 100,000 population) suffer declining reporting rates? [*]

[*] This issue can represent a resource challenge to local police since high crime rates may divert available police personnel from data reporting. But it can also represent an attitudinal issue since the perceived reluctance to report unattractively high crime rates has been a concern from the earliest days of the Uniform Crime Report.

4. Do local political attitudes toward the federal government (as measured by the percentage of the Republican presidential vote in recent elections) affect crime reporting rates? *
5. Are police attitudes over data reporting to the FBI influenced by familiarity with Bureau personnel as measured by the local presence of an FBI Field Office.
6. Are local data reporting rates influenced by a "state culture" from statewide agencies such as State Police who have a strong history of reporting to the FBI?

This last notion of the influence of a state's reporting tradition became obvious during the data acquisition process as some state police agencies reported having close working relations with local police departments while other state agencies indicated often-varying results from more passive appeals for local data. These state reporting traditions became obvious when charting summaries of county-level reporting failures by state as shown in Table 25:

Table 25: Average County Reporting Failure by State, 2010-2019

State	Mean	Standard Deviation	Counties	Number Missing All
Alabama	45.6	26.0	67	4
Alaska	43.0	43.8	29	6
Arizona	26.9	25.5	15	0
Arkansas	37.5	29.6	75	3
California	15.4	18.0	58	1

* GOP preferences for reduced government became enshrined in 1986 by President Reagan's famous description of the nine "most terrifying" words in the English language: "I'm from the government and I'm here to help."

Colorado	32.3	32.2	64	5
Connecticut	44.3	36.0	8	0
Delaware	17.7	12.3	3	0
D.C.	0.0	---	1	0
Florida	26.1	16.2	67	0
Georgia	39.4	30.3	159	14
Hawaii	9.4	7.7	4	0
Idaho	23.7	33.1	44	4
Illinois	39.0	35.2	102	16
Indiana	42.2	31.7	92	10
Iowa	34.8	38.0	99	17
Kansas	27.9	38.7	105	18
Kentucky	60.9	39.9	120	41
Louisiana	32.0	26.4	64	1
Maine	21.5	21.0	16	0
Maryland	18.4	15.1	23	0
Massachusetts	19.5	26.9	14	1
Michigan	8.9	17.4	83	0
Minnesota	33.8	34.1	87	11
Mississippi	72.1	28.7	82	19
Missouri	24.2	29.1	114	6
Montana	22.6	35.1	56	7
Nebraska	23.4	36.7	93	13
Nevada	13.5	26.1	17	1
New Hampshire	22.8	22.7	10	0
New Jersey	18.6	14.9	21	0
New Mexico	35.0	33.2	33	3
New York	16.6	20.5	58	1
North Carolina	28.7	27.7	100	5
North Dakota	18.5	34.0	53	6
Ohio	35.5	29.3	88	4
Oklahoma	45.5	29.9	77	8
Oregon	24.4	25.9	36	2
Pennsylvania	13.5	19.7	67	0
Rhodes Island	16.9	19.5	5	0
South Carolina	16.3	15.2	46	0
South Dakota	34.7	41.6	66	15
Tennessee	26.7	22.6	95	2
Texas	28.7	30.6	253	22
Utah	30.9	32.6	29	5
Vermont	34.0	38.9	14	0
Virginia	28.8	25.6	133	1
Washington	13.3	21.6	39	3
West Virginia	23.3	27.0	55	3
Wisconsin	35.8	30.6	72	3
Wyoming	22.3	28.4	23	4
Total	31.0	37.9	3,134	285

The worst reporting rate came from Mississippi where the county average for unreported records to the FBI was 72%, with 19 of the state's 82 counties failing to report a single murder during the 10-year period from 2010 to 2019. Not far behind were Kentucky (61%), Alabama and Oklahoma (both 46%), and Connecticut (44%). On the opposite side of the ledger is the District of Columbia where police (for reasons previously stated) reported slightly more homicides than were registered by medical authorities.

One way to visually represent this trend is through a simple box plot:

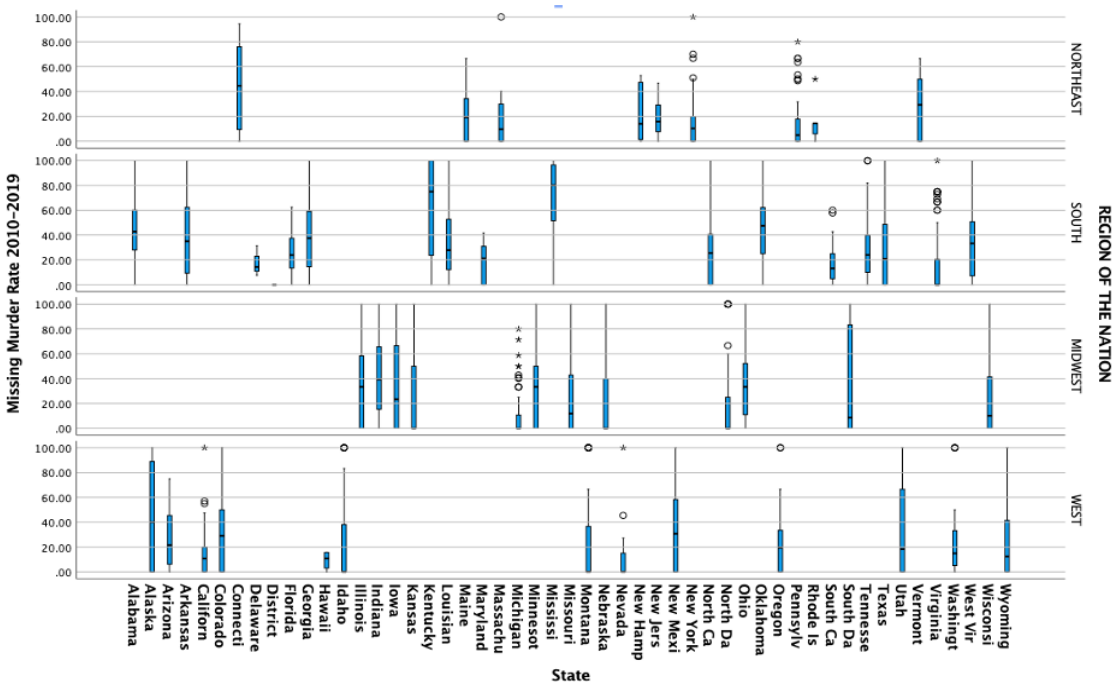


Figure 2: Box Plot of County Reporting Failures to FBI by State and Region

The region with the greatest variability in reporting crime data, by far, is the South. Four of the top-ten states with the best county-level crime reporting averages are Southern: D.C., Delaware, Maryland, and South Carolina. Yet four of the 10 worst reporting states – Alabama, Georgia, Kentucky, and Mississippi – are also Southern. But the other three Census regions also experienced variability. Even the best-reporting region, the Northeast, includes Connecticut which experienced one of the nation's highest rates of county reporting failures.

The first regression model will seek to establish a baseline of understanding for these reporting failures using the 2010-2019 dataset. The model will later be applied to the FBI's 2021 data and to the augmented GMU 2021 data to determine the effects of the FBI's undercount and this project's attempted data augmentation. This model will include independent variables for county population size (using a 10-year average from Census Bureau data), county poverty rate (using a five-year average for 2012 to 2016 taken from the Census Bureau's American Community Survey), median household income, annual county unemployment rate, relative size of male and racial minorities populations, percentage of population that completed a 4-year college education, whether the county has an FBI field office, the homicide rate per 100,000 population based upon Centers for Disease Control data from 2010-2019, the average percentage of vote for Republican presidential candidates for the 2012, 2016 and 2020 national elections, and 50 dummy variables for state using worst-performing Mississippi as the reference (see Model 1 in the Regression Appendix).

It should be noted that almost all of the independent variables, when tested in isolation, were found to have a significant impact on predicting the rate of county failure to report crime data to the FBI (most $p < .001$). However, there were differences in each IV's ability to explain variance (R^2 score). Population size had an $R^2 = .013$, median household income $R^2 = .014$, GOP vote percentage $R^2 = .011$, FBI field office $R^2 = .01$ while the homicide rate per 100,000 population had the largest with $R^2 = .035$ (see the single-IV scatter plots, model summaries and Correlation matrices for all three models at the conclusion of the Regression Appendix.)

The single continuous independent variable found to be the most powerful predictor according to the standardized coefficient (Beta) for homicide undercounting was the county's homicide rate per 100,000 population. The county murder rate helped account for high crime rates in poverty-stricken counties and for police manpower over-burdening since counties with high homicide rates (regardless of population size) are more apt to face law enforcement resource challenges than are counties with lower homicide rates.

A further analysis of the impact of county homicide rate was conducted by studying its relationship with county population size (see pages 115 to 120 in the Regression Appendix.) The coefficient was sharply negative for counties of 100,000 population or more, meaning police in urban areas were more likely to report homicides if the homicide rate was higher than average. But the coefficient was sharply positive in more rural counties, meaning police were likely to under-report homicides if their murder rates were greater than average. The trend was especially strong in counties with

populations of 25,000 or less ($p < .001$). There will be much more discussion about other possible causes for these effects in the upcoming discussion and conclusion chapter.

The ANOVA score for the overall 3,135-county model was statistically significant: $F(64, 3{,}067) = 12.878$, $p = < 0.001$. The R^2 score for the full model was moderate ($R^2 = 0.212$) which means it accounted for more than 21% of the variance in county homicide undercounting. Although they scored as significant when tested in isolation, neither population nor unemployment rate was found to be significant when included in a broader model that also included each county's murder rate.

The single independent variable with the largest unstandardized coefficient was the dummy variable indicating whether the county was one of the 55 counties that host FBI Field Offices. ($\beta = -17.12$, $p = .001$). FBI field agents are instructed to assist local law enforcement as much as possible, to make regular visits to squad rooms and to report to federal superiors when local police request Bureau assistance. These 55 counties had an average homicide undercount of just 7%, well below the national county average of 31%. Since FBI Field Offices are located in major cities, comparisons should be made among high-population areas. The average murder undercount was 14% in non-FBI counties with at least 1 million population and was nearly 17% in non-FBI counties with populations between 500,000 and 1 million. However, the presence of FBI Field Offices scored somewhat lower when the full model's coefficients were standardized to allow comparisons of the effectiveness of each independent variable.

Not surprisingly, the single continuous independent variable found to be the most powerful predictor for homicide undercounting using standardized coefficients was still

the county's homicide rate per 100,000 population (Standardized Beta = 0.242, $p < .001$). The model found that for every unit increase in homicide rate (for example, going from 5 homicides per 100,000 to 6 homicides) the model's prediction for the percentage of homicides that go unreported would grow by 1.9 percentage points. Of course, this finding does not determine if poor crime reporting is the result of manpower overburdening in counties with high homicide rates, or the result of a reluctance by police departments to report data showing unusually high homicide rates in their jurisdictions, or both.

In all, eight of the 14 socioeconomic independent variables were found to have a significant impact upon the full model's prediction of police under-reporting of homicide. These included median household income, median age, the African American percentage of the county's population, the percentage of population that were male, living under the federal poverty rate, and had completed college. Not scoring as significant were the Republican voting percentage, annual unemployment rate, percentage of population that were Asian or Native American, total population size and percentage of population in the high crime committing ages of 15 to 24.

The following is a summary of the performance of all 14 socioeconomic independent variables ranked according to the absolute value of their standardized coefficients (Table 26).

Table 26: Percentage County Reporting Failure, 2010-2019

Independent Variable	B	Std. Error	Beta	sig.	Absolute Value Beta
CDC Murder Rate 2010-2019	1.895	0.208	0.242	0.000	0.242
Median Household Income 2012-2016	0.483	0.094	0.21	0.000	0.21
Black Percentage 2010-2019	-0.338	0.082	-0.151	0.000	0.151
Male Percentage 2010-2019	1.22	0.266	0.083	0.000	0.083
Poverty Rate 2012-2016	0.423	0.191	0.082	0.027	0.082
College Completion 2012	-0.295	0.123	-0.079	0.017	0.079
County has FBI Field Office	-17.12	4.968	-0.069	0.001	0.069
Median Age 2012-2016	0.396	0.176	0.064	0.024	0.064
GOP Vote Percent 2012-2020	0.094	0.07	0.043	0.181	0.043
Unemployment Rate 2014-2016	0.662	0.462	0.041	0.152	0.041
Indian Percentage 2010-2019	0.158	0.098	0.037	0.106	0.037
Asian Percentage 2010-2019	-0.262	0.299	-0.027	0.382	0.027
Population Per 100K 2010-2019	-0.16	0.201	-0.017	0.427	0.017
Age 15-24 Percent 2010-2019	-0.04	0.275	-0.004	0.883	0.004

The full model did not find a significant effect according to how much of each county's vote in the 2012, 2016 and 2020 presidential election went to the Republican presidential candidates. The percentage of Republican vote was tested because the GOP for many years has adopted a philosophy of minimal government. A call to reduce the impact of the federal government in Americans' every-day lives was included in the Republican National Platform document approved in 2016 (Republican Platform, 2016).

The effectiveness of controlling for state reporting traditions with dummy variables was tested by rerunning the model without those 50 dummy components. Although still significant, the 14-independent-variable model controlled for a much-reduced amount of variance: (R^2 = .092, F(14, 3117) = 22.44, p < .001.) This indicates that much of the variance is explained by state reporting traditions rather than a county's specific socioeconomic characteristics.

As a robustness check, the full 64-element model was rerun, but first removing 259 counties that reported zero homicides from 2010 through 2019. The model's effectiveness in accounting for variance was slightly improved but still very similar: (R^2 = .225, F(64, 2808) = 12.736, p < .001.)

This regression analysis shows that local police cooperation with federal crime data reporting is significantly predictable according to factors like state reporting traditions, the county's per capita homicide rate and the local presence of an FBI Field Office. Although homicide rates generally decline in rural counties, local police participation in FBI crime reporting declines in rural counties that have a relatively higher-than-usual crime rate. Although a county's population size is positively correlated

to crime reporting rates, its predictive power is not significant when included in a multi-variate model that includes more powerful predictors.

This model, with some adjustments, was applied to the FBI's much-reduced 2021 Summary Reporting System data and with the augmented GMU 2021 dataset. The adjustments included the county population as reported in the 2020 Census, the 2021 homicide rate per 100,000 population based upon CDC homicide counts, the Census Bureau's 2020 county poverty rate and the GOP voting percentage taken exclusively from the 2020 presidential election. The dependent variable, as with the previous model, was the percentage estimate of unreported homicides comparing the CDC count for 2021 against the SRS counts reported solely by the FBI or augmented by the GMU project.

Since variability increased dramatically with the FBI's 2021 dataset with the absence of data from some of the nation's largest states, the model appears to have improved its performance as reported by the Model 2 output in Regression Appendix: (R^2 = .324, F(64, 3067) = 23.004, p < .001). Here are the results of the 14 socioeconomic predictors as ranked by the absolute values of the standardized coefficients (Beta):

Table 27: Percentage County Reporting Failure in FBI 2021 data (Model 2)

Independent Variable	B	Std. Error	Beta	sig.	Absolute Value Beta
CDC Murder Rate 2021	1.57	0.079	0.368	0.000	0.368
Black Percentage 2021	-0.655	0.102	-0.218	0.000	0.218

Median Household Income 2021	0.375	0.105	0.134	0.000	0.134
GOP Vote Percentage 2020	-0.253	0.09	-0.094	0.005	0.094
County has FBI Field Office	-28.21	5.992	-0.087	0.000	0.087
College Completion 2021	-0.305	0.144	-0.071	0.034	0.071
Unemployment Rate 2021	1.545	0.672	0.061	0.022	0.061
Asian Percentage 2021	0.356	0.337	0.025	0.291	0.025
Age 15-24 Percentage 2021	0.238	0.341	0.018	0.486	0.018
Male Percentage 2021	0.307	0.326	0.016	0.347	0.016
Population Per 100K 2021	0.202	0.267	0.015	0.451	0.015
Indian Percentage 2021	-0.037	0.119	-0.007	0.753	0.007
Median Age 2021	-0.038	0.217	-0.005	0.862	0.005
Poverty Rate 2021	0.034	0.281	0.004	0.904	0.004

It is important to note that the top three independent variables as ranked by their standardized coefficients are interrelated – even if they don't uniformly indicate a positive or negative correlation. Murder rates rise in counties with large African American populations, reflected by the fact that (according to the Supplemental Homicide Report) most homicide victims in the 21st Century have been black. The

coefficient for the effect of black population is negative in these models because, as previously stated in Chapter 6, African American murders are slightly more likely to be reported to the FBI than homicides involving white victims. The FBI's under-reporting of 2021 murders was smaller for African American victims than for victims of any other race as documented in Table 14. It is interesting to note that there was little indication of improved crime data reporting among rural majority Black counties compared to rural majority white counties, suggesting that lack of resources in rural areas is the more powerful predictor.

Homicide reporting rates in 2021 were negatively associated with county Republican voting tendencies, which were found to be significant in the Model 2 analysis of 2021 FBI crime data. Although not significant, Model 1 found that under-reporting to the FBI increased among GOP-oriented counties in 2010-2019. This doesn't mean that conservatives in 2021 became more supportive of FBI data reporting but, rather, that many Democratic counties became significantly less likely to report data that year. Most 2021 murders went unreported in large Democratic strongholds like California, Illinois, Maryland, New Jersey, New York, and Pennsylvania as well as the District of Columbia (see Table 2). These are states that historically have reported data to the FBI at above-average rates. If there is a reluctance to report crime data among conservative-voting counties, this can't be documented with the highly incomplete 2021 FBI-released data.

The presence of an FBI Field Office still had a beneficial and significant effect in lowering the rate of homicide under-reporting in 2021 and will continue to have a beneficial effect in the augmented GMU dataset.

The application of Model 3 (see Regression Appendix) was similarly effective when applied to the GMU augmented dataset: (R^2 = .237, F(55, 3075) = 17.372, p < .0001). Again, the county's murder rate per capita had the greatest influence on predictability. Here are the model results among the 14 socioeconomic predictors ranked by absolute value of Beta:

Table 28: Percentage County Reporting Failure in GMU 2021 data (Model 3)

Independent Variable	B	Std. Error	Beta	sig.	Absolute Value Beta
CDC Murder Rate 2021	1.516	0.079	0.374	0.000	0.374
Black Percentage 2021	-0.58	0.102	-0.203	0.000	0.203
Median Household Income 2021	0.4	0.105	0.15	0.000	0.15
County has FBI Field Office	-33.45	5.987	-0.108	0.000	0.108
GOP Vote Percentage 2020	-0.206	0.09	-0.081	0.022	0.081
College Completion 2021	-0.327	0.143	-0.08	0.023	0.08
Unemployment Rate 2021	1.34	0.672	0.056	0.046	0.056
Male Percentage 2021	0.689	0.326	0.039	0.035	0.039
Age 15-24 Percent 2021	0.342	0.341	0.028	0.316	0.028
Population Per 100K 2021	-0.182	0.267	-0.015	0.496	0.015
Indian Percentage 2021	0.065	0.119	0.012	0.587	0.012

Median Age 2021	0.086	0.216	0.011	0.692	0.011
Asian Percentage 2021	0.09	0.337	0.007	0.79	0.007
Poverty Rate 2021	-0.037	0.28	-0.005	0.896	0.005

As in Model 2, the top three predictive variables were the county's murder rate, percent of African American population and median household income.

All three models were also evaluated for possible collinearity problems (see Regression Appendix). None of the independent variable's Variance Inflation Factors (VIF) scores were greater than 10. But the correlation matrices in the appendix do highlight some degree of correlation among many of the independent variables in the models. For instance, there is a noticeable relationship between factors such as the percentage of population with a college education, median household income, and the local poverty rate. Similarly, counties with larger black populations and higher poverty rates tend to report higher homicide rates – correlations that affect the independence of the predictors in the models.

Yet, it's vital to contextualize these observations. The primary aim in this study was not to precisely forecast the reporting habits of specific police departments to the FBI. Instead, it aimed to shed light on the socioeconomic factors that might play a role in the dedication levels of police departments towards crime reporting at the federal level. These models underline that police departments navigate a variety of influences, most of which correlate with the resources at their disposal.

Finally, the regression coefficients for the individual states are a roadmap to identifying some of the damage done to the prediction models because of unreported murders in each state in 2021. All 50 dummy variables have negative coefficients in Model 1 since homicide reporting for the period 2010-2019 was considerably more complete. This model shows the effect each state's reporting tradition had upon the model's ability to predict missing data. But when applied to the FBI's 2021 data (Model 2), five states have positive coefficients caused by significant numbers of unreported murders: California, Florida, Maryland, New Jersey, and Pennsylvania. Even with the GMU augmented data used in Model 3, three of these states still had positive coefficients: Florida, Maryland, and New Jersey. Because of the effectiveness of data augmentation, California and Pennsylvania returned to normally negative coefficients.

CHAPTER 8: DISCUSSION AND CONCLUSIONS

From the opening days of modern criminology, scholars have questioned the reliability of government-generated crime data. University of Chicago academic Clark Tibbitts warned that the nascent federal Uniform Crime Report "implies a degree of accuracy that does not exist" (Tibbitts, 1932). Sociologist Donald T. Campbell famously reduced these academic concerns to a law for governance: the more important a metric is in social decision making, the more likely it is to be manipulated (Campbell, 1971; Johnston & Carley, 1981).

Whether intentional or not, many significant biases in the kinds of homicides that police voluntarily report to the FBI have been confirmed by this study and by previous scholarship. Murders of women, African Americans, and teenagers and young adults 15-34 years old are more likely to be reported than are the killings of other types of victims (see Rokaw et al., 1990; Chapter 5 of this study). Police participation in federal crime reporting is highly variable according to geography with Southeastern and Southwestern authorities nearly three times more likely to fail to report homicides than police departments in New England and Mid-Atlantic states (Table 10). A homicide is five times more likely to go unreported in counties with less than 25,000 population than in counties of 1 million or more residents (Table 11; see also Maltz & Targonski, 2002).

All of these biases and concerns were greatly exacerbated in 2021 by the FBI's mandatory adoption of the National Incident Based Reporting System, which asks local police to provide case level details on millions of major crimes that, in the past, were

simply encapsulated in the old UCR's Summary Reporting System. Only 57% of the nation's murders were reported to the FBI in 2021, the worst undercount in modern times (Table 1; see also Mosher et al., 2011). The FBI's adoption of mandatory NIBRS reporting came at a time of dramatic increases in violent crimes with homicides increasing nearly 30 percent in 2020, the largest one-year increase on record. Mandatory NIBRS reporting reduced FBI murder reports from 19,719 in 2020 to just 14,715 homicides in 2021. The data present a false picture of declining killings immediately following the 2020 surge, as shown in figure 2:

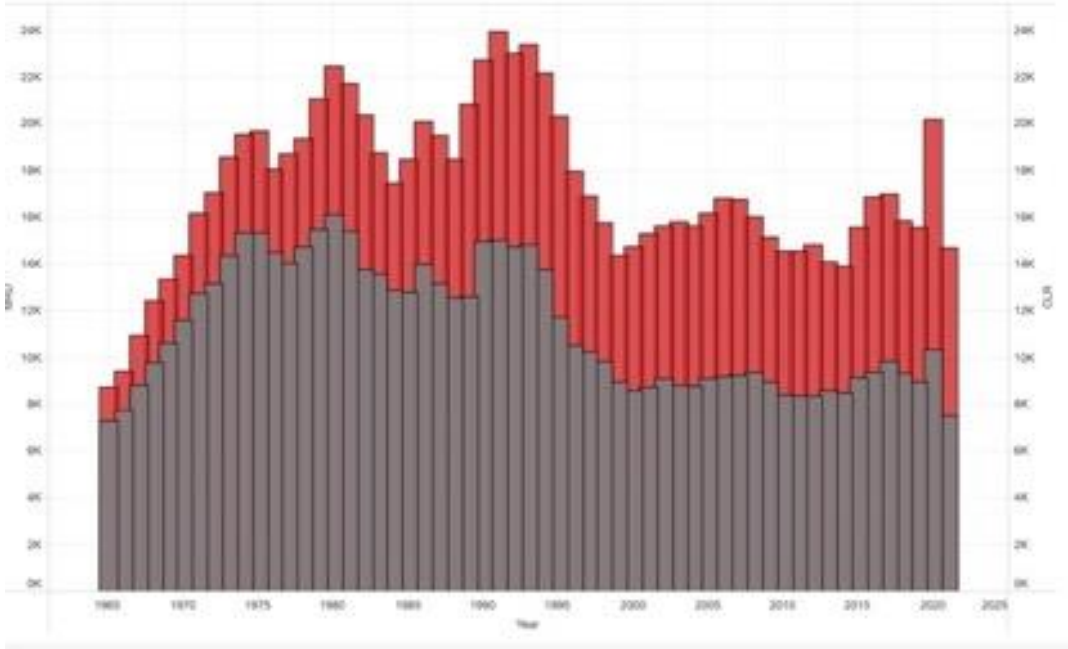


Figure 3: Uncorrected FBI Summary Reporting System Homicide Totals, 1965-2021. (Homicide clearance totals reflected in the grey areas. Source: FBI Uniform Crime Report).

The purpose of this study is to augment the SRS and Supplementary Homicide Report (SHR) datasets for 2021 in order to restore the historical record of murder at a time of significantly increased occurrence of homicide. Using legally mandated death certificate records summarized in the Centers for Disease Control's National Vital Statistics System as a baseline for comparison, the study found that at least 11,316 homicides were not reported to the FBI in 2021 (Table 2). Using requests to state and local police under state Freedom of Information Acts or Open Records Acts, this study was able to reduce the undercount by more than half by obtaining 6,031 murder records not reported to the FBI because of failures to meet mandatory NIBRS reporting standards (Table 3). As a result, this study presents a much more accurate indication that the murder surge of 2020 continued into the following year.

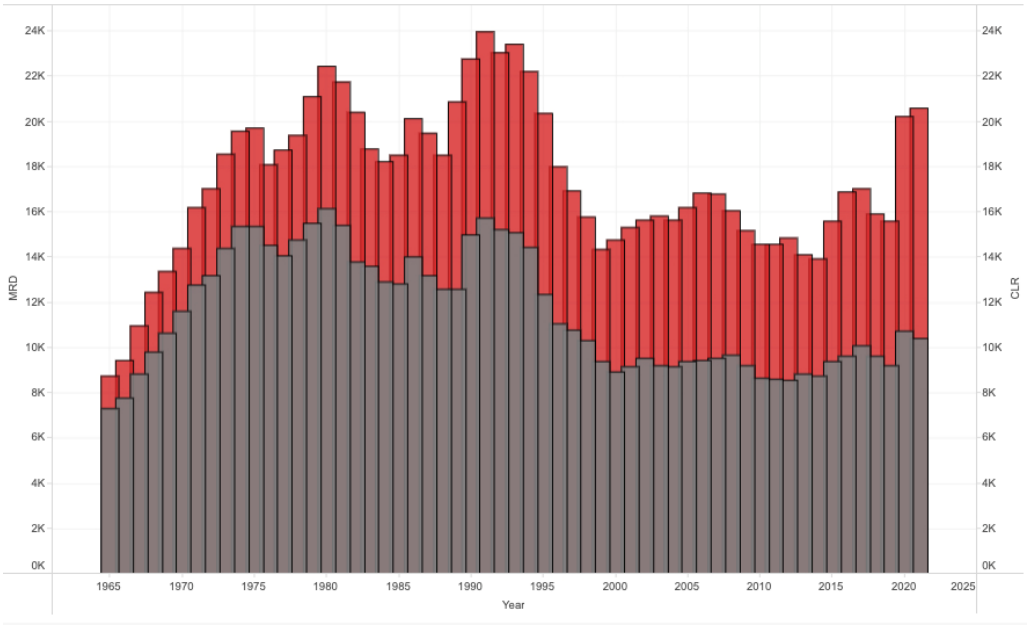


Figure 4: FBI Homicide Totals with Augmented GMU Data, 1965-2021

The graph in Figure 3 using augmented GMU data generally agrees with CDC data that reported a continuing homicide surge in 2021 with nearly 6% more killings than in 2020. The augmented data also indicate that the dramatic drop in homicide clearances reported in 2020 continued the following year – information not available in CDC data. (The FBI capture of clearance information as well as a description of offenders if an arrest has been made is why crime scholars cannot rely solely upon NVSS data for homicide studies.) Only 54% of homicides were cleared through the arrest of offenders in both years, the lowest clearance rates on record.

The GMU augmented dataset also painted a much more accurate picture of victim demographics and the geographical patterns for where homicides occur. Generally, the FBI's 2021 dataset made worse the already identified historical biases found in the study of 2010-2019 data by overstating the percentages of female, African American and 15-to-24-year-old victims (see Chapters 5 & 6). When considering the victim demographics (age, race, and sex), the augmented data were an aggregate of 2.3 percentage points closer to CDC's NVSS results for victim gender than were the uncorrected FBI data for 2021. The augmentation also improved the victim racial characteristics by an aggregate of 3.2 percentage points, and standard age categories by an aggregate of 1.3 percentage points.

The uncorrected FBI data for 2021 missed several important trends in homicide victims that occurred during recent and unexpected surges in the murder rate. Then-FBI Director James Comey correctly noticed that the so-called "Ferguson Effect" was resulting in increased rates of killing for African American men in 2015 (Comey, 2015).

These pattern changes were even larger in the murder surge that began following George Floyd's killing in 2020. The FBI reported that 78.6% of homicide victims in 2021 were male, compared to the CDC's estimate that males accounted for 81% of murders that year. Historically, based upon the SHR reports from 2010 through 2019, 78.3% of victims were male. This means the uncorrected FBI dataset for 2021 seemed to repeat historic trends in male killing but actually undercounted a significant rise in the proportion of homicide victims who were male.

Similarly, because murders of black victims are more likely to be reported to the FBI than the killings of all other races, the FBI reported that 58% of murder victims were African American in 2021, well above the CDC estimate that blacks accounted for 55.9% of victims in 2021. Yet both estimates were well above the 2010-2019 SHR estimate that blacks accounted for 50.7 percent of all homicides.

The dramatic rise in murder rates for black males was inaccurately described by uncorrected FBI data at a time when police and public policy makers most needed to understand the precise nature of the largest homicide surge on record. The augmented GMU data corrected some – but not all – of these biases in the "official" crime data. Criminologists still have much to learn to understand exactly what changes occurred during the current homicide surge and why they occurred. Criminologist Richard Rosenfeld, when giving the prestigious Sutherland Address at the 2017 annual meeting of the American Society of Criminology in Philadelphia, urged future criminologists to focus upon the effects of "exogenous shocks" from events similar to George Floyd's murder upon national crime statistics. Rosenfeld urged future research to explore "exactly

how decreases in (police) legitimacy produce increases in violence" (Rosenfeld, 2018, p. 22). Researchers seeking to meet Rosenfeld's challenge should consider using the GMU dataset when analyzing the second year of the current murder surge, based upon the findings of this study.

The GMU augmented data also significantly improved most of the geographic indicators for where homicides occur. The FBI 2021 dataset overstated the percentage of murders that occurred in Southern and Midwestern states while understating the percentage of homicides that occurred in Northeastern and Western states (see Table 20). When looking at regions using the Census Bureau's eight-region system, the only region the augmented data failed to improve was the Southeast because of the augmentation effort's failure to obtain about half of Florida's murders as well as significant under-reporting in Alabama, Georgia, and Mississippi.

Analysis of crime and place may be especially important in understanding the current homicide surge. Many states experienced record homicide totals in 2020, including Minnesota (where Floyd died), Arkansas, Colorado, Delaware, Indiana, Iowa, Missouri, Montana, North Dakota, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, Washington state and Wisconsin. In addition to these 16 states, Kentucky, Mississippi, North Carolina, and Oregon set new homicide records in 2021, according to the author's state-level analysis of the FBI's 2020 data and the augmented GMU dataset for 2021. Total homicides in these 20 states surpassed even the fatal violence of the 1980s and 1990s when the crack-cocaine industry pushed street gangs and other criminal groups into vicious turf fights (Evans et al., 2018; Cork, 1999). It is

interesting to note that every state bordering Minnesota, with the exception of Michigan, hit record homicide numbers in 2020 or 2021, even though there is no criminological theory explaining why proximity to an "exogenous shock" like Floyd's killing would influence a jump in statewide homicide rates.

The first element of the thesis that is being tested in this project is: Can a non-governmental intervention for the collection of crime data produce a homicide dataset that is more complete and reliable than the data released by the FBI for 2021 murders? Based upon the findings outlined in chapters 7 and 8, there can be little doubt that the GMU augmented data are superior to the uncorrected FBI datasets for 2021. Again, scholars studying the homicide surge following George Floyd's murder would be well advised to consider using the GMU dataset for 2021 rather than the uncorrected FBI data.

Better data rarely means perfect data, of course. The augmentation process used in this study required gathering data under the two separate counting systems under the old Uniform Crime Report and thus resulted in different augmentation counts for the SRS and SHR since many departments were unable to provide data for both systems. This was a problem the FBI's adoption of NIBRS was intended to eliminate since a single dataset would provide information to populate SRS and SHR equivalents in the future (see FBI, 2013.)

The augmentation process was unable to repair the historic bias in which police in rural counties are much less likely to report data to the FBI than are authorities in urban areas (Tables 11 and 24). The augmentation process restored missing records in counties of every size, but was more likely to obtain missing records in urban counties than in

rural areas. Urban police departments were more likely to respond to this project's FOIA and Open Records requests, probably because they were much more experienced in receiving such requests than were authorities in rural counties (for example, it was common for police departments in rural communities not to have any on-line tools for filing FOIA requests at their Internet websites while such tools were common at the websites for state agencies and for large urban police departments.)

It is somewhat comforting, perhaps, that county population size was not the most important predictor of police participation in federal crime reporting, according to the regression analyses recounted in Chapter 7. When used as one of 14 socioeconomic variables in a multi-variate regression model, population size was not found to be statistically significant in any of the three models tested. By far the best and most consistent predictor was the murder rate per 100,000 population when all the independent variables were ranked according to their standardized coefficients (see Tables 26, 27 and 28). Put simply, police generally were significantly less likely to report complete homicide data to the FBI if their homicide rates were higher than average.

But it's also interesting to note that the direction of the homicide rate's coefficient curve (positive or negative) reversed according to county population size. Police in high-population counties were more likely to report complete homicide data if their homicide rates were greater than average (see the Regression Model Appendix.) This makes sense when considering that high-crime communities in large urban areas face special scrutiny by the news media, civic organizations, and aspiring politicians. Police would face

intense scrutiny and criticism for under-reporting their crime data in urban areas with large news media markets.

But in the numerous rural counties, the co-efficient for homicide rate reversed, indicating the higher the murder rate, the less likely were police to report complete data to the FBI. This finding also makes sense under traditional Organizational Cooperative Theory. Criminal justice agencies in Europe were found to restrict information sharing if doing so threatened the "valuable political asset" of their "reputational uniqueness" (Busuioc, 2016, p. 41). The FBI, during the run-up to mandatory NIBRS adoption, found widespread concern for a "potential public relations disaster" because NIBRS eliminated the UCR's old hierarchy rule that restricted incident reporting to a single category. Under NIBRS, an incident can be recorded in multiple crime categories (Roberts, 1997, p. 10). Also, it's likely the chances for a successful transition to NIBRS were hampered even further because the new reporting system became mandatory during the nation's worst homicide surge on record. Why would small-town police departments expend precious time and resources to adopt to NIBRS standards at a time of escalating violent crime that generally reflected badly upon law enforcement?

It's probably good news that police cooperation in crime data reporting to the FBI does not seem to be significantly impacted by local politics as reflected by county presidential voting patterns. Although only moderately predictive when tested in isolation, the Republican voting percentage in presidential elections was not found to be significant when tested in a more comprehensive multivariate model for the 2010-2019 data. This coefficient reversed in the 2021 data, but this was heavily influenced by

sweeping reporting failures in Democratic states like California, New York, and Maryland.[*] However, given the intensity of current conservative criticism against federal law enforcement in general – and the FBI in particular – it is recommended this issue be revisited in future research. Scholars will have a better view of long-term reporting failures after a few years and can retest the effects of local partisan politics upon crime reporting.

THE FUTURE OF CRIME DATA REPORTING

The data analysts and supervisors at the FBI's Criminal Justice Information Services (CJIS) divisions in Clarksburg, West Virginia, are aware of the stark deficiencies in their 2021 crime data release, which were predicted well in advance. As noted, the FBI collaborated with the Bureau of Justice Statistics to create the National Crime Statistics Exchange NIBRS Estimation Project to produce "national estimates with NIBRS data" (FBI, 2019). These estimates were used in the annual *Crime in the United States* and other publications rather than to rely upon much diminished crime reporting.

But CJIS personnel decided to make yet another reporting policy change following the disappointments from the 2021 crime report. "The FBI will accept all Summary Reporting System information provided by data contributors for 2022" from "agencies that have not transitioned to the National Incident-Based Reporting System" (Correspondence from FBI to the author, March 9, 2023). The summary reporting data sought from non-NIBRS compliant agencies include: Violent Crime totals, Murder and

[*] Authorities in these three states assured the author they are making rapid progress in bringing their states into full compliance with NIBRS standards within a year or two.

Nonnegligent Manslaughter, Rape, Robbery, Aggravated Assault, Burglary, Larceny Theft, Motor Vehicle Theft, Arson, Hate Crimes and Law Enforcement Officers Killed and Assaulted (LEOKA) Assault Data, previously 1-705 form (ibid.)

The Bureau will no longer seek Supplemental Homicide Report data from non-NIBRS compliant agencies. The Bureau also said it will not indicate when releasing 2022 data under the widely used "Return A" release standard whether the summary information was obtained from NIBRS or from noncompliant agencies that chose to report under the old Summary Reporting System standards.

It is not yet known whether this new policy will significantly reduce the reporting gaps found in the 2021 data release. The Bureau's adoption of this blended system of data reporting – allowing both NIBRS and old SRS data – is an admission and recognition of the importance that crime data has in national, state, and local crime policy formulation. It also suggests the adoption of NIBRS standards for currently non-compliant agencies will not be as rapid as the FBI and the criminological community might wish.

The nonprofit news organization The Marshall Project, which focuses upon criminal justice issues, obtained summary NIBRS participation data from the FBI indicating that 31% of law enforcement agencies failed to report any data via the NIBRS standard for 2022 crimes, an improvement from the 40% reporting failure rate in 2021. Major agencies failing to report in 2022 include the New York City, Los Angeles, and Phoenix departments (Li et al., 2023). However, there were many large departments that fully reported via NIBRS in 2022 for the first time including Baltimore City and County, Chicago, Honolulu, Miami-Dade, Philadelphia, and Washington, D.C. At the state level,

less than 10% of the agencies in Florida and Pennsylvania were able to report 2022 data, although these still were improvements over 2021 participation by these states.

Based upon the data obtained by The Marshall Project, unreported murders in 2022 will drop below 40% and might approach 30% when compared to the number of homicides counted by the NVSS. It is not known, yet, how many non-NIBRS compliant agencies will avail themselves of the FBI's offer to report SRS data under the old UCR standards.

It seems certain that under-reporting will be a significant issue, again, for 2022 homicides and other major crimes. This suggests that future non-governmental interventions in crime data collection similar to the actions undertaken in this study will be necessary. If so, it is recommended that the kinds of actions taken in this study be repeated in the coming years until NIBRS compliance returns to historical reporting rates found during the UCR's summary reporting system.

REGRESSION MODEL APPENDIX

Regression Model 1 Applied to 2010-2019 County-Level Missing Data Reporting Rates

Model 1	Unstandardized Coefficients B	Standardized Coefficients Std. Error	Beta
(Constant)	-45.190	19.778	
County has FBI Field Office	-17.120	4.968	-0.069
CDC Murder Rate 2010-2019	1.895	0.208	0.242
GOP Vote Percent 2012-2020	0.094	0.070	0.043
Poverty Rate 2012-2016	0.423	0.191	0.082
Unemployment Rate 2014-2016	0.662	0.462	0.041
Median Household Income 2012-2016	0.483	0.094	0.210
College Completion 2012	-0.295	0.123	-0.079
Median Age 2012-2016	0.396	0.176	0.064
Age 15-24 Percent 2010-2019	-0.040	0.275	-0.004
Population Per 100K 2010-2019	-0.160	0.201	-0.017
Male Percentage 2010-2019	1.220	0.266	0.083
Black Percentage 2010-2019	-0.338	0.082	-0.151
Indian Percentage 2010-2019	0.158	0.098	0.037
Asian Percentage 2010-2019	-0.262	0.299	-0.027

Notes: R^2 = .21 ($p < .001$).

Regression Model 2 Applied to 2021 FBI County-Level Missing Data Reporting Rates

Model 2	Unstandardized Coefficients B	Standardized Coefficients Std. Error	Beta
(Constant)	33.68	24.035	
County has FBI Field Office	-28.214	5.992	-0.087
CDC Murder Rate 2010-2019	1.57	0.079	0.368
GOP Vote Percent 2012-2020	-0.253	0.09	-0.094
Poverty Rate 2012-2016	0.034	0.281	0.004
Unemployment Rate 2014-2016	1.545	0.672	0.061
Median Household Income 2012-2016	0.375	0.105	0.134
College Completion 2012	-0.305	0.144	-0.071
Median Age 2012-2016	-0.038	0.217	-0.005
Age 15-24 Percent 2010-2019	0.238	0.341	0.018
Population Per 100K 2010-2019	0.202	0.267	0.015
Male Percentage 2010-2019	0.307	0.326	0.016
Black Percentage 2010-2019	-0.655	0.102	-0.218
Indian Percentage 2010-2019	-0.037	0.119	-0.007
Asian Percentage 2010-2019	0.356	0.337	0.025

Notes: R^2 = .32 ($p < .001$).

Regression Model 3 Applied to 2021 GMU County-Level Missing Data Reporting Rates

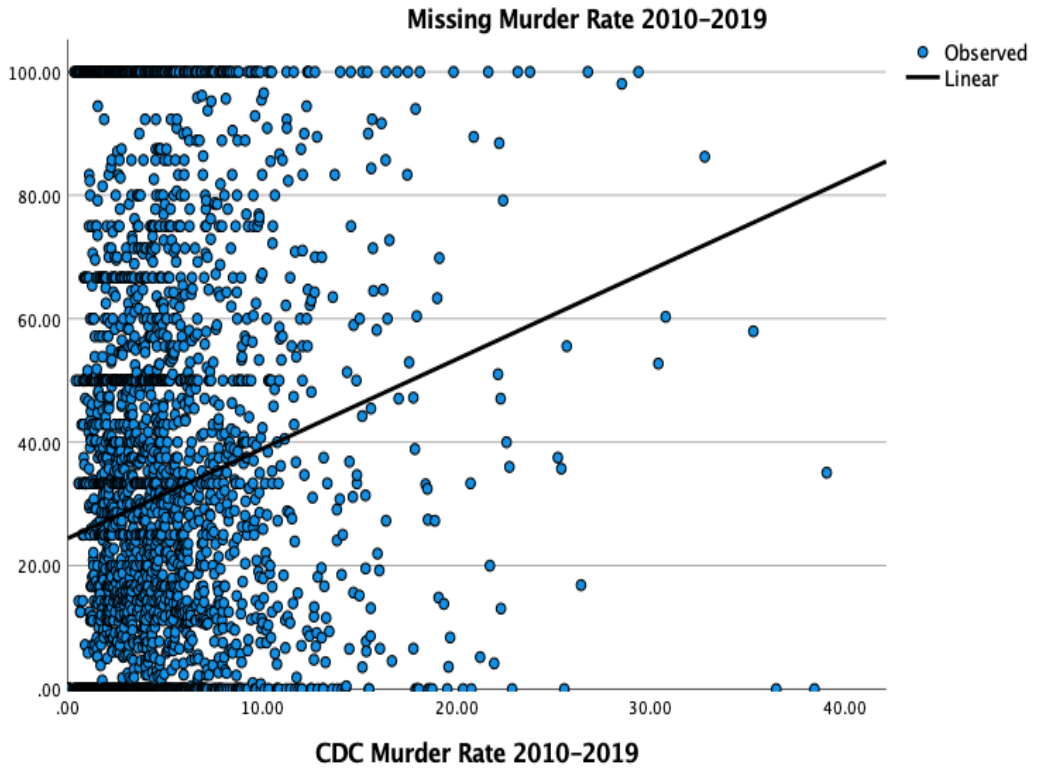
Model 3	Unstandardized Coefficients B	Standardized Coefficients Std. Error	Beta
(Constant)	5.255	24.017	
County has FBI Field Office	-33.448	5.987	-0.108
CDC Murder Rate 2010-2019	1.516	0.079	0.374
GOP Vote Percent 2012-2020	-0.206	0.09	-0.081
Poverty Rate 2012-2016	-0.037	0.28	-0.005
Unemployment Rate 2014-2016	1.34	0.672	0.056
Median Household Income 2012-2016	0.4	0.105	0.15
College Completion 2012	-0.327	0.143	-0.08
Median Age 2012-2016	0.086	0.216	0.011
Age 15-24 Percent 2010-2019	0.342	0.341	0.028
Population Per 100K 2010-2019	-0.182	0.267	-0.015
Male Percentage 2010-2019	0.689	0.326	0.039
Black Percentage 2010-2019	-0.58	0.102	-0.203
Indian Percentage 2010-2019	0.065	0.119	0.012
Asian Percentage 2010-2019	0.09	0.337	0.007

Notes: R^2 = .25 (p < .001).

Model Summary for Missing Murder Rate 2010-2019 and CDC Murder Rate 2010-2019

	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.035	111.983	1	3132	0.000	24.437	1.450

The independent variable is CDC Murder Rate 2010-2019.



Model Summary for Missing Murder Rate 2010-2019 and Median Household Income 2012-2016

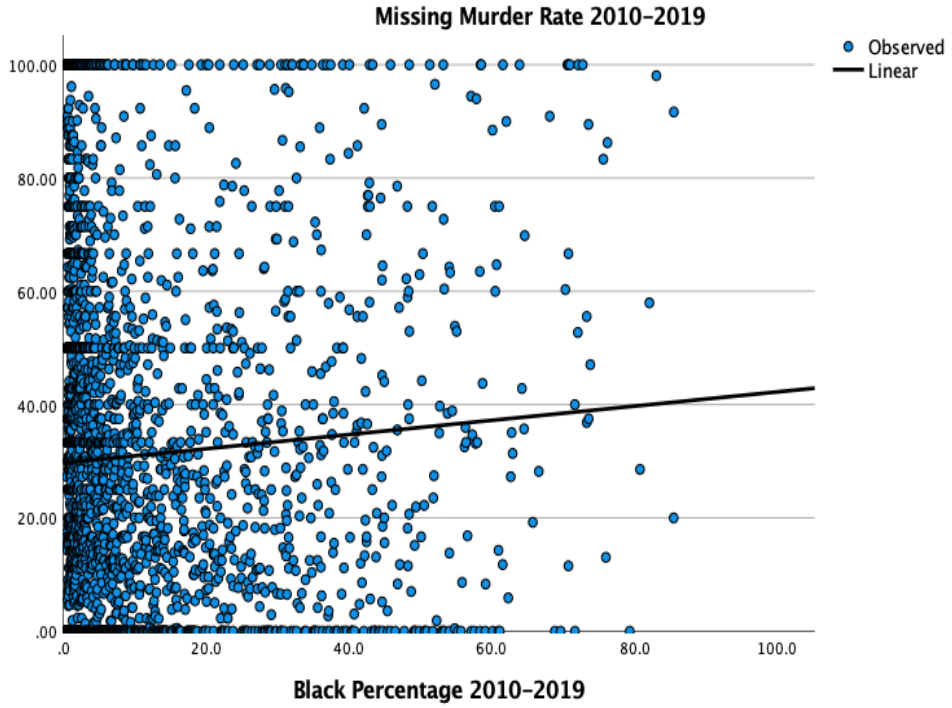
	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.014	44.072	1	3130	0.000	45.402	-0.271

The independent variable is Median Household Income 2012-2016.

Model Summary for Missing Murder Rate 2010-2019 and Black Percentage 2010-2019

Model Summary						Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.003	9.797	1	3132	0.002	29.699	0.125

The independent variable is Black Percentage 2010-2019.



Model Summary for Missing Murder Rate 2010-2019 and Male Percentage 2010-2019

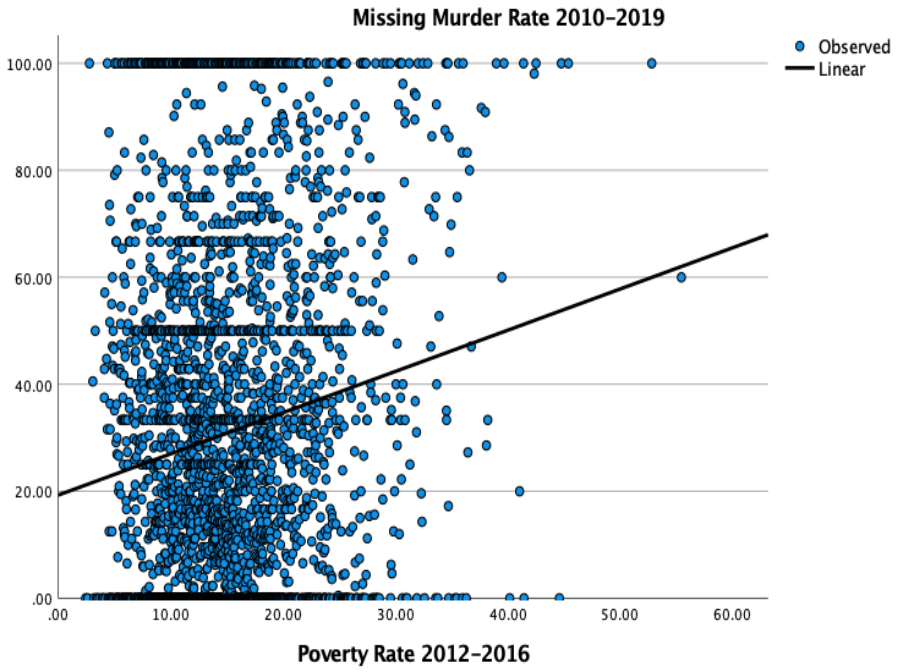
	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.002	7.727	1	3132	0.005	-5.425	0.726

The independent variable is Male Percentage 2010-2019.

Model Summary for Missing Murder Rate 2010-2019 and Poverty Rate 2012-2016

	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.022	70.956	1	3131	0.000	19.295	0.770

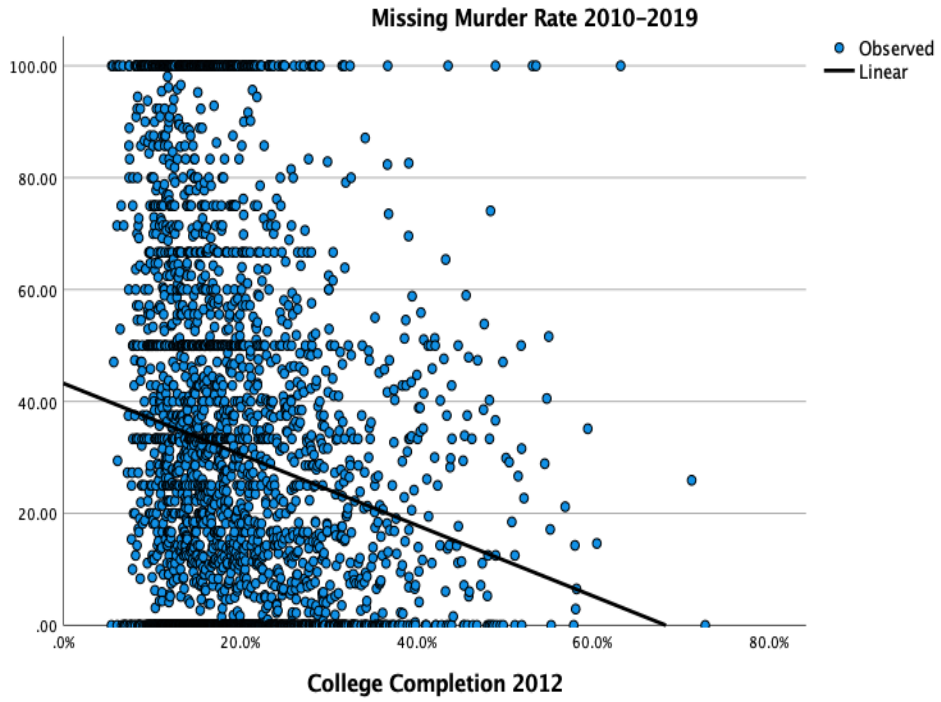
The independent variable is Poverty Rate 2012-2016.



Model Summary for Missing Murder Rate 2010-2019 and College Completion 2012

	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.029	92.750	1	3132	0.000	43.232	-0.633

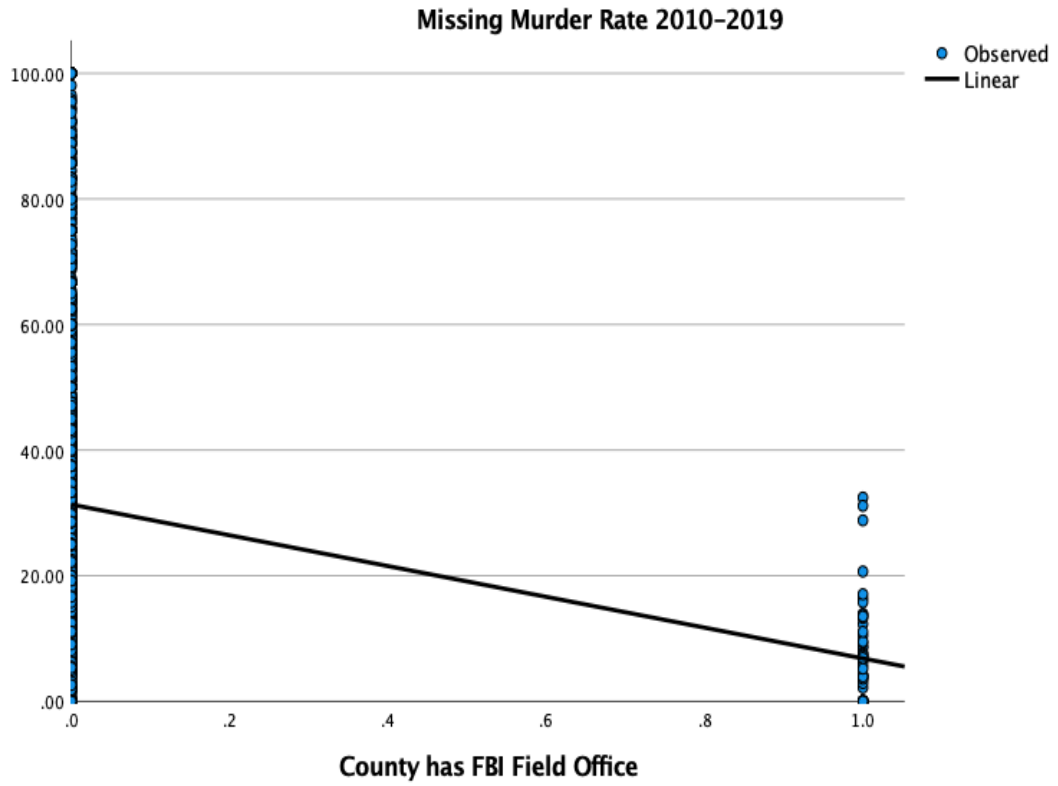
The independent variable is College Completion 2012.



Model Summary for Missing Murder Rate 2010-2019 and County has FBI Field Office

	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.010	30.744	1	3132	0.000	31.348	-24.51

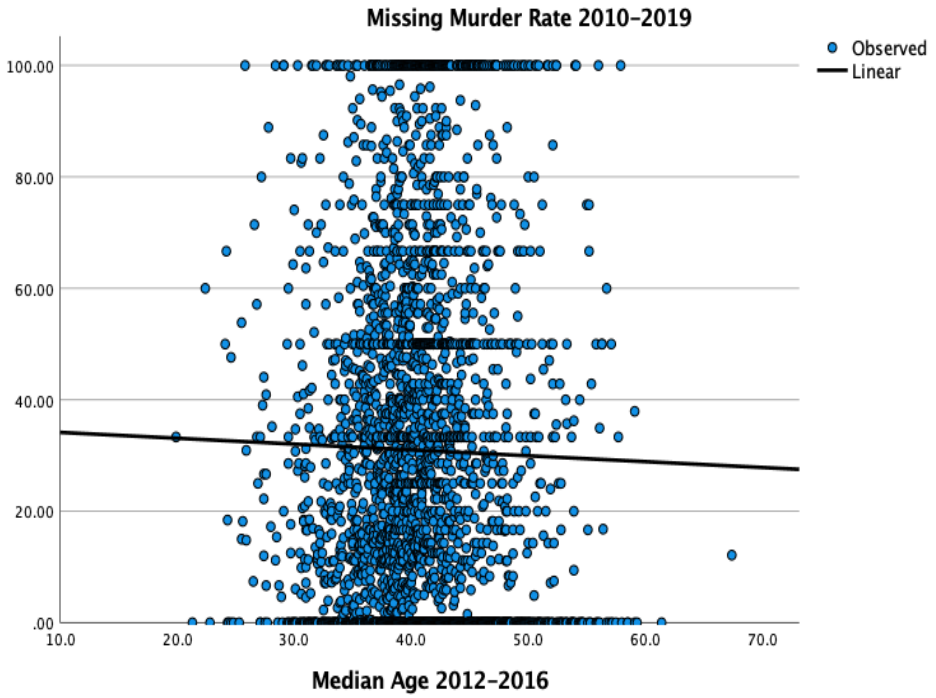
The independent variable is County has FBI Field Office.



Model Summary for Missing Murder Rate 2010-2019 and Median Age 2012-2016

	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.000	0.916	1	3132	0.339	35.200	-0.105

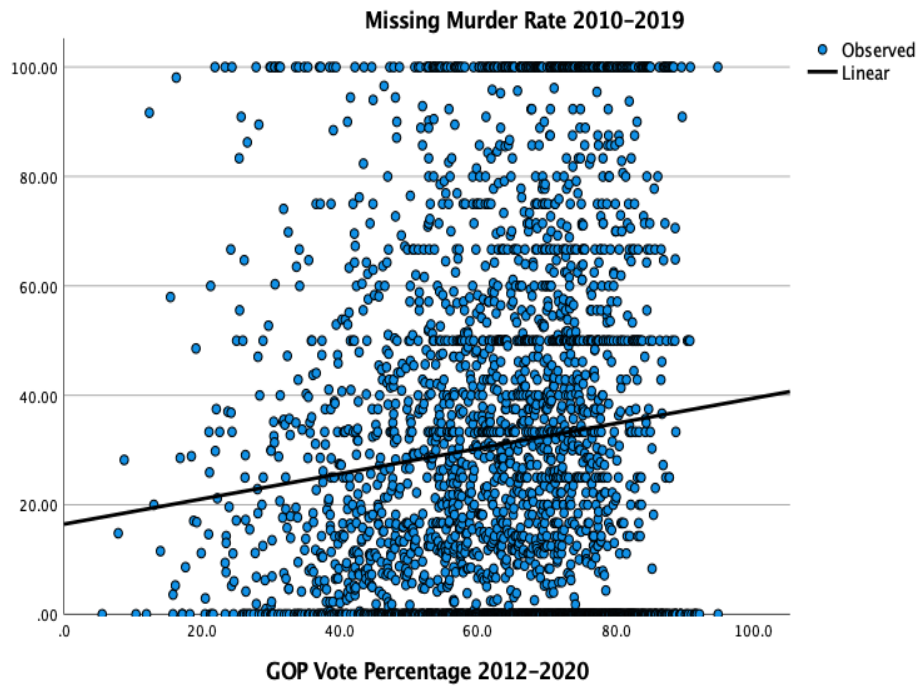
The independent variable is Median Age 2012-2016.



Model Summary for Missing Murder Rate 2010-2019 and GOP Vote Percentage 2012-2020

	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.011	35.753	1	3132	0.000	16.472	0.230

The independent variable is GOP Vote Percentage 2012-2020.



Model Summary for Missing Murder Rate 2010-2019 and Unemployment Rate 2014-2016

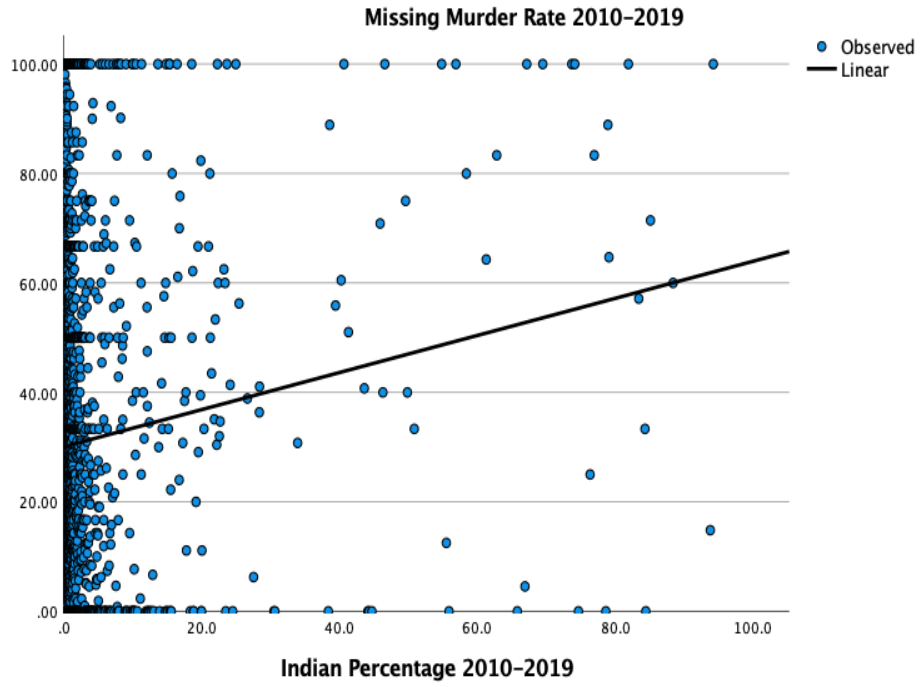
	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.015	47.815	1	3132	0.000	19.661	1.989

The independent variable is Unemployment Rate 2014-2016.

Model Summary for Missing Murder Rate 2010-2019 and Indian Percentage 2010-2019

	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.007	22.121	1	3132	0.000	30.079	0.339

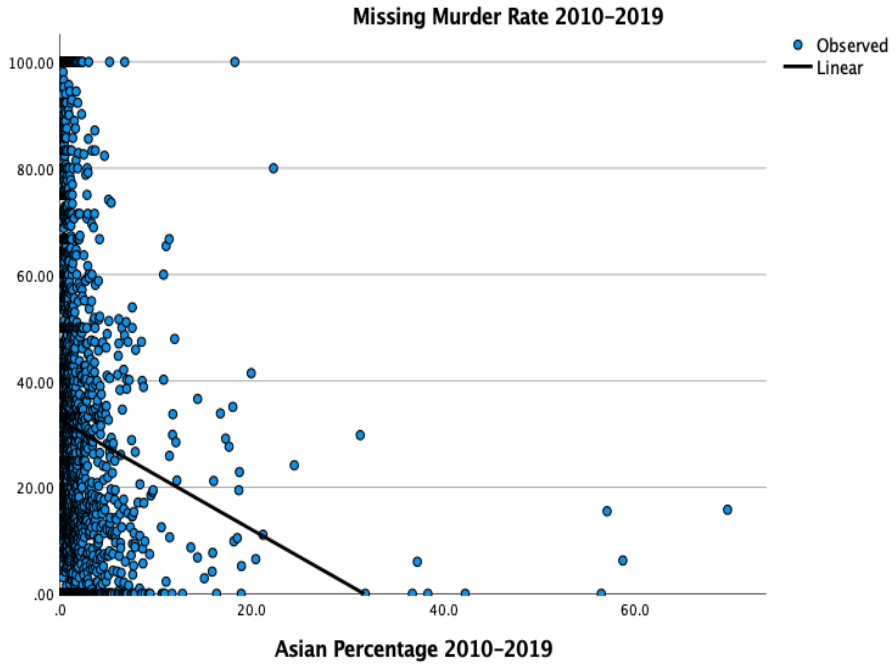
The independent variable is Indian Percentage 2010-2019.



Model Summary for Missing Murder Rate 2010-2019 and Asian Percentage 2010-2019

	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.012	36.591	1	3132	0.000	32.605	-1.027

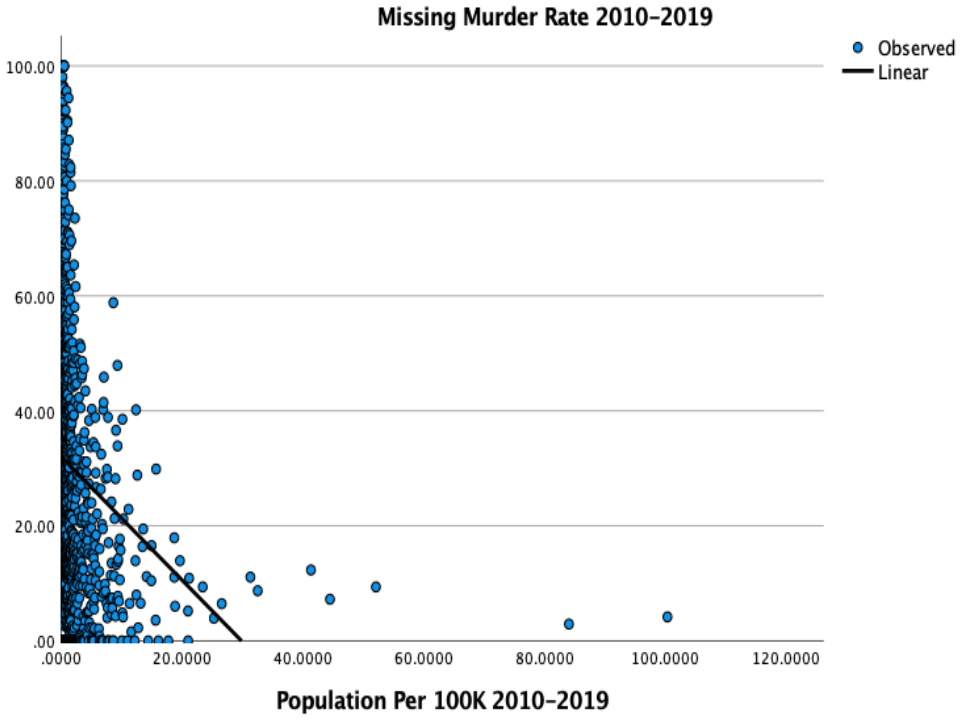
The independent variable is Asian Percentage 2010-2019.



Model Summary for Missing Murder Rate 2010-2019 and Population Size (Per 100,000) 2010-2019

	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.013	42.502	1	3132	0.000	32.012	-1.073

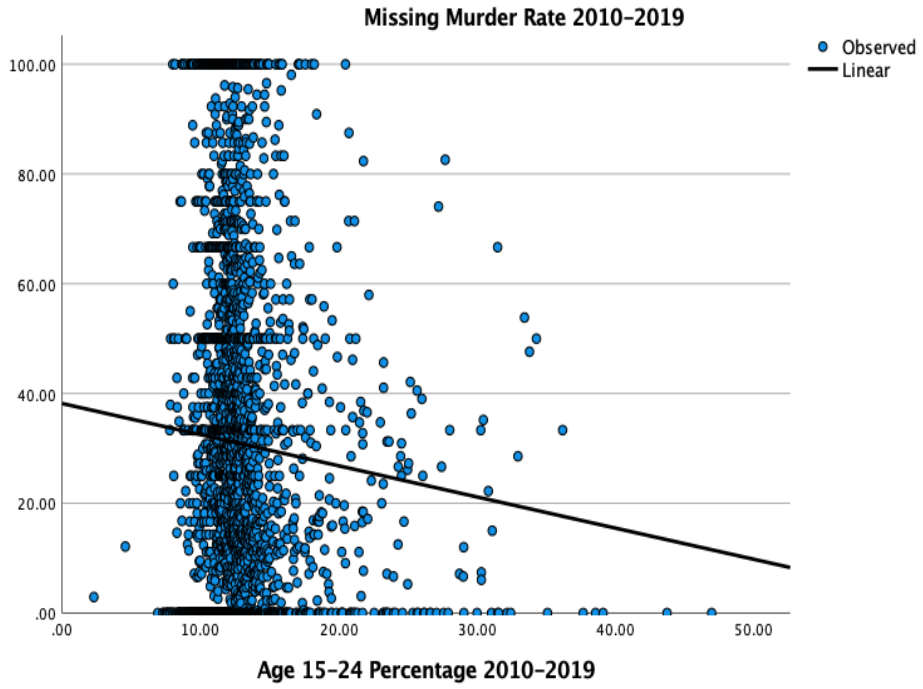
The independent variable is Population Per 100K 2010-2019.



Model Summary for Missing Murder Rate 2010-2019 and Age 15-24 Percentage 2010-2019

	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.003	10.444	1	3132	0.001	38.183	-0.568

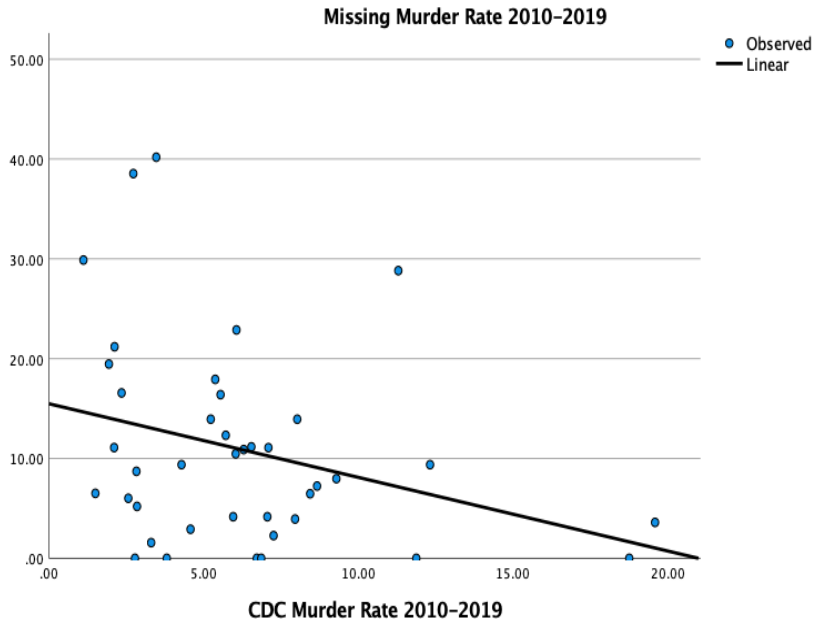
The independent variable is Age 15-24 Percentage 2010-2019.



Model Summary for Missing Murder Rate 2010-2019 and CDC Murder Rate 2010-2019 among counties of 1 million population or more

	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.090	3.777	1	38	0.059	15.483	-0.738

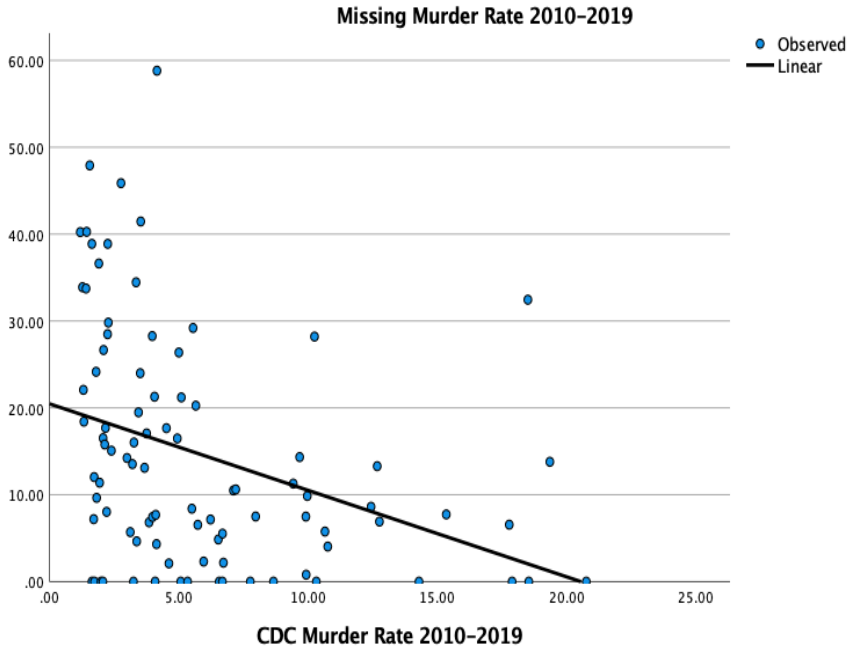
The independent variable is CDC Murder Rate 2010-2019.



Model Summary for Missing Murder Rate 2010-2019 and CDC Murder Rate 2010-2019 among counties of 500,000 to 1 million population

	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.122	12.384	1	89	0.001	20.468	-0.996

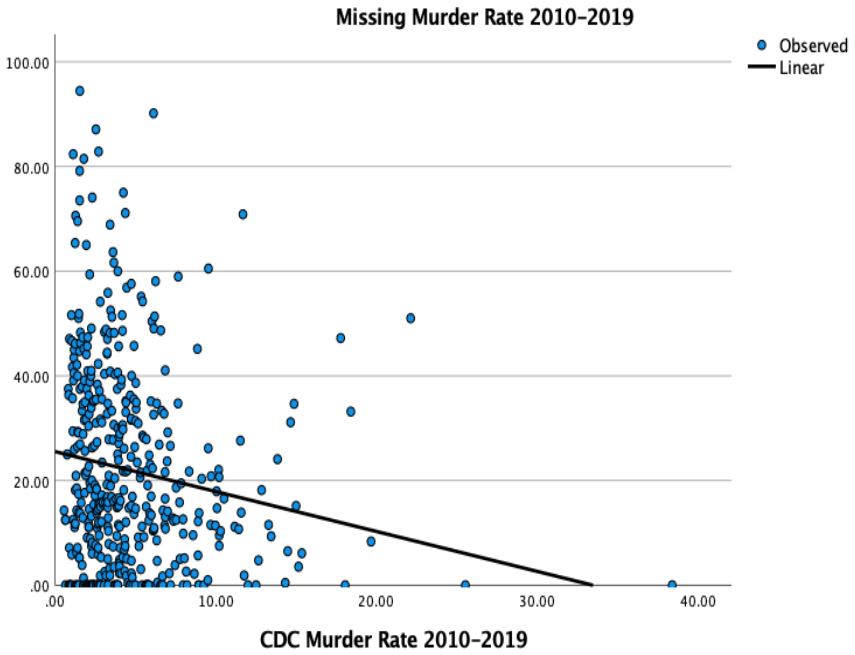
The independent variable is CDC Murder Rate 2010-2019.



Model Summary for Missing Murder Rate 2010-2019 and CDC Murder Rate 2010-2019 among counties of 100,000 to 500,000 population

	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.023	10.182	1	441	0.002	25.537	-0.762

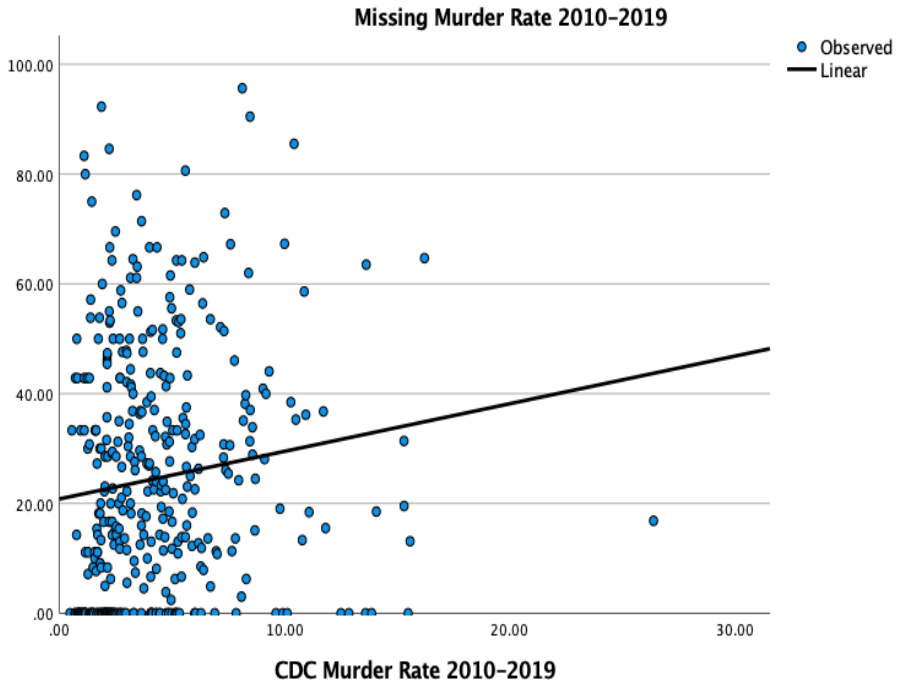
The independent variable is CDC Murder Rate 2010-2019.



Model Summary for Missing Murder Rate 2010-2019 and CDC Murder Rate 2010-2019 among counties of 50,000 to 100,000 population

	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.015	5.920	1	381	0.015	20.831	0.867

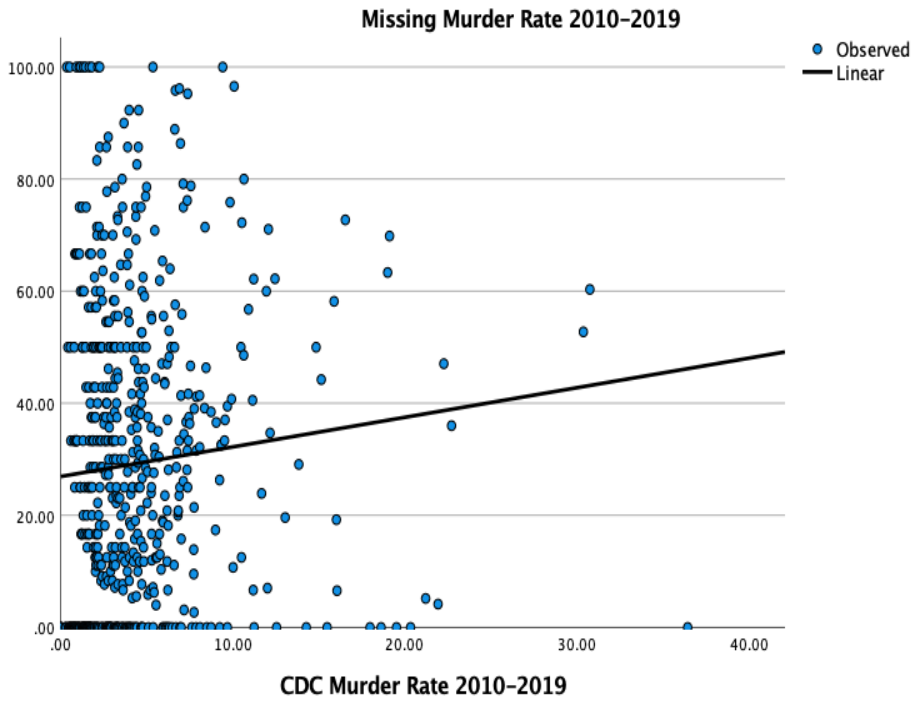
The independent variable is CDC Murder Rate 2010-2019.



Model Summary for Missing Murder Rate 2010-2019 and CDC Murder Rate 2010-2019 among counties of 25,000 to 50,000 population

	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.006	3.808	1	597	0.051	26.936	0.528

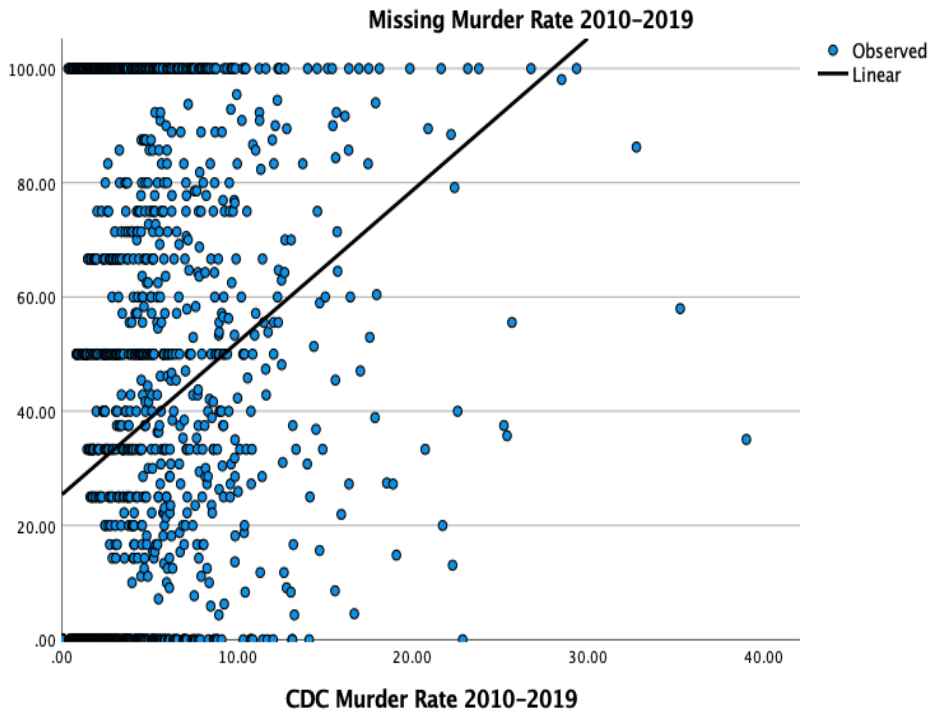
The independent variable is CDC Murder Rate 2010-2019.



Model Summary for Missing Murder Rate 2010-2019 and CDC Murder Rate 2010-2019 among counties of less than 25,000 population

	Model Summary					Parameter Estimates	
Equation	R Square	F	df1	df2	Sig.	Constant	b1
Linear	0.094	162.719	1	1576	0.000	25.450	2.661

The independent variable is CDC Murder Rate 2010-2019.



Correlation Matrix for Model 1 Socioeconomic Independent Variables

	County has FBI Field Office	CDC Murder Rate 2010-2019	GOP Vote Percentage 2012-2020	Poverty Rate 2012-2016	Unemploy-ment Rate 2014-2016	Median Household Income 2012-2016	College Completion 2012	Median Age 2012-2016	Age 15-24 Percentage 2010-2019	Population Per 100K 2010-2019	Male Percentage 2010-2019
County has FBI Field Office	--										
CDC Murder Rate 2010-2019	.192**	--									
GOP Vote Percent 2012-2020	-.25**	-.289**	--								
Poverty Rate 2012-2016	0.001	.550**	-.123**	--							
Unemploy Rate 2014-2016	-0.018	.431**	-.207**	.595**	--						
Median Hse Income 2012-2016	.086**	-.372**	-.204**	-.74**	-.457**	--					
College Completion 2012	.203**	-.190**	-.457**	-.42**	-.370**	.691**	--				
Median Age 2012-2016	-.12**	-.182**	.199**	-.20**	.060**	-.131**	-.164**	--			
Age 15-24 Percent 2010-2019	0.03	.066**	-.269**	.253**	-0.003	-0.009	.283**	-.69**	--		
Pop Per 100K 2010-2019	.531**	.071**	-.306**	-.08**	-0.023	.262**	.325**	-.15**	.045*	--	
Male Percentage 2010-2019	-.08**	-.128**	.150**	-.037*	-.038*	-0.007	-.168**	-0.019	-0.02	-.110**	--
Black Percentage 2010-2019	.142**	.665**	-.422**	.437**	.365**	-.252**	-.078**	-.16**	.135**	.084**	-.129**

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Correlation Matrix for Models 2 & 3 Socioeconomic Independent Variables

	County has FBI Field Office	CDC Murder Rate 2021	GOP Vote Percent 2020	Poverty Rate 2021	Unemploy-ment Rate 2021	Median Household Income 2021	College Completion 2021	Median Age 2021	Age 15-24 Percent 2021	Population Per 100K 2021	Male Percent 2021
County has FBI Field Office	--										
CDC Murder Rate 2021	.140**	--									
GOP Vote Percent 2020	-.261**	-.244**	--								
Poverty Rate 2021	0.001	.402**	-0.028	--							
Unemployment Rate 2021	.074**	.257**	-.345**	.412**	--						
Median Household Income 2021	.084**	-.257**	-.290**	-.767**	-.242**	--					
College Completion 2021	.207**	-.111**	-.534**	-.503**	-.178**	.722**	--				
Median Age 2021	-.121**	-.115**	.226**	-.100**	-0.023	-.112**	-.137**	--			
Age 15-24 Percent 2021	0.026	0.028	-.249**	.114**	-0.015	0.012	.259**	-.721**	--		
Population Per 100K 2021	.528**	.049**	-.348**	-.111**	.121**	.291**	.338**	-.168**	.070**	--	
Male Percentage 2021	-.086**	-.109**	.182**	.083**	-0.007	-.039*	-.194**	-0.014	-.055**	-.115**	--
Black Percentage 2021	.137**	.518**	-.437**	.487**	.274**	-.240**	-.079**	-.174**	.108**	.085**	-.164**

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

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BIOGRAPHY

Thomas Kirk Hargrove graduated from Glenbrook South High School, Glenview, Illinois, in 1974. He received his Bachelor of Journalism from the University of Missouri in 1978. His first job after graduation was as a crime reporter for the Birmingham, Ala., Post-Herald. He later became a national correspondent, White House correspondent and investigative reporter for the Scripps-Howard News Service in Washington, DC. He served as co-director of the Scripps Survey Research Center at Ohio University for 14 years. Upon retirement in 2015, he founded and was elected chairman of the board of the nonprofit Murder Accountability Project to track uncleared homicides nationwide.