2021

Alterations in Crime and the Ferguson Effect: An Analysis of Crime Trends in the St. Louis, MO Metropolitan Area

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Abstract

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MS, Walden University, 2019

MA, American Military University, 2019

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Criminal Justice

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May 2021

Abstract

The Ferguson Effect, which has resulted in de-policing or disengaging from proactive community policing in response to increased violence against police since 2014 and fear of civil liability, has led to increases in crime and attacks on law enforcement officers. Previous research focused on exploring law enforcement officers' perceptions of media and public scrutiny, crime rates, self-legitimacy, and willingness to engage in community relations. No studies identified have attempted to predict the source of the Ferguson Effect and its effect on crime. Moreover, no studies have conducted a time-series analysis of crime and de-policing focusing solely on the St. Louis, MO metropolitan area. To better understand the phenomenon, Bandura's model of reciprocal determinism was applied. Data were analyzed from open-source publications made available by the Missouri State Highway Patrol, Missouri Attorney General's Office, U.S. Census Bureau, and American Community Survey, The research intent was to evaluate the relationship between crime and de-policing through the replication and expansion of a previous study and the use of descriptive and inferential statistical analyses. Findings suggested that sources of increases in crime rates extend beyond de-policing and are likely the result of organizational factors. This study was important for positive social change because it offered insights into the effects of policing on crime. Moreover, the findings of this study and future inquiries may be used to evaluate current and future policies and their impact on both organizations and society.

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Dedication

I dedicate this dissertation to my husband and best friend, Jason Lohman. You were the source of my motivation and provided me with encouragement every step of the way. I love you more than words. Thank you for believing in me.

This is also dedicated to all my brothers and sisters who hold the line between order and chaos, selflessly risking their lives to keep America safe. For without order, there is no government, no justice, no freedom. Without order, there would be no independence, no security, or economic prosperity. Without our military and law enforcement, there would be no order, just a sea of chaos amidst a world of evil.

Acknowledgments

I would like to thank my committee members, Dr. Michael T. Klemp-North and Dr. Deborah L. Laufersweiler-Dwyer, for their guidance and support through this process. I would also like to thank my coworkers at the Ferguson Police Department for their valued input and support. Without your input and recommendations, this project would not have paved the way for a better future for all of us.

To Brian Goede, who was alive when I started this journey, I made you a promise that I would finish my Ph.D., and I kept it. You have inspired me to do great things. In life, you watched over me and kept me safe, and I hope you will continue to do the same even though you are gone. May you rest in peace.

Finally, to my amazing husband, you are the reason I have accomplished so much. Between the coronavirus, your deployment, and distance, we have overcome a great many obstacles. Your guidance and support have never wavered as you helped me complete this journey. Although we did not start this journey together, we will finish it together. Thank you. I love you more than words.

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Chapter 1: Introduction of the Study

Introduction

Since 2014, law enforcement officers (LEOs) have been criticized by the public and media for their use of force against noncompliant subjects, even when force is justified. As a result, many agencies have revised their use of force policies. Officers have become more reluctant to use force against noncompliant subjects and to engage in proactive policing efforts, leading to what has been dubbed the *Ferguson Effect*. While the Ferguson Effect was initially coined to describe distrust of the public for police, prompting an increase in crime rates stemming from de-policing efforts, the term has evolved to describe the phenomenon of de-policing arising from a fear of civil litigation or increased public distrust (MacDonald, 2019; Shjarback et al., 2017; Wolfe & Nix, 2016).

The use of excessive force by some officers has further enhanced criticism leading to an increased reluctance by officers to use force due to fear of public and media scrutiny, civil liability, and civil unrest beyond that reluctance emanating from the Ferguson Effect (Adams, 2019; Capellan et al., 2019; Deuchar et al., 2018; Morin et al., 2017; Nix & Pickett, 2017; Nix & Wolfe, 2017; Tiwari, 2016). Despite the existence of research supporting the underlying consequences of the Ferguson Effect, there is a gap in knowledge arising from how civil unrest and public scrutiny since 2014 have affected proactive policing efforts in LEOs in the St. Louis, MO metropolitan area.

An exploration of de-policing in the St. Louis, MO metropolitan area was conducted through the lens of reciprocal determinism. Albert Bandura's theory of reciprocal determinism is based on the premise that behavioral outcomes are the byproduct of continuous and reciprocal interactions between the environment, individual, and behavior. Changes in policing behaviors since the events in Ferguson in 2014 may be explained through the application of Bandura's theory. Furthermore, through the analysis of state-level Uniform Crime Report (UCR) and Vehicle Stop Report (VSR) databases, the quantity and quality of policing and crime trends were measured to determine the impact of LEOs' behaviors related to policing and crime rates.

Background

Selected articles relating to the Ferguson Effect, de-policing, and law enforcement officers' perceptions of policing are illustrated here.

Previous research has focused on exploring officers' perceptions of media and public scrutiny, crime rates, self-legitimacy, and willingness to engage in community relations. However, no studies identified have attempted to predict the consequences of the Ferguson Effect (i.e., de-policing and alterations in crime trends). Moreover, those studies relating to the Ferguson Effect were conducted at single agencies or locales away from St. Louis, MO. While relevant studies regarding de-policing and crime rates were identified, they were conducted between 2014 and 2015 or focused on a single agency far-removed from the St. Louis, MO metropolitan area. Deadly force incidents in Minneapolis, MN, Atlanta, GA, and Kenosha, WI also demonstrated that LEOs have an increased reluctance to engage in proactive policing due to fear of civil and criminal liability, public and media scrutiny, civil unrest, and job loss. Therefore, a sizeable gap regarding de-policing and crime trends associated with the Ferguson Effect in the St. Louis, MO metropolitan area exists. Furthermore, this study involves evaluating the quantity and quality of policing and crime trends over 10 years while also assessing differences in policing and crime across defined regions within the St. Louis, MO metropolitan area.

Problem Statement

There is a problem in law enforcement stemming from internal and external factors that influence LEOs' decisions regarding proactive policing and patrol practices leading to alterations in crime trends exuding from the Ferguson Effect. The Ferguson Effect, or reluctance to engage in proactive policing practices, has negatively impacted officers and society, leading to an increase in assaults and injuries to LEOs, de-policing, crime rates, and impaired community relations (Capellan et al., 2019; MacDonald, 2019; Maguire et al., 2017; Morin et al., 2017; Shjarback et al., 2017). Potential sources for this problem include fear of civil liability, public and media criticism, civil unrest, low morale, and lack of organizational support. To understand the phenomenon, a quantitative approach was undertaken to identify recent crime trends that support the existence of the Ferguson Effect through presumed changes in LEOs' decisions regarding changes in how police officers police and patrol.

Purpose of the Study

The purpose of this quantitative study was to understand the impact of the Ferguson Effect on crime trends in the St. Louis, MO metropolitan area, while the intent of the study was to understand the extent of de-policing in the St. Louis area by analyzing crime data five years before and five years after the Michael Brown shooting. This study used statistics from the Missouri State Highway Patrol's (MSHP) UCR database and the Missouri Attorney General's (MOAG) VSR to assess trends in crime and policing. Statistical analyses relating to offense type and frequency, arrests, and searches for contraband were also conducted to determine if there is a correlation between de-policing and crime rates in the region. Three covariates were also included in the data analysis (racial/ethnic make-up, socioeconomic index, number of law enforcement officers). Moreover, the analysis of secondary data was essential to understand if there are alterations in proactive policing efforts and crime rates either resulting from or independent of the Ferguson Effect, thereby supporting or disproving the phenomenon as the key factor responsible for increased crime rates in the region.

Research Questions and Hypotheses

RQ1: Are there annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between years in the St. Louis, MO metropolitan area?

$H_0 1$: There are no annual differences in quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between years in the St. Louis, MO metropolitan area.

$H_a 1$: There are annual differences in quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between years in the St. Louis, MO metropolitan area.

RQ2: Are there annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between geographical regions in the St. Louis, MO metropolitan area across time to determine the extent of de-policing occurring in the area?

$H_0 2$: There are no differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between geographical regions in the St. Louis, MO metropolitan area across time, thereby indicating that de-policing is not occurring in the area.

$H_a 2$: There are differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between geographical regions in the St. Louis, MO metropolitan area across time, thereby indicating that de-policing is not occurring in the area.

RQ3: Are there differences in race, socioeconomic index, and the number of officers per 1,000 citizens on annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for

LEOs in the St. Louis, MO metropolitan area across time to determine the extent of de-policing occurring within the region?

$H_0$3: There are no differences in terms of differences in race, socioeconomic index, and the number of officers per 1,000 citizens on annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs in the St. Louis, MO metropolitan area across time.

H_a3: There are differences in terms of differences in race, socioeconomic index, and the number of officers per 1,000 citizens on annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs in the St. Louis, MO metropolitan area across time.

Theoretical Framework

Since 2014, LEOs have reduced citizen contacts and engaged in de-policing practices to avoid negative media attention, public criticism, civil unrest, and civil litigation (Adams, 2019; MacDonald, 2019; Shjarback et al., 2017; Wolfe & Nix, 2016). This change in behavior in response to threats may be explained through the application of Albert Bandura's model of reciprocal determinism as an extension of Bandura's social learning theory. Three interrelated factors influence behavior: the environment, individual, and behavior (Bandura, 1978; Bernston & Cacioppo, 2005). The theory is based on the continual influence of these three behavioral determinants.

While the environment or social forces exert an influence on one's behavior, an individual's actions influence the environment while also altering their response to the environment (Bandura, 1978). The behavioral component is reinforced or shaped through environmental or social responses, while the environmental component contains reinforcing or punishing stimuli that influence the intensity and frequency of behavior. The individual component is comprised of all the personality and cognitive factors that underlie behavior (e.g., expectations, motivations, beliefs, unique personality characteristics; Bandura, 1978). While Bandura's social learning theory provides insight into human behavior and motivation, the model of reciprocal determinism is best suited to explain how and why LEOs alter their behaviors in response to high-profile events and perceived threats to their safety and career. Additionally, the model may be applied to offenders whose behavior is shaped through a lack of punishment and reinforced by changing societal norms where criminal behavior has become acceptable through a lack of deterrence.

Nature of the Study

This study involved employing a quantitative research design with multiple statistical tests, repeated measures of ANOVA, one-way MANOVA, and multiple regression to analyze secondary data derived from UCR crime and VSR databases across time. Sampling units for this dissertation were time and region, where a single year was used as the reference point. The data for each year included all aggregate law enforcement agencies in the St. Louis, MO metropolitan area as well as agencies within the defined regions (St. Louis City, North St. Louis County, West St. Louis County, South St. Louis County, East-Central Corridor, St. Charles County, and Jefferson

County). Secondary data analysis using descriptive statistics was also employed to explain the Ferguson Effect and crime patterns between 2010 and 2019. The statistical analyses aided me in identifying crime trends and their relationship with the Ferguson Effect.

Possible Types and Sources of Data

Data were collected from the MSHP's UCR database and the MOAG's VSR that included data from every law enforcement agency in the state of Missouri. The data were sorted by both agency and region to improve the analysis and align with the first research question, whereby only data for the St. Louis, MO metropolitan region were analyzed. Additional data were derived from the U.S. Census Bureau and the U.S. Census Bureau's American Community Survey to inform the results by evaluating the effect of the confounding variables.

Definitions

De-policing: Withdrawing from proactive policing and patrol practices in response to negative publicity perpetrated by the media (Shjarback et al., 2017).

Ferguson Effect: A reluctance of LEOs to engage in proactive policing and patrol practices due to widespread public and media scrutiny, resulting in increased crime rates (MacDonald, 2019; Shjarback et al., 2017; Wolfe & Nix, 2016).

Law enforcement officer (LEO): Any public servant having both the power and duty to make arrests for violations of laws, as well as federal LEOs authorized to carry firearms and make arrests for violations of the laws of the United States (Mo. Rev. Stat. §556.061.32).

Assumptions

LEOs are becoming increasingly reluctant to engage in proactive policing and patrol practices due to the increased public and media scrutiny stemming from recent events involving both justified and excessive uses of force against noncompliant subjects. De-policing originated from the events in Ferguson, MO in 2014 due to fears stemming from lack of organizational support, public and media criticism, and civil unrest (Capellan et al., 2019; Maguire et al., 2017; Morin et al., 2017; Nix & Pickett, 2017; Nix & Wolfe, 2017; Pyrooz et al., 2016; Shjarback et al., 2017; and Wolfe & Nix, 2016). Crime rates and assaults on LEOs have also increased due to fears of public reprisal (MacDonald, 2019; Maguire et al., 2017; Shjarback et al., 2017). These assumptions have led to the development of this study regarding the unintended consequences associated with de-policing.

Scope and Delimitations

This quantitative study's scope involved analyzing data derived from the MSHP's UCR and MOAG's VSR databases. This study also incorporated several covariates (racial/ethnic make-up, socioeconomic index, and the number of law enforcement officers) to inform results. This study evaluated regional differences within the St. Louis, MO metropolitan area that were not addressed in the original study but may serve to better inform where and why de-policing occurs and its impact on crime rates in the region.

While investigating the effects of the covariates may explain findings, caution should be exercised when generalizing these findings across the state of Missouri and the U.S. Data for this study were collected from state-level databases involving law enforcement agencies in the independent city of St. Louis, St. Louis County, St. Charles County, and Jefferson County. Even though all law enforcement agencies employing officers who regularly engage in patrol practices and have arrest authority granted by the state of Missouri were included in this analysis, the suburban-urban nature of the agencies selected further limited the generalizability of the findings. However, both internal and external validity were strengthened by the analysis due to the state's reporting requirements and use of validated reporting instruments. Mandatory reporting to the state UCR and VSR databases further improved the reliability of results because the entire population of interest was used in this analysis.

I chose this topic due to the increased public and media outrage scrutinizing LEOs' actions, especially in instances involving the use of force. The resulting affront arising from the negative publicity has purportedly led to the emergence of the Ferguson Effect as well as increases in crime rates across the St. Louis, MO metropolitan region. Therefore, the Ferguson Effect should be further explored to determine how high-profile events alter LEOs' behaviors and actions, generating the unintended consequences that adversely impact law enforcement and society, creating a need for law enforcement leaders to reevaluate policing strategies, staffing, and training.

Limitations, Challenges, and Barriers

The use of secondary data was an inherent limitation in and of itself. Secondary data were collected for a primary purpose that may not necessarily align with the purposes of this project. Incomplete or missing information may also pose challenges for ensuring each analysis was robust and comparable. Additionally, secondary data overlooks the presence of confounding variables or alternative explanations for research findings.

Strengths and Weaknesses

This study design's main strength was the quick and easy means by which the data were collected. The use of secondary data not only reduces the costs associated with developing and deploying an instrument and data collection but also lessens the time needed to collect the data. Additionally, using secondary data for analysis allowed for multiple variables to be examined and analyzed. Moreover, data analysis consisting of data comparisons allowed for multiple types of statistical analyses while also providing the ability to generate and test hypotheses (Maxfield, & Babbie, 2016). While data comparisons using multiple regression analysis are useful for investigating differences between groups, they do not determine which variable has the most influence, leading to faulty causal assumptions (Price et al., 2017). Furthermore, the inability to determine cause and effect was also a significant disadvantage of the method. The research methodology may also result in bias due to confounding or unidentified variables that influence results. To overcome this effect, multiple regression analysis was used to assess confounding variables' effects on crime and policing.

Barriers

A potential barrier when using secondary data involves incomplete data or a lack of consistency in how the data were reported. Ensuring my analysis and conclusions were free from bias by creating a clear separation of my role as a LEO in the St. Louis, MO metropolitan area and researcher also presented a challenge.

Significance

The results of this study provided much-needed insights into the Ferguson Effect and its relationship with crime in the St. Louis, MO region. By analyzing crime trends and potential mediating and mitigating factors, law enforcement administrators can identify the organizational factors that support de-policing and develop strategies to reduce de-policing practices and crime rates. By understanding the relationship between crime trends, recent high-profile events, and alterations in policing and patrol practices, policymakers and law enforcement administrators can identify community-level solutions to reduce crime and de-policing.

Moreover, improved awareness of the factors that influence LEOs' decisions will help policymakers and law enforcement administrators improve the effectiveness of policing practices while also mitigating the risks associated with criminal and civil liability by improving protections under qualified immunity. LEOs are tasked with serving and protecting the community; however, task effectiveness is contingent upon community cooperation, trust in police, and a willingness to accept responsibility. Therefore, to drive change, both law enforcement and society must be willing to compromise and understand both law enforcement's function and the need for proactive policing and patrol activities.

Summary

De-policing, otherwise known as disengaging from proactive community policing in response to increased violence against police since 2014 and fear of civil liability, has led to increases in crime and attacks on LEOs (MacDonald, 2019). There has been a decrease in arrests, an increase in violent crime rates, and an increase in assaults on LEOs (MacDonald, 2019; Maguire et al., 2017). The Ferguson Effect has been perpetuated by negative media influences on the public, creating an additional barrier for LEOs to overcome (Nix & Pickett, 2017; Nix & Wolfe, 2017). Nonetheless, LEOs have changed their policing methods in response to the current climate. Therefore, the purpose of this study was to examine the impact of policing efforts on crime in the St. Louis, MO metropolitan area.

To evaluate how internal and external influences have impacted LEOs' behaviors regarding de-policing, Bandura's model of reciprocal determinism served as the theoretical framework for this study. The model of reciprocal determinism includes three interrelated factors which influence behavior: the environment, individual, and behavior (Bandura, 1978; Bernston & Cacioppo, 2005). The continual interaction among these three constructs results in alterations in the individual, behavior, and environment in order to achieve equilibrium. Therefore, the theory was applied to understand trends in terms of the quality and quantity of policing and crime rates. Trends in policing and crime, then, were expressed through an exploration of quantitative research methods using a variety of descriptive and inferential statistical methodologies.

Chapter 2 provides insight into what is known about the Ferguson Effect as well as gaps in knowledge regarding de-policing and crime. In the next chapter, I analyzed literature regarding the Ferguson Effect and how it has altered policing practices. The chapter furthers my discussion on the Ferguson Effect and how changes in police practices are further influenced by the self, one's behavior, and the environment through a self-reinforcing equilibrium.

Chapter 2: Literature Review

Introduction

The Ferguson Effect (i.e., the reluctance to engage in proactive policing practices resulting in higher crime rates) purportedly stems from widespread public scrutiny over police legitimacy and policing practices, outrage over racial discrimination, and concerns regarding the use of excessive or unnecessary force. As a result of this criticism, officers reportedly have become less willing to engage in proactive policing measures. Decreased engagement in proactive policing is believed to be one of several contributing factors responsible for the increasing U.S. crime rates.

The internal and external factors that influence LEOs' decisions regarding proactive policing and patrol practices have led to alterations in policing behaviors and crime trends as a result of the Ferguson Effect. The potential sources for this problem include a lack of organizational support, public and media criticism, civil unrest, and low morale. To understand the phenomenon, a quantitative approach to research was used to identify recent crime trends that support the existence of the Ferguson Effect through presumed changes in LEOs' decisions regarding policing practices.

While the Ferguson Effect is a widely researched multidisciplinary topic, literature pertaining to the theorized mechanisms behind the Ferguson Effect and its unintended consequences is limited. Moreover, the research was limited to single agencies or locales away from the St. Louis, MO metropolitan region. Although relevant studies regarding de-policing and crime rates were identified, research was conducted between 2014 and 2015 or focused on a single agency far-removed from the St. Louis, MO metropolitan area. Recent events in Minneapolis, MN; Atlanta, GA; and Kenosha, WI stemming from deadly force incidents also support the premise of LEOs having an increased reluctance to engage in proactive policing due to a perceived lack of organizational support, public and media scrutiny, civil unrest, and job loss. An additional gap in knowledge also exists involving identifying trends, which were localized to the St. Louis, MO metropolitan region, as well as time-series analyses where the events in Ferguson were considered the intervening event. Most research has focused on public scrutiny and police legitimacy, not the effects of de-policing on crime.

The purpose of this quantitative study was to determine the impact of the Ferguson Effect through an analysis of crime and policing trends in the St. Louis, MO metropolitan area. The intent of this study was to better understand the extent of de-policing in the St. Louis area by analyzing crime data five years before and five years after the Michael Brown shooting (2010 to 2019). This 10-year window was selected because it reduces the incidence of statistical errors and causal inferences when conducting a time-series analysis. Moreover, this time-series analysis uses the events in Ferguson in 2014 as an intervening event, allowing me to determine the presence of trends in policing and crime five years before and after the shooting of Michael Brown. Finally, I chose to evaluate an equal amount of time before and after the intervening event because it creates a balanced analysis that also includes contemporaneous data from 2019.

This study made use of statistics from the MSHP's UCR database and the MOAG's VSR. Statistical analyses relating to offense type and frequency, arrests, and searches for contraband were conducted to determine if there is a correlation between de-policing and crime rates in the region. This study evaluated crime rates, traffic stops, arrest rates, search rates, and contraband hit rates. This study evaluated data from the St. Louis, MO metropolitan region. The independent variables were time and region, which were categorical variables. The dependent variables related to policing were derived from data pertaining to (a) criminal arrests, (b) traffic stops, (c) traffic stop outcomes, (d) search rates, (e) contraband hit rates, and (f) arrest rates related to vehicle stops, while the dependent variables pertaining to crime were evaluated using data relating to crimes against persons and property, and homicide rates. This study also incorporated the number of law enforcement officers killed or assaulted (LEOKA) as a function of crime. Each of the variables was quantitative and measured on a continuous scale. To better inform the results, three covariates were included in the data analysis (racial/ethnic make-up, socioeconomic index, and the number of LEOs per capita). The analysis of secondary data was essential to understand if there were alterations in proactive policing efforts and crime rates either resulting from or independent of the Ferguson Effect, thereby supporting or disproving the Ferguson Effect as the key factor responsible for increased crime rates in the region.

The review of the literature included research that identified causal mechanisms related to the Ferguson Effect as well as some of the unintended consequences arising from the phenomenon. Bandura's model of reciprocal determinism was applied as a theory to explain the consequences of the Ferguson Effect on policing and crime. This was a novel application of Bandura's theory as no studies relating to crime and deviance, law enforcement and policing, or the Ferguson Effect involved using the model of reciprocal determinism to explain alterations in behavior resulting from internal and external forces.

Literature Search Strategy

Selected articles relating to the Ferguson Effect, de-policing, and LEOs' perceptions of policing are addressed here. The keywords searched were *Ferguson Effect*, *law enforcement or police or cops or officers*, and *depolicing* or *de-policing* in the Criminal Justice, SAGE Journals, and SOCIndex databases. A Walden University Thoreau multi-database search was also conducted to locate additional articles. Because of the recency of the events in Ferguson, research was no more than five to six years old (i.e., published between 2014 and 2021).

Theoretical Framework

Since 2014, LEOs have reduced citizen contacts and engaged in de-policing practices to avoid negative media attention, public criticism, civil unrest, and civil litigation (Adams, 2019; MacDonald, 2019; Shjarback et al., 2017; Wolfe & Nix, 2016). Theories to explain changes or sources of influences for behavior were limited. Most studies identified do not have a concrete theoretical foundation; instead, they were reliant on conceptual frameworks that identify relationships among variables and infer causation. While there are several theories that have been applied to criminal and deviant behavior, these theories do not necessarily apply to alterations or influences on LEOs' behavior in response to exogenous factors.

Foundational Theories

To better explain how both external and internal factors impact internal decision-making processes, an exploration of learning and observation theories was useful. From a young age, individuals learn to mimic others and respond to social and environmental changes through behavioral modification. Ivan Pavlov's theories of classical and operant conditioning both rely on stimuli to produce an effect through a learned response (Newman & Newman, 2016). While conditioning may be responsible for behavioral changes that have led to de-policing, the theory does not account for societal or environmental influences on behavior in the short term.

Jean Piaget's cognitive learning theory involves individuals learning new behaviors and cognitive processes (Newman & Newman, 2016). Individuals interpret, understand, and engage in cognitive processes to learn new actions and behaviors; however, the absence of social and environmental influences made this theory ineffective in explaining how intrinsic and extrinsic factors influence behavior.

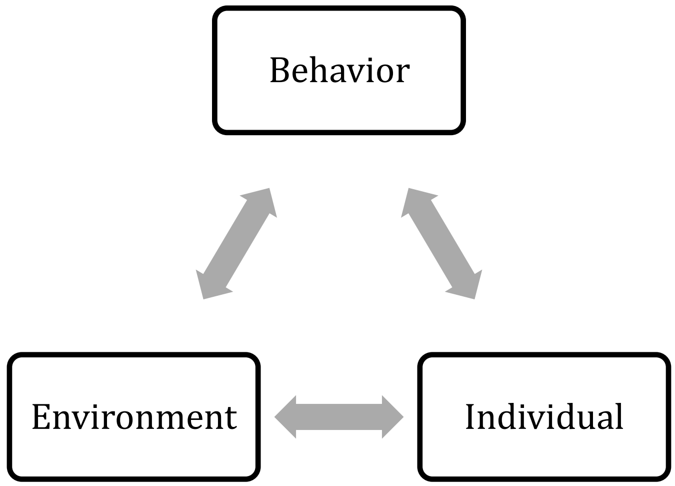
Albert Bandura's social cognitive theory involves the notion that individuals are capable of self-regulation through behavioral modification in response to internal and environmental influences (Newman & Newman, 2016). The social cognitive theory is based on the premise that learning must occur within a social context and requires dynamic and reciprocal interactions between the individual, their behavior, and the environment (Newman & Newman, 2016). Therefore, alterations in LEOs' behavior in response to threats to oneself may be explained through the application of an extension of this theory—the model of reciprocal determinism. This study, then, relies on how changes in behavioral patterns may be learned based on social cues that guide internal and external influencers of behavior.

Bandura's Model of Reciprocal Determinism

While the social learning theory involves how behavior and cognitive processes are learned through both the environment and one's internal motivations, Bandura's model of reciprocal determinism expands upon his theory to explain how the environment, individual, and behavior influence individual responses to one's environment through dynamic and reciprocal interactions (see Figure 1; Bandura, 1978; Bernston & Cacioppo, 2005). Bandura's theory was founded upon continuous interactions between the three behavioral determinants that influence an individual's behavior and actions. An individual's behaviors also exert an influence on the environment that generates a response to the individual's actions, either reinforcing or punishing the behavioral modification in an attempt to achieve equilibrium within the system (Bandura, 1978).

Figure 1

Bandura's Model of Reciprocal Determinism



Note. From "The self system in reciprocal determinism" by A. Bandura, 1978, *American Psychologist, 33*(4), 344-358. https://www.uky.edu/~eushe2/Bandura/Bandura1978AP.pdf

Behavior is shaped by social forces that define the environment. In turn, the environment shapes behavior by providing individuals with feedback. According to Bandura (1977; 1986), learning can occur through observing the actions of others and the consequences of those actions, which can produce individual alterations in behavior without action. It is the environment, then, that influences the intensity and frequency of behavior through reinforcement or punishment. The individual component relates to personality and cognitive factors that regulate behavior (e.g., expectations, motivations, beliefs, unique personality characteristics; Bandura, 1978). Together, the three components interact continuously to alter behavior, both consciously and subconsciously.

The model of reciprocal determinism, which involves exogenous influences on both the psychological and physiological domains as well as reciprocal influences of psychological and physiological processes on the environment, can be applied to understanding both the behavior and motivation of LEOs as well as society. It is feasible to apply Bandura's model of reciprocal determinism as a theoretical means to explain alterations in LEOs' behaviors in response to the events in Ferguson in 2014.

Theoretical Model Application

Police officers' behavior is shaped by organizational and social forces to elicit changes in individual cognitive processes. In turn, the environment receives input from the individual and the behavior change to create feedback based on the response. If, for example, the new behavior receives a negative response from the environment, then the individual will likely alter their behaviors as well as internal thought processes to appease the environment. Conversely, if an individual with the predisposition to commit a crime sees their criminal behaviors reinforced by the environment and society, then those behaviors will likely increase while cognitive processes further justify the behavior based on societal acceptance and a lack of deterrence.

The nonlinear reciprocal relationship between the environment, behavior, and individual is the foundation for understanding the effects of de-policing. The application of this model to both LEOs and criminals will aid in better understanding the impact of the Ferguson Effect on communities. Therefore, the first step in applying this theoretical model is to identify relationships and causal mechanisms associated with de-policing and crime rates.

The Ferguson Effect

Following the 2014 shooting of Michael Brown in Ferguson, Missouri, the ensuing protests and civil unrest resulted in increased police scrutiny by the public and the media. Administrators responded by altering policies while and law enforcement officers allegedly began withdrawing from proactive policing and patrol activities. The subsequent alterations in behavior stemming from the series of events in 2014 and 2015 led to de-policing by law enforcement and higher crime rates (Capellan et al., 2020; Morgan & Pally, 2016; Pyrooz et al., 2016; Shjarback et al., 2017).

Today, the Ferguson Effect represents a plausible mechanism to explain increases in crime since 2014. Some proponents of the Ferguson Effect have explored how the Ferguson Effect has indirectly contributed to alterations in crime rates through exogenous pressures on law enforcement officers (e.g., public scrutiny and negative media; Adams, 2017; Capellan et al., 2020; Maguire, 2017; Nix & Wolfe, 2016; 2018; Oliver, 2017; Wolfe & Nix, 2016). Others have focused on the internal factors that contribute to de-policing as possible causal mechanisms associated with the changes in behavior seen in both law enforcement officers and criminals.

De-Policing

The phenomenon of de-policing is not new and has been the source for media criticism and federal investigations for decades. However, many scholars argue about how to define the term best. Some scholars define de-policing as passivity or disengaging, detaching, or retreating from one's duties (Oliver, 2017). Others define the practice as avoiding a particular area or activity due to politics, lack of organizational support, or excessive citizen complaints (Oliver, 2017). However, the most accepted modern definition for de-policing appears to concentrate on how police officers disengaged from policing and patrol practices due to negative experiences, especially those related to public scrutiny and civil unrest (Oliver, 2017).

De-policing or disengaging from proactive community policing responses as a reaction to the increased violence against police since 2014 and the fear of civil liability has led some scholars to believe increases in crime and attacks on law enforcement officers are the direct result of the Ferguson Effect (MacDonald, 2019; Oliver, 2017). Some researchers have discovered that there has been a decrease in arrests, an increase in violent crime rates, and an increase in assaults on law enforcement officers (MacDonald, 2019; Maguire et al., 2017; Shjarback et al., 2017). Other scholars purport that the Ferguson Effect has been perpetuated by negative media influences on the public, creating an additional barrier for law enforcement officers to overcome (Nix & Pickett, 2017; Nix & Wolfe, 2017). At the same time, other researchers dispute the legitimacy of the Ferguson Effect and any connection it may have for increases in crime (MacDonald, 2019; Rosenfeld, 2015; Rosenfeld & Wallman, 2019; Tiwari, 2016). Nonetheless, the deleterious effects of de-policing have been well-documented, most notably in the Kansas City Preventative Patrol Report, whereby a decrease in police presence led to catastrophic increases in crime in the 1970s (Kelling et al., 1974). While the source for de-policing differs, the effects on crime and society are similar. Therefore, it becomes necessary to further explore the underlying causes of de-policing and its relationship with crime.

According to Shjarback et al. (2017), de-policing can be measured through proactive or preventative patrol actions. In their study, the researchers measured de-policing through criminal arrests, traffic stops, traffic stop outcomes, search rates, contraband hit rates, and arrest rates related to vehicle stops (Shjarback et al., 2017). While the variables do provide a measure of the quantity of policing performed by law enforcement officers in a particular region, they are measured over a span of 18 months and do not take into account the number of officers per capita or other geographical factors that might affect policing practices or crime rates. This research project will expand on the time frame for analysis while focusing only on law enforcement agencies in the St. Louis, MO metropolitan region. This study will also determine if the socioeconomic index (i.e., the average of the percentage of persons living below the poverty level, unemployment rates, and persons over the age of 25 who have attained less than a high school education), percent of non-White residents, and the number of officers per capita impact measures of policing (i.e., arrests, traffic stops, traffic stop outcomes, search rates, contraband hit rates, and vehicle-related arrests). This enhanced analysis will provide additional insight to determine if decreases in staffing rates are potentially responsible for increases in crime rates or if decreases in the socioeconomic index and minority populations impact crime and policing. The supplementary analysis will provide additional plausible causal explanations for de-policing or increases in crime.

Proposed Causal Mechanisms for De-Policing

While there is mixed evidence supporting the Ferguson Effect, evidence supporting internal justifications for withdrawing from proactive policing and patrol practices is prevalent. Potential internal sources of dissonance within law enforcement officers included impediments to organizational or procedural justice within law enforcement agencies, declining morale, increasing cynicism, impaired self-efficacy, increases in the number of officers assaulted and killed or assaulted, fears of additional public scrutiny and negative media reports, and declining public support for law enforcement. Though each of these factors, when taken alone, may create dissonance within an individual officer, their collective impact may contribute to an overall decline in proactive policing and patrol practices (i.e., de-policing) by law enforcement officers due to their synergistic effect on the individual, which influences both the individual and their behavior in response to changes within the environment.

Organizational Factors

Like many employees, police officers look to their organization for guidance and support. However, when agencies fail to support or empower their officers, the quality and effectiveness of policing practices may suffer. Adams (2017) found that LEOs who felt their organization supported their actions and had their best interests engaged in fewer instances of de-policing and did not alter their behavior in response to negative exogenous pressures (e.g., negative publicity). Similarly, when law enforcement agencies lacked procedural justice, officers were more affected by negative publicity and engaged in higher levels of de-policing when compared to those agencies where procedural justice was a priority (Deuchar et al., 2018; Nix et al., 2015; Nix & Pickett, 2017; Nix & Wolfe, 2016). In the months since the events of 2014 and 2015, both officers and society have placed increased demands on organizations commanding procedural and organizational justice. These external pressures, then, may be responsible for the heightened stressors felt by LEOs.

Scholars have used the general strain theory to explain why LEOs disengage from proactive policing strategies. Bishopp et al. (2016) determined that organizational stress and strain resulting from a perceived lack of support or procedural justice increased anger and deviant or defiant behavior. Researchers have also found that organizational and bureaucratic characteristics influenced behavior by having an aggravating or mitigating effect on LEOs' behaviors and perceptions (Alpert et al., 2005). The adverse effects of impaired organizational fairness and transparency on LEOs have also led to lower morale, self-confidence, and job satisfaction (Deuchar et al., 2019; Nix & Wolfe, 2017). Despite research surrounding the aggravating and mitigating effects on LEOs' behaviors and perceptions, none evaluated the relationship between the police officers' behavior and de-policing, thereby demonstrating the importance of this research inquiry.

Organizational Anomie

Law enforcement officers expect their respective agencies to provide reliable and predictable oversight and support so they may be productive and proactive in their duties while also ensuring organizational legitimacy with the public. However, when agencies fail to support or respect their officers, the system fails to thrive, resulting in organizational anomie. Anomie is a state of lacking ethical or social standards (Parnaby & Leyden, 2011; Smith, 2008). When expectations and procedural justice are lacking, the system breaks down, creating defiance or dissonance among the ranks (Capellan et al., 2020; Parnaby & Leyden, 2011; Smith, 2008). Defiance stemming from a lack of guidance or clear direction may also extend beyond the organization into society through impunity.

When individuals outside of the organization perceive the organization as broken or illegitimate, individuals who are both internal and external to the organization may have an increased propensity to engage in deviant behaviors due to a lack of deterrence or positive alternatives (Smith, 2008). Organizational anomie, then, can have adverse consequences on both LEOs and society as the system failure potentiates de-policing behaviors and criminal activity. However, the application of Durkheim's anomie theory does not adequately explain sources of de-policing beyond organizational failure or a lack of procedural justice; rather, it is an outcome associated with the process. Organizational anomie, then, may be a contributing factor to both de-policing and increases in crime.

Morale, Cynicism, and Self-Confidence

Employee morale is a function of organizational effectiveness, fairness, and transparency. Organizations that fail to support their employees, maintain transparency, and engage in procedural justice impair employee morale and reduce self-confidence (Deuchar et al., 2019; Nix & Wolfe, 2017; 2018; Wolfe & Nix, 2016). In their research study, Deuchar et al. (2019) explored the relationship between law enforcement officer morale, confidence, and policing strategies related to the Ferguson Effect, determining that organizational strategies and policy coupled with negative media coverage adversely affected officer morale. Researchers also concluded that a community's decreased willingness to engage with law enforcement and the increased demonization of law enforcement by the media led to both decreased proactive patrol and policing strategies and increased officer cynicism and community distrust (Deuchar et al., 2019; Wolfe & Nix, 2016).

Cynicism stems from a general distrust of the public, a trait maintained by many LEOs to maintain their situational awareness and aid in coping with job-related stressors. However, cynicism may also be emerging from the increased disrespect directed at LEOs, leading to heightened levels of suspicion, antagonistic emotions (e.g., anger, frustration, annoyance), fear, and perceived danger (Nix et al., 2019). Similarly, officers who perceived hostile public attitudes were significantly and substantially more likely to report higher levels of social isolation from the public, greater police solidarity, increased cynicism toward the public, and more physically coercive attitudes (Marier & Moule, 2019). Widespread criticism of police has also had a tangible influence on how police officers conduct themselves and perform policing activities, potentially leading to a de-policing effect (Marier & Moule, 2019; Nix & Pickett, 2017). Though each of the studies evaluated officer perceptions regarding hostile citizens and media, the recency of high-profile events (e.g., allegations of excessive force in Minneapolis, MN; Louisville, KY; and New Orleans, LA) involving law enforcement may have exaggerated the effect. Moreover, the inherent suspiciousness directed toward citizens could make it difficult to determine baseline and heightened levels of cynicism. Personal, organizational, and job-related stressors may also be responsible for increased cynicism and the resulting exaggerated emotional responses, not merely increased public and media scrutiny.

Despite evidence that negative publicity and disrespectful citizen encounters lead to lower morale and increased cynicism toward others, Phillips (2020) determined that law enforcement officers are not withdrawing from proactive patrols, according to his scenario-based inquiry of law enforcement officers in Texas and New York. However, respondents did express concern over how their scenario-based reactions might impact their careers or lead to negative publicity. The Phillips study, then, demonstrated, at the very least, that officers are questioning their reactions or hesitating prior to engaging a subject. Self-reporting may have also skewed the results resulting in the underreporting of hesitancy or concern for engaging in proactive policing. The hesitancy or reluctance to act, then, may be a factor contributing to de-policing efforts.

Reduced self-efficacy has also been identified as an outcome of negative media reports and a potential source of de-policing. Capellan et al. (2020), Hosko (2018), Nix and Pickett (2017), and Nix and Wolfe (2017) evaluated the impacts of negative publicity on self-efficacy, crime trends, and de-policing in the U.S., concluding that hostile media effects had a significant impact on self-confidence leading to a hesitancy to engage in both proactive policing and use of force incidents. Researchers also determined that LEOs have begun to question their abilities due to negative publicity, increased public scrutiny, and a lack of organizational support despite the legal authority granted to officers to perform their ascribed duties as defined by state statutes and federal law.

Self-confidence among LEOs has also declined following the Michael Brown shooting in 2014. Researchers noted that 86% of LEOs perceived their jobs as more difficult while noting increased tensions between police and minority populations leading to a decreased willingness to stop and question suspicious persons (Morin et al., 2017). The rise in assaults and deaths of LEOs has also increased concerns over officer safety since 2014 (Morin et al., 2017). Researchers have found evidence of intertemporal relationships among officer-involved shootings, the number of law enforcement officers killed, and homicide rates, thereby supporting the assertion that law enforcement has become a more dangerous profession.

Parkin et al. (2020) identified a relationship between the number of law enforcement officers killed and national homicide rates. However, the researchers found no evidence of a correlation between deadly force incidents (i.e., officer-involved shootings) and homicide rates or law enforcement officers killed (Parkin et al., 2020). While the researchers demonstrated that increases in LEOs killed in the line of duty are likely not in response to deadly force incidents, the increased prevalence may be an unintended consequence associated with rises in violent crime, specifically homicide. Nonetheless, the link between homicide and officers killed in the line of duty creates the need for an additional inquiry to understand the phenomenon better. The research also supports the model of reciprocal determinism whereby behavioral changes (i.e., withdrawing from preventative and proactive patrols) contribute to de-policing and increased crime rates.

Police Legitimacy

Unlike legislators, attorneys, and judges who fall within a single branch of government, LEOs maintain a unique position that impacts all three branches of government. As enforcers of the law, police officers are part of the executive branch of government, upholding the Constitution and laws of the land. By arresting suspects and providing members of the judicial branch with evidence in accordance with state and federal laws, LEOs effect the judicial branch. Additionally, impacts on the judicial branch and new case rulings lead to new legislation within the legislative branch that alters how LEOs perform their sworn duties.

Despite the legal authority granted to LEOs, events since 2014 have significantly altered how LEOs perform their duties due to increased scrutiny over police legitimacy. The call for increased transparency and accountability has placed policing under a microscope and caused many to question the authority bestowed upon officers to ensure public safety and enforce the law, and, most notably, the ability of law enforcement officers to use deadly force. As a result, police administrators are altering their policies, and officers are changing their behaviors as a means of self-preservation (Oliver, 2017). The new policies, however, are also facing increased public scrutiny and adversely impacting police legitimacy.

To improve transparency and accountability, several agencies have instituted citizen review boards to improve police legitimacy. However, the review boards are reactive, and most citizens are not knowledgeable about police strategy and tactics or the laws that grant special authority to LEOs, thereby creating dissonance between policy and action. Ochs (2009) determined that citizen review boards are ineffective at improving the quality of policing and adversely impact police officers and crime because of the disconnect between policy and policing practices. The reactive policies were also shown to increase dissonance between officers and their respective law enforcement agencies, which resulted the refusal to carry out new policies by some officers (Ochs, 2009). The review boards, then, serve to perpetuate the cycle of discontent and lead to higher levels of de-policing rather than improve police legitimacy.

Aside from procedural justice mitigating de-policing practices, fairness and transparency also improved public acceptance of law enforcement practices by driving perceived legitimacy and community support for law enforcement agencies. Bradford et al. (2017) concluded that procedural justice enhances perceived police legitimacy. When police officers are involved in use of force incidents, the level of public acceptance regarding the incident dictates the level of distributive and retributive justice (Bradford et al., 2017). However, increased public and media scrutiny of police incidents involving force, especially deadly force, has resulted in a nationwide movement to defund the police as well as a reduction in the power and authority of LEOs (Deuchar et al., 2020; Rushin & Michalski, 2020; Silver, 2020). Public acceptance and perceived legitimacy, then, appear to be correlated with officer conduct and perceived support by their respective agencies. Therefore, public acceptance and support for policing practices (i.e., police legitimacy) appear to be a mitigating factor in de-policing practices.

The new policies limiting police response have also resulted in increased crime rates, reduced officer safety, and done little to quell the public and media's negative perception of police (Deuchar et al., 2020; Rushin & Michalski, 2020). While striving for legitimacy, law enforcement administrators and policymakers have succumbed to the influence of mass and social media, resulting in a crisis as police officers experience a sense of disempowerment when agencies revise their policies to appease society (Deuchar et al., 2020). The new policies also force de-policing, to a degree, because they limit the actions of law enforcement officers to reduce crime through preventative policing and patrol practices. Moreover, without the ability to exert social control and enforce laws, the increased scrutiny has altered policing practices in the 21st century with deleterious effects on crime.

Public Scrutiny and the Media

At the center of the call for legitimacy is the media. According to some scholars, the media, which provides a slanted view of use of force and deadly force incidents, is largely responsible for the unchecked rhetoric that is driving concerns over police legitimacy and demands for defunding the police or limiting police actions (Adams, 2019; Hosko, 2018; MacDonald, 2019; Maguire et al., 2017; Nix & Pickett, 2017; Nix & Wolfe, 2017; Remsberg, 2018; Rushin & Michalski, 2020). Several researchers purported that both mass and social media are responsible for perpetuating public scrutiny stemming from incomplete, inaccurate, or misrepresented facts relating to incidents involving force (Adams, 2019; Capellan et al., 2020; Deuchar et al., 2020; MacDonald, 2019; Nix & Wolfe, 2017). Researchers have also suggested that social media has become "weaponized for digital activism" to spread propaganda and spark public outrage regarding policing practices (Deuchar et al., 2020, p. 48). Citizen journalists have also harnessed the power of social media (e.g., RealStLNews) as a means to inform (or persuade) the public of breaking news involving the police and crime. While the activist portrayal of the news provides insights not found in traditional media outlets, some of the reporting is based on conjecture, and the commentary often paints law enforcement in a negative light.

The widespread and instantaneous dissemination of information through social media has led to the *YouTube Effect*, where unedited and unchecked events are shared worldwide as they happen. The YouTube Effect has also negatively impacted law enforcement because viral videos often portray law enforcement negatively. Wolfe and Nix (2016) determined that police possess a decreased willingness to engage in community partnerships because the negative portrayal has adversely impacted their decisions to participate in proactive policing efforts. The widespread dissemination of information has made policing more difficult because of the increased scrutiny and fear of becoming part of the next viral video (Davis, 2015; Loiaconi, 2015). The withdrawal of proactive policing resulting from the YouTube Effect may also be a source of rising crime rates (Capellan et al., 2020; Loiaconi, 2015). However, it is unclear whether the increases in crime resulted from de-policing or criminal empowerment due to decreased police legitimacy and changing social norms.

Conclusion

Since the unrest in Ferguson in 2014 following the shooting of Michael Brown and other Black men, the public and the media have criticized law enforcement agencies and officers for using excessive force resulting in perceived violations of the Fourth Amendment. In response to the blowback, many agencies have revised their policies, including those related to the use of force against noncompliant subjects. Officers have also become more reluctant to use force, even when force is authorized, and engage in proactive policing practices leading to the emergence of the Ferguson Effect—a term used to describe the phenomenon of de-policing and increasing crime rates (Capellan et al., 2020; Deuchar et al., 2018; MacDonald, 2019; Shjarback, et al., 2017; Wolfe & Nix, 2016).

Scholars have linked negative publicity to increased public scrutiny of policing practices and decreased police legitimacy. The negative media has been shown to adversely impact officer morale, increase officer cynicism, and decrease self-efficacy. Law enforcement agencies have responded to negative media and public cries for reform by altering policies that not only facilitate de-policing efforts but also negatively impacting officers through impaired organizational justice and organizational anomie. As a result of these exogenous influences, law enforcement officers have altered their behaviors as a means of personal and career survival based on inputs from the environment and feedback involving the behaviors and actions of others. Because of this unique relationship between environmental and internal influences on behavior, Bandura's model of reciprocal determinism will be explored to understand better how de-policing has affected crime.

While the exact mechanisms of de-policing are under contention, there is mixed evidence that de-policing is occurring and has resulted in higher crime rates in some cities. Because of the limited investigation regarding de-policing and crime rates, a gap in knowledge exists regarding the relationship between the two phenomena. To date, few researchers have explored the phenomenon associated with de-policing and rising crime rates (Capellan et al., 2020; MacDonald, 2016; Morgan & Pally, 2016; Shjarback et al., 2017). However, none have examined policing and crime data five years before and after the events in Ferguson, nor have they focused solely on the St. Louis, MO metropolitan region. This paper, then, aimed to fill the gap in knowledge regarding the consequences of de-policing as evidenced by alterations in crime and policing in the St. Louis, MO metropolitan area pre- and post-Ferguson to determine if crime rates have increased in response to reports of de-policing. My findings shed light on how alterations in policing impact crime and how Bandura's model of reciprocal determinism may be applied to explain how and why policing has changed since Ferguson through the expansion and replication of Shjarback et al.'s (2017) research study. In Chapter 3, I discussed my research methodologies and plan for analyzing the data. The sources of data and collection methods were also described. I also provided additional background information regarding the independent, dependent, and confounding variables as well as my research approach.

Chapter 3: Research Method

Introduction

The aim of this quantitative research study was to analyze Missouri's UCR and VSR databases relating to crime, arrest, and search rates in the St. Louis, MO metropolitan area to determine if there was a correlation between de-policing and increases in crime rates. Chapter 3 includes an overview of the research methodology. A quantitative approach to inquiry was selected to analyze secondary data to answer the research questions and evaluate the hypotheses. The quantitative methodology was the most relevant strategy to evaluate statistical crime data to determine the effect of de-policing on crime rates because quantitative research offers the opportunity to investigate relationships between and among variables (Maxfield & Babbie, 2016). In this chapter, I presented the research design and rationale, research questions and hypotheses, methodology, and other elements related to the research methodology. Moreover, this research was designed to answer research questions involving possible interactions between de-policing and crime rates.

Research Design and Rationale

I chose a quantitative research methodology because this method involves using numerical data to analyze and compare statistical data to test research hypotheses. Because my aim was to compare and evaluate data across time, a simple interrupted time-series design was used. More specifically, a time-series research method allowed me to evaluate longitudinal data where participants were not randomly assigned to groups, and there was no control group. Since time-series quantitative research designs involve the manipulation of the independent variable before measuring the dependent variable, directionality was thereby eliminated. The ability to conduct multiple measurements across time both strengthened this design and reduced the incidence of regression to the mean, which results in inaccurate conclusions. Additionally, the ability to make comparisons and draw causal claims from a single entity or set of entities over time allowed me to test my hypotheses and determine if there was a relationship between de-policing and crime rates by evaluating events before and after Ferguson in 2014.

Methodology

A simple interrupted time-series research methodology offers the opportunity to evaluate a single group as well as compare groups within a given time frame before and after an intervention. In the case of this study, the events surrounding Ferguson in 2014 served as the intervening event (i.e., treatment). The research also consisted of within-group as well as between-group comparisons across time. Moreover, this study involved employing a nonexperimental comparative design that analyzed trends in data to develop interferences about crime and de-policing using data derived from established state-level databases.

Population

The target population for this study was the over 70 police departments and law enforcement agencies in the St. Louis, MO metropolitan area (i.e., the independent city of St. Louis, St. Louis County, Jefferson County, and St. Charles County). I chose to expand the population to include the counties of Jefferson and St. Charles to broaden the depth of the inquiry to include outlying suburban and rural populations to determine if the effects of de-policing are prevalent in those areas that lie outside the county but are also subject to influences in the region. The target population was all law enforcement agencies, including police and sheriff departments. It should be noted, however, that both the St. Louis Sheriff's Department and St. Louis County Sheriff's Department were excluded from the target population, as they do not serve traditional policing functions and do not report to the MSHP's UCR. Instead, the St. Louis County Police Department was included as they perform policing services for a large portion of St. Louis County, while the St. Louis Metropolitan Police Department serves the independent city of St. Louis and performs policing functions. Park rangers and college and university police departments were also excluded from the population and analysis.

Sampling Design and Procedures

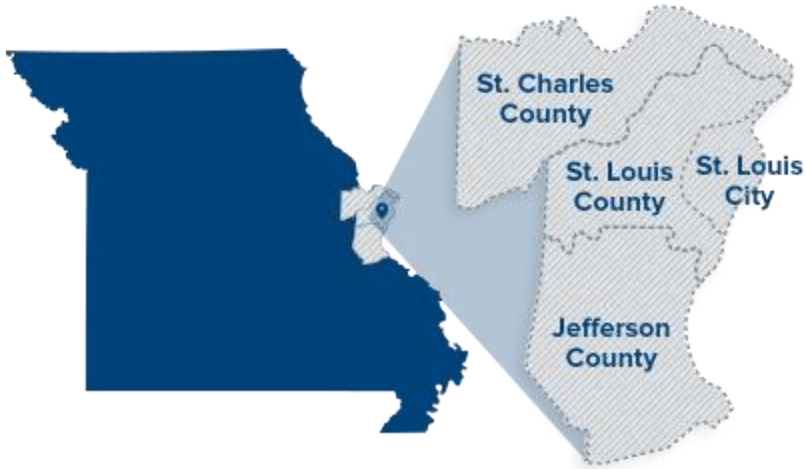
I evaluated all UCR data for agencies located within the independent city of St. Louis, as well as those in St. Louis County, Jefferson County, and St. Charles County. Because data were aggregated by agency or county, the sample consisted of all agencies that reported to the state's UCR within the defined regions. The ability to capture the entire population improved outcomes and reduced threats to validity without added time or cost. The sampling units for this dissertation were time and region. A single year was used as the reference point. Data for each year included all aggregate law enforcement agencies in the region as well as agencies within defined regions (St. Louis City; North, West, South, and East-Central Corridor of St. Louis County; St. Charles County; and Jefferson County). While traditional research does not include all members of a given population, the ability to capture data related to all law enforcement agencies in the region made this inquiry possible. The sampling time frame for this time-series analysis was 2010 to 2019. The time frame was chosen because it represents five years before the events in Ferguson and five years after the events to create a balanced inquiry. The 10-year sampling frame also allowed me to evaluate data for trends. Moreover, data are considered reliable, as databases have been in place for several decades and are modeled after national law enforcement databases.

Defined Regions

To garner a better understanding of regions, I defined the seven regions that were used in this research study. The St. Louis, MO metropolitan area is made up of multiple counties and the independent city of St. Louis. For research purposes, only data pertaining to St. Louis, Jefferson, and St. Charles Counties and the city of St. Louis were evaluated (see Figure 2).

Figure 2

St. Louis Region Map

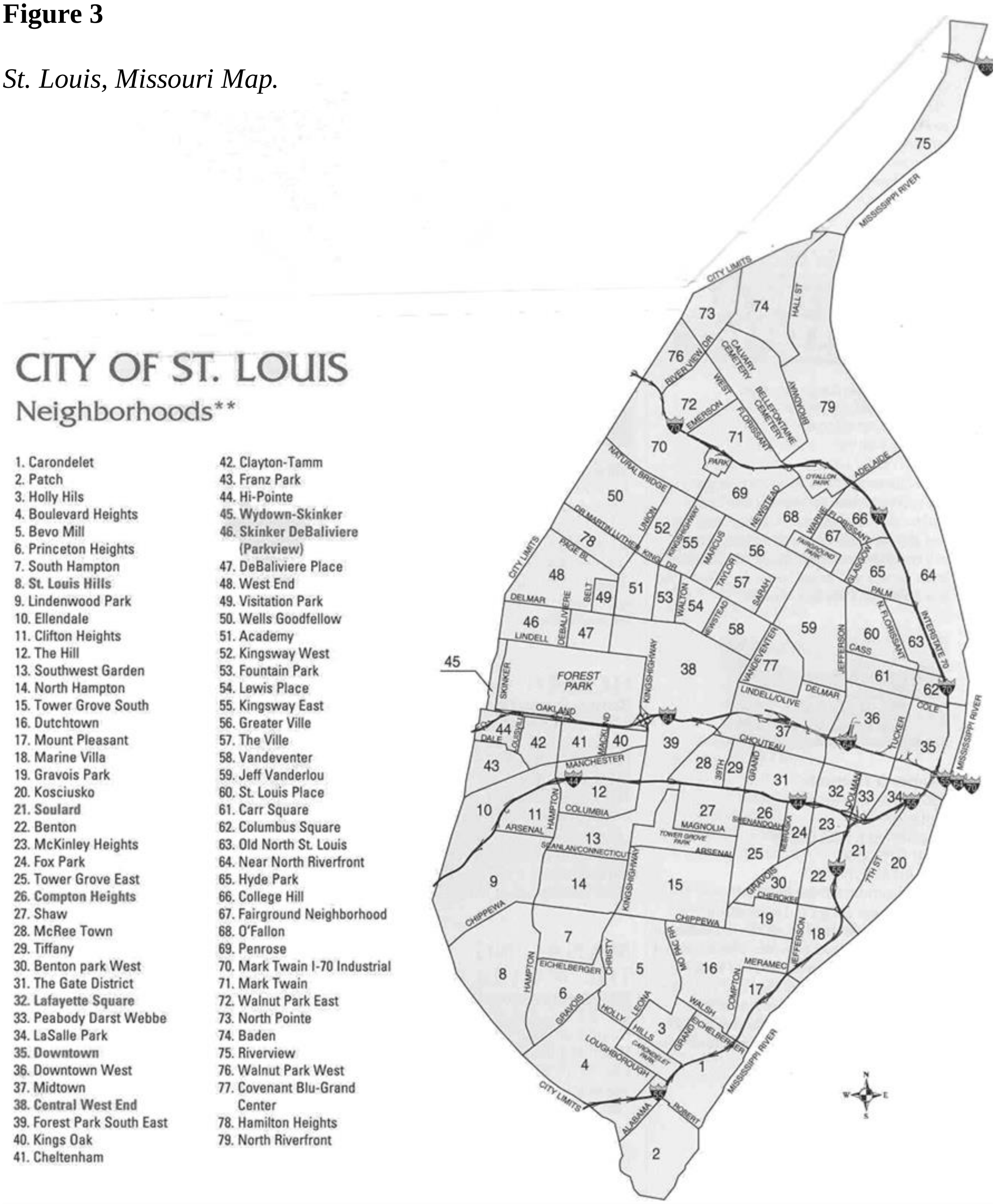


Note. From Missouri Department of Transportation. (2020). *St. Louis District*. https://www.modot.org/stlouis

St. Louis, Missouri. The first independent geographical unit within the St. Louis, MO metropolitan region is the independent city of St. Louis, which lies outside of a defined county in Missouri. The city's borders are defined by the Mississippi River to the east and an arbitrary boundary that runs from Weber Road and the River Des Peres along the south and southeast, McCausland Avenue/Skinker Road/Kienlen Avenue/Jennings Station Road to the west, and Riverview Boulevard to the north (see Figure 3). The city is comprised of 79 individual neighborhoods but is policed by a single police agency, the St. Louis Metropolitan Police. The city covers 65.99 square miles and has a population of 292,782 (U.S. Census Bureau, 2020).

Figure 3

St. Louis, Missouri Map.



Note: From City of St. Louis. (2020). *Citywide neighborhood map*. https://www.stlouis-mo.gov/government/departments/planning/documents/citywide-neighborhood-map.cfm

St. Louis County, Missouri. The second independent geographical unit within the St. Louis, MO metropolitan region is St. Louis County. The county's borders are defined by St. Louis City to the east, Jefferson County and the Meramec River to the south and southwest, Franklin County to the west, and St. Charles County and the Missouri River to the north and northwest (see Figure 4). The county is comprised of over 90 municipal governments and a county council. The county is policed by over 70 agencies, including St. Louis County Police that are responsible for unincorporated regions as well as contract municipalities, primarily in the northern and southern portions of the county. The county was the state's most populous county in 2019, covering 523 square miles with a population of 999,539 (U.S. Census Bureau, 2020).

St. Louis County is further divided into five geographical subregions: North St. Louis County, West St. Louis County, South St. Louis County, the East-Central Corridor, and unincorporated St. Louis County. North St. Louis County houses one of the most racially and socioeconomically diverse populations in the county and includes the cities of Ferguson, Florissant, Hazelwood, Bridgeton, Maryland Heights, Woodson Terrace, Overland, St. Ann, Normandy, Bel-Ridge, and Bellefontaine Neighbors. The northeastern portion of the county is primarily policed by the St. Louis County Police. North County is defined as the area north of Page Avenue and is bordered on the west by the Missouri River and St. Charles County, and St. Louis City and the Mississippi River to the east.

West St. Louis County is generally defined as the area to the west of Interstate 270 or Lindbergh Boulevard, south of Page Avenue, east of Franklin County, and north of Interstate 44. Communities in West County include Manchester, Ballwin, Ellisville, Des Peres, Town and County, Creve Coeur, Chesterfield, and Eureka. The township of Wildwood, as well as a small portion of West County that is unincorporated, is policed by the St. Louis County Police Department. West County is one of the most affluent areas of the county.

South St. Louis County lies south of Interstate 44 and borders Jefferson County and St. Louis City. The southeast edge of South County also borders the Mississippi River. A majority of South County is unincorporated and is policed by the St. Louis County Police Department. Municipalities within the region include Affton, Crestwood, Mehlville, Lemay, Shrewsbury, Sunset Hills, and Lakeshire.

The East-Central Corridor is divided by Interstate 64, known as Highway 40 locally, and is bordered by Lindbergh Boulevard/Interstate 270 to the west, Page Avenue to the north, and St. Louis city to the east. Municipalities in the region include Clayton, Maplewood, Richmond Heights, University City, Brentwood, Rock Hill, Kirkwood, Olivette, and Webster Groves. The East-Central Corridor is also known as Mid-County because it is centrally located and lies in the center of the St. Louis, MO metropolitan area. The region is also readily accessible via Interstates 270, 170, 70, 64, 44, and 55.

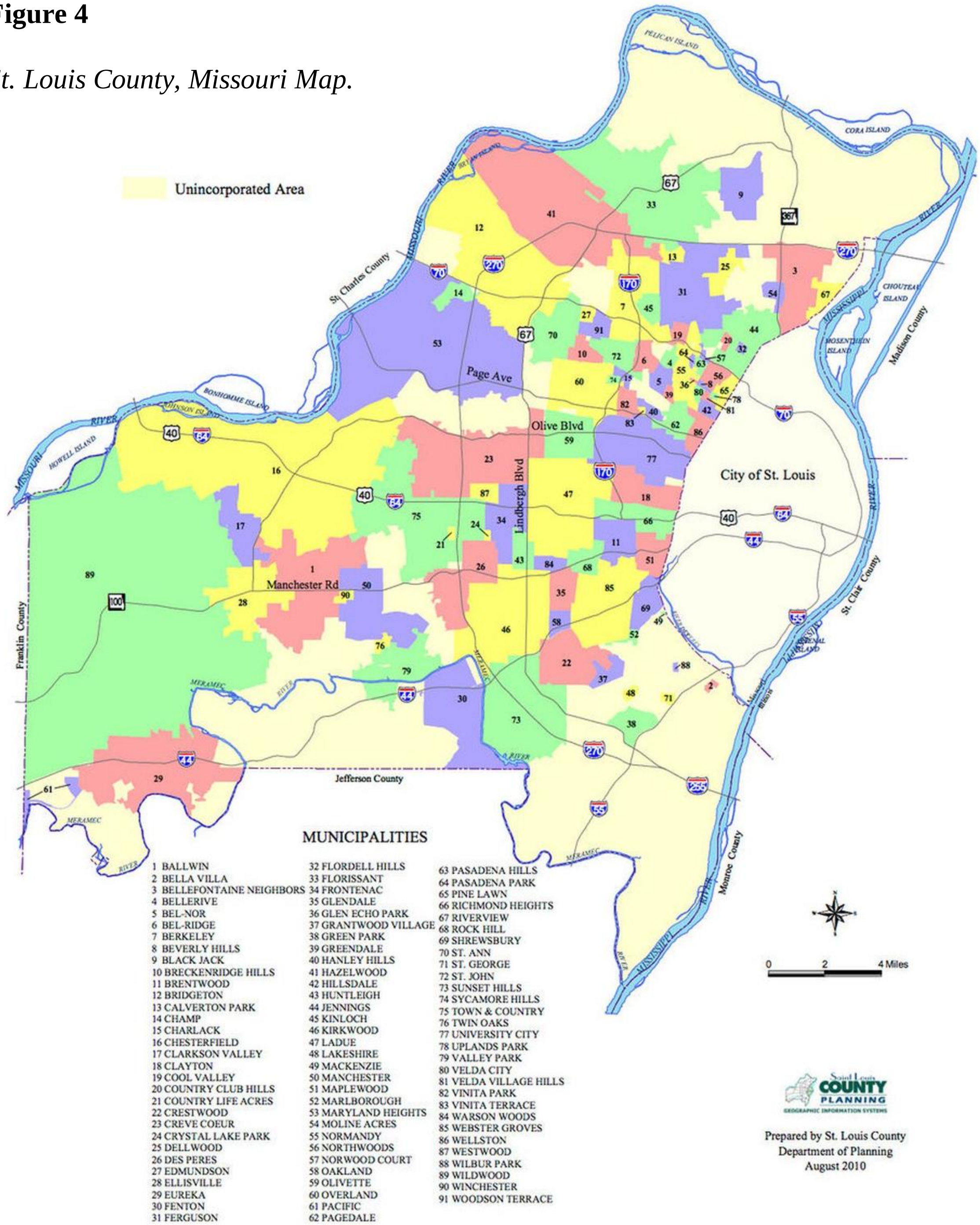
For the purposes of this evaluation, the regions patrolled by St. Louis County Police Department are treated as a standalone region because the agency has the authority to exercise police powers anywhere in the county. Moreover, because of the inability to parse crime and traffic data and assign the data to regions, the agency is treated as its own region. As a result, data for the other four regions did not contain any crime or traffic data associated with the St. Louis County Police Department. The location of unincorporated areas of St. Louis County are shown in Figure 4 and shaded in light yellow.

St. Charles County. The third independent geographical unit within the St. Louis, MO metropolitan region is St. Charles County, Missouri. St. Charles County lies primarily between the Missouri and Mississippi Rivers and is bordered on the southwest by Franklin County, to the south by St. Louis County, to the east by the Missouri River, and to the west by Warren County (see Figure 5). The county is Missouri's third most populous county and has 407,056 residents within 593 square miles (U.S. Census Bureau, 2020). The county is policed by several municipal agencies as well as the St. Charles County Sheriff's Department.

Jefferson County, Missouri. The fourth independent geographical unit within the St. Louis, MO metropolitan region is Jefferson County, Missouri. Jefferson County is bordered to the north by the Meramec River and St. Louis County, to the east by Franklin and Washington Counties, and to the south by Ste. Genevieve and St. Francois Counties (see Figure 6). The county is policed by several municipal agencies as well as the Jefferson County Sheriff's Department. The county is the state's sixth most populous and covers 664 square miles with a population of 225,543 (U.S. Census Bureau, 2020).

Figure 4

St. Louis County, Missouri Map.



Note: Adapted from St. Louis County, Missouri. (2020). *Municipalities St. Louis County*.

https://data.stlouisco.com/app/parcel-display-map

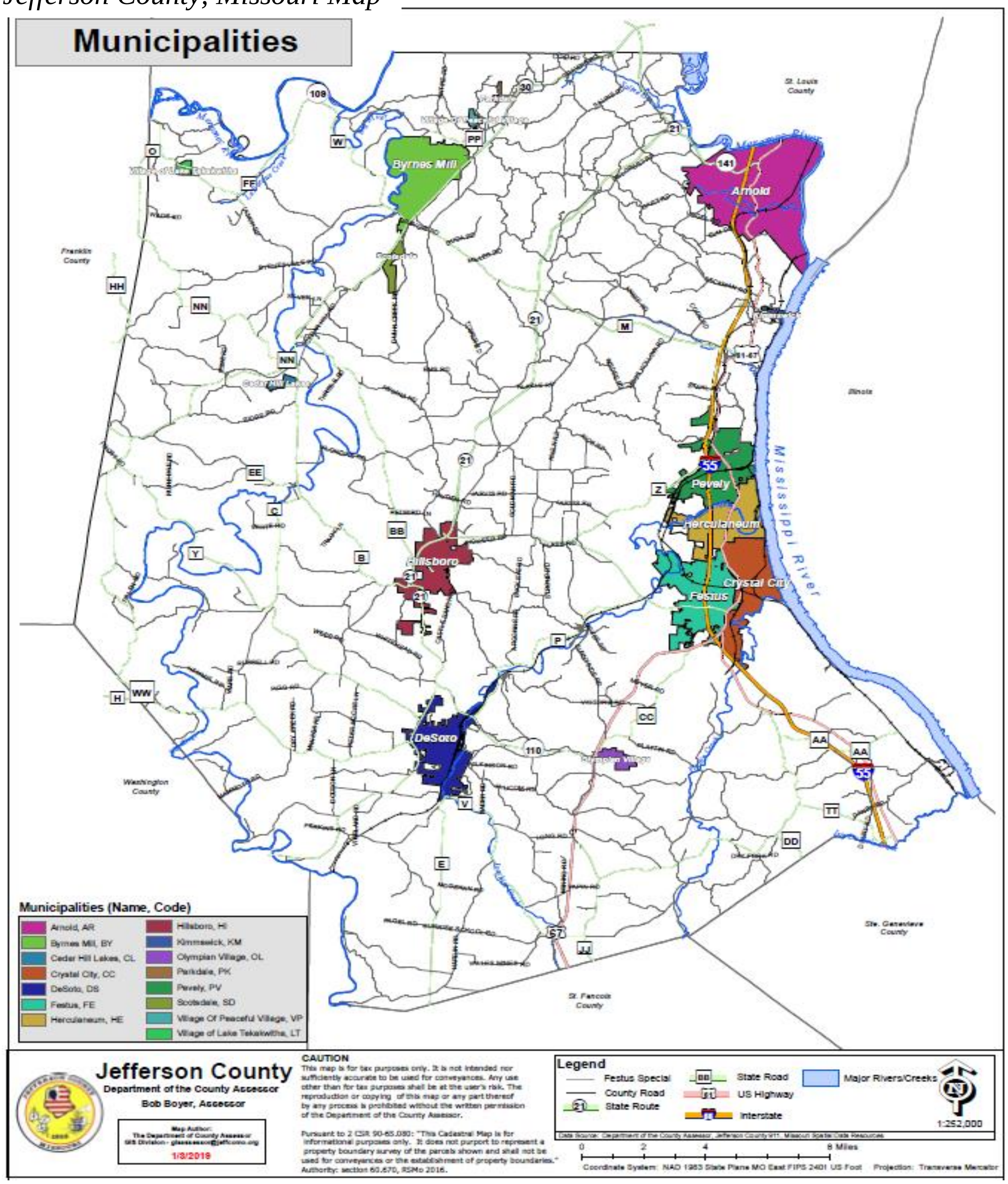
Figure 5

St. Charles County, Missouri Map

Note: Adapted from Greater St. Charles County Convention & Visitors Bureau (2020). https://www.discoverstcharles.com/plan/maps/

Figure 6

Jefferson County, Missouri Map



Note: Adapted from Jefferson County, Missouri. (2020). *GIS Data/Maps*. https://jeffcomo.maps.arcgis.com/apps/MapAndAppGallery/index.html?appid=3c3a394c65164966ba385ce30a383f08

Data Collection

The MSHP's UCR database and the MAGO's annual VSR were used to collect data for this study. The UCR database includes data related to part I crimes (i.e., murder and nonnegligent homicide, rape, robbery, aggravated assault, burglary, motor vehicle theft, larceny-theft, and arson), arrests, and LEOKA (Missouri State Highway Patrol [MSHP], 2020). The VSR database includes data related to the total number of traffic stops, outcome (i.e., citation or warning), search rates, contraband hit rates, and arrest rates related to vehicle stops (Missouri Attorney General's Office [MAGO], 2020). All annual reports between 2010 and 2019 were used to analyze the data and answer the research questions.

The data collection method was the most appropriate because of the mandatory reporting requirements established by law under the authority of the state attorney general. The use of a single database to capture data ensures consistency in collection and reporting. Second, the instruments (i.e., UCR and VSR) used an established set of variables that have been analyzed in scholarly research. No other sources of data would have provided the aggregation or breadth of data necessary to conduct this study.

No additional sources of data were considered for this study, as the aim of this study was to replicate and expand on Shjarback et al.'s (2017) study that evaluated crime rates, traffic stops, arrest rates, search rates, and contraband hit rates in the Kansas City, MO and St. Louis, MO metropolitan areas in 2014 and 2015. Moreover, the data collection for this project was accomplished through publicly available government records released annually. The pubic dissemination of such records is required under Missouri Sunshine Law (Mo. Rev. Stat. §610.010-200). All data needed for this research inquiry consisted of open source government records available under the Sunshine Law.

Operationalization

For this study, variables relating to crime and de-policing were evaluated to determine if there was a relationship between the independent and dependent variables. The independent and dependent variables used in this study were the same variables analyzed in the Shjarback et al. (2017) study. The first analysis consisted of descriptive statistics that determined the underlying presence of trends in crime rates and de-policing. The second analysis made use of a time-series analysis that determined the underlying presence of trends in crime rates and de-policing for each region. The third analysis also involved a time-series analysis, which aided in determining the relationship between the covariates and the dependent variables.

Independent Variables

The two independent variables for this analysis were time and region. Time was defined on an annual basis, while region was comprised of the eight earlier defined regions within the St. Louis, MO metropolitan area. Both independent variables were categorical variables.

Dependent Variables

The first dependent variable was crime, which is measured through the analysis of data derived from the UCR database. This variable was measured using annual reports for calendar years 2010 through 2019 consisted of quantitative data related to (a) total crime, (b) violent crime, (c) property crime, (d) homicide rates, and (e) LEOKA. The second dependent variable for this study was de-policing. The variable was analyzed using UCR and VSR databases and included data pertaining to (a) criminal arrests, (b) traffic stops, (c) traffic stop outcomes, (d) search rates, (e) contraband hit rates, and (f) arrest rates related to vehicle stops. Each of the dependent variables was a quantitative variable measured on a continuous scale.

Confounding Variables/Covariates

In addition to the independent and dependent variables analyzed in the study, three confounding variables were explored in the third analysis to determine their impact on crime and de-policing. The covariates included racial/ethnic make-up, socioeconomic index, and officer employment rates. Racial/ethnic make-up was a quantitative covariate variable that was assessed as the percentage of the population that is non-White. The socioeconomic index was also a quantitative covariate variable that was measured by averaging the poverty level, unemployment rates, and percentage of persons without a high school diploma or GED for a given region. Officer employment rates were assessed as the number of law enforcement officers per 1,000 citizens and also functioned as a quantitative covariate variable. Data quantifying racial/ethnic make-up and socioeconomic index were derived from the U.S. Census Bureau’s American Community Survey. LEO employment rates were obtained from the MSHP’s UCR database.

Data Analysis Plan

Data were collected from the MSHP's and MAGO's websites. The Excel spreadsheets were evaluated for missing data and formatting errors. The data were compiled into a single spreadsheet and included information pertaining to the confounding variables. The data were organized by year and region for ultimate analysis in IBM SPSS Statistics, version 27. Prior to analysis, data were evaluated to ensure consistency with what was found in the original database and that there was no missing data. The data were checked to ensure proper formatting and variable coding for the statistical analyses. Moreover, it was assumed that data within the original state databases were accurate and collected in a consistent manner as the databases are established, follow federal guidelines, and require mandatory data reporting by law enforcement agencies under Missouri law. The following research questions and hypotheses formed the basis for this study.

RQ1: Are there annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between years in the St. Louis, MO metropolitan area?

H_01: There are no annual differences in quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between years in the St. Louis, MO metropolitan area.

H_a1: There are annual differences in quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between years in the St. Louis, MO metropolitan area.

RQ2: Are there annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between geographical regions in the St. Louis, MO metropolitan area across time to determine the extent of de-policing occurring in the area?

H_02: There are no differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between geographical regions in the St. Louis, MO metropolitan area across time, thereby indicating that de-policing is not occurring in the area.

H_a2: There are differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between geographical regions in the St. Louis, MO metropolitan area across time, thereby indicating that de-policing is not occurring in the area.

RQ3: Are there differences in race, socioeconomic index, and the number of officers per 1,000 citizens on annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs in the St. Louis, MO metropolitan area across time to determine the extent of de-policing occurring within the region?

$H_0$3: There are no differences in terms of differences in race, socioeconomic index, and the number of officers per 1,000 citizens on annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs in the St. Louis, MO metropolitan area across time.

H_a3: There are differences in terms of differences in race, socioeconomic index, and the number of officers per 1,000 citizens on annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs in the St. Louis, MO metropolitan area across time.

To evaluate the data and test it against the research questions and proposed hypotheses, both descriptive and inferential statistical analyses were employed. Additionally, a series of multiple regression analyses were conducted to determine the effects of the covariates on the dependent variables. *F*-tests were used to determine if the relationship between the independent and dependent variables was large enough to be meaningful. The nominal alpha was set at 0.05, which was consistent with the threshold value in the Shjarback et al. (2017) study. The standardized derived coefficient, *ß*, was used to determine the magnitude of the effect of the independent variables on the dependent variables. The overall effect size will be a function of the R^2 value. Moreover, to ensure the robustness of the analysis, the assumptions of multiple regression included the assumptions that

- the dependent variable was a continuous interval or ratio variable,
- the relationship between variables was linear,

- the variance of the dependent variable across the values of the independent variable was homoscedastic,
- the independent and dependent variables demonstrated independence (i.e., no multicollinearity) through the application of the Durbin-Watson test,
- the distribution of errors was normal, and
- there was no undue influence by outliers (Cook's distance may be used to evaluate for undue influence; Mertler & Reinhart, 2016; Warner, 2013).

Threats to Validity

Validity is related to the veracity of an inference or the truthfulness of conclusions. Internal validity was the accuracy of causal claims made through analysis, while external validity was the ability to generalize the findings (Langbein, 2012; Price et al., 2017). Therefore, to address threats to validity, I ensured that my analytical methods mitigated any issues about causal claims and generalizability.

Internal Validity

Threats to internal validity were addressed by carefully measuring how the dependent variables were measured, controlling for confounding variables that convoluted causal assumptions, and identifying potential sources of regression artifacts (Langbein, 2012; Price et al., 2017). Instrument calibration effectively ameliorated variable measurements and issues resulting from data collection. Because the data instrument for this analysis has been utilized by the state of Missouri for over 20 years, it can be assumed the instrument itself did not create any threats to validity and was, therefore, reliable. Issues related to confounding variables were addressed by introducing three specific variables into the third analysis to evaluate the effect of the covariates on the dependent variables. Though regression artifacts can be less of an issue with the data obtained from the established instruments, it was not an issue when analyzing secondary data from the MSHP UCR and MAGO VSR databases because there were no significant outliers. However, this type of threat was effectively reduced by analyzing multiple data points across time and balancing the evaluation with the significant intervening event (i.e., Michael Brown shooting in 2014) at the midpoint of the evaluation. For this reason, data between 2010 and 2019—five years before and after the event— were assessed.

External Validity

External validity is related to descriptive and causal claims that allow researchers to apply their findings to a broader population. While the population of interest for this study was localized to a single geographic region (i.e., St. Louis, MO metropolitan area), policing practices were generally similar across the country and responsive to events in jurisdictions that were far removed from the event. Therefore, the findings of this study should be generalizable to other law enforcement agencies across the country, though the effect size may differ. Threats to external validity may also be further mitigated by selecting a sample that is representative of the population of interest while ensuring the unit of analysis is what is counted and sampled, ensuring that the participant pool is large enough to mitigate the effects of measurement error, and conducting statistical analyses that remove the effects of mediating variables leading to improper causal inferences and conclusions (Langbein, 2012; Price et al., 2017).

Issues regarding reliability and validity impact research by altering data outcomes and generalizations. To reduce threats related to reliability, research methods must be calibrated to ensure they are producing reliable results that are both accurate and stable. Threats to internal validity of an instrument also require the appropriate application of statistical tests to ensure outside influences are effectively controlled. The external validity of the findings related to research methodology also requires that generalizability will be increased through the application of proper statistical controls and tests when assessing data.

Ethical Concerns

All efforts were made to ensure this research conformed to the ethical guidelines and requirements established by Walden University and the Institutional Review Board (IRB). All data were gathered from open-source data repositories in a legal and ethical manner. Because this research involved open-source public records of secondary data, there was little risk to human subjects. To ensure data conformity to ethical standards, the Walden University IRB reviewed and approved this study (IRB approval number 01-04-21-0726775).

The open-source data collected included the name of law enforcement agencies, county, and region. No information pertaining to arrestees, officers involved, or the location or time of the incident was included. As a result, the data collected did not violate any confidentiality or protected information standards because the information was disseminated under Missouri's Sunshine Laws (Mo. Rev. Stat. §610.010-200). No personally identifiable information was used or collected for this study.

All data for this project was digital. To protect from potential loss or unintended disclosure of manipulated data, the data were stored on a local hard drive that is password-protected and encrypted. The data will remain on the hard drive for five years after the publication of this dissertation. A backup copy of data will be stored on a virtual cloud that is password-protected, encrypted, and subject to third-party verification procedures. Only my dissertation committee and I will have access to the protected data.

Summary

In this chapter, I described my research process to evaluate the effects of de-policing on crime. I employed a non-experimental retrospective quantitative time-series approach. The population consisted of all reporting law enforcement agencies in the St. Louis, MO metropolitan area. The independent variables were region and time. The dependent variables were (a) total crime, (b)violent crime, (c) property crime, (d) homicide rates, (e) LEOKA, (f) criminal arrests, (g) traffic stops, (h) traffic stop outcomes, (i) search rates, (j) contraband hit rates, and (k) arrest rates related to vehicle stops. The confounding variables were racial/ethnic make-up, socioeconomic index, and officer employment rates. Data were collected through open-source government websites, specifically the MSHP's and MAGO's websites. Chapter 4 discussed my analysis and findings related to the application of methodologies discussed in this chapter. Moreover, I analyzed the variables using various statistical methods to determine how annual and regional (i.e., independent variables) differences influenced crime and policing (i.e., dependent variables) while also evaluating the effects of the confounding variables (i.e., covariates) on the dependent variables.

Chapter 4: Results

Introduction

This quantitative research study evaluated the quantity and quality of policing and crime rates between 2010 and 2019. The study aimed to investigate the presence of de-policing and its effect on crime rates in the St. Louis, MO metropolitan region, using the events in Ferguson in 2014 as the midpoint of the study. The study employed a non-experimental time-series design that involved descriptive statistics and inferential statistical tests, which informed the research questions and hypotheses.

RQ1: Are there annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between years in the St. Louis, MO metropolitan area?

$H_0 1$: There are no annual differences in quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between years in the St. Louis, MO metropolitan area.

$H_a 1$: There are annual differences in quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between years in the St. Louis, MO metropolitan area.

RQ2: Are there annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between geographical regions in the St. Louis, MO metropolitan area across time to determine the extent of de-policing occurring in the area?

$H_0$2: There are no differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between geographical regions in the St. Louis, MO metropolitan area across time, thereby indicating that de-policing is not occurring in the area.

Ha2: There are differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between geographical regions in the St. Louis, MO metropolitan area across time, thereby indicating that de-policing is not occurring in the area.

RQ3: Are there differences in race, socioeconomic index, and the number of officers per 1,000 citizens on annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs in the St. Louis, MO metropolitan area across time to determine the extent of de-policing occurring within the region?

$H_0$3: There are no differences in terms of differences in race, socioeconomic index, and the number of officers per 1,000 citizens on annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs in the St. Louis, MO metropolitan area across time.

H_a3: There are differences in terms of differences in race, socioeconomic index, and the number of officers per 1,000 citizens on annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs in the St. Louis, MO metropolitan area across time.

To evaluate my research questions, I analyzed data derived from open-source publications made available by the MSHP and MAGO. Furthermore, racial/ethnic data used during the analysis of covariates in RQ3 were derived from the U.S. Census Bureau and American Community Survey, which are available to the public.

The study population was comprised of all law enforcement agencies in the independent city of St. Louis, MO and the counties of Jefferson, St. Charles, and St. Louis. Nontraditional law enforcement agencies (i.e., college and university law enforcement agencies) and those who do not perform traditional policing functions (i.e., St. Louis County and St. Louis City Sheriff's Offices) were excluded from the analyses. Because data submission by law enforcement agencies in Missouri is compulsory, data derived from open-source state-level databases were considered complete. The inclusion of all law enforcement agencies that perform traditional policing functions at the municipal, city, or county level ensured an adequate sample size where the results are statistically significant and meaningful. For this reason, the minimum sample size was not calculated, as the entire population met the aforementioned criteria established for these analyses.

In all, approximately 80 law enforcement agencies in the region comprised the sample population. The number of agencies varied due to consolidation and reorganization. For example, in some cases, the St. Louis County Police Department took over policing functions for some municipal departments (e.g., Jennings, Kinloch) during the study period. At the same time, other agencies formed law enforcement cooperatives (i.e., North County Police Cooperative) wherein several agencies pooled their resources to form one larger law enforcement agency. While the sample size varied by year, the number of counties (*n* = 4) and regions (*n* = 8) remained constant throughout the research. Therefore, county and regional totals became units of analysis per annum rather than individual agencies. Because of my familiarity with the region, I effectively coded each agency and assigned it a geographical region based on its location within its given county and regionally accepted geographical region.

I downloaded data from the MSHP and MAGO websites and placed it into a separate Excel file that specified each of the variables of interest and covariates. Data were cleaned to ensure accuracy of transcription as well as format and absence of missing data. Data coding was also performed to assign county and region codes for each jurisdiction correctly. Data were then consolidated into a single Excel file, representing data totals for each county by year and region. The Excel file also contained covariate data for each region to analyze the data pertaining to the third research question.

Data derived from databases were assumed to be complete and accurate, though there is a possibility that data were misreported by the original agency or representative database. Following cleaning and coding, the resulting Excel file was then converted for analysis using IBM SPSS Statistics version 27. IBM SPSS was then used to analyze data for interpretation.

This chapter reviews the data collection from open-source data repositories (i.e., MSHP UCR database, MAGO VSR, and U.S. Census Bureau). The data related to each research question were analyzed, and a summary of results was presented. A summary of data collection methods was presented before the presentation of the analysis of the results.

Data Collection

Under the Missouri Sunshine Law (Mo. Rev. Stat. §610.010-200), government bodies shall make available public records paid for by public funds and relating to publicly funded activities. The annual dissemination of UCR data and VSR constitute publicly available information and are, therefore, made available for public consumption. While raw data are available upon request from the MSHP and MAGO, data made available on the state's website were adequate to conduct this analysis. The online repositories, then, were used as the sole source of data.

The MSHP UCR databases contained data related to the number of violent and property crimes, homicides, criminal arrests, LEOKA, and officer employment rates. The MAGO VSR databases include data pertaining to traffic stops and traffic stop outcomes, searches, identification of contraband during a search, and arrests made during traffic stops. Demographic data (i.e., population, racial/ethnic make-up, poverty level, unemployment rates, educational attainment) were derived from open-source data repositories made available by the U.S. government. No records requests were made, as all data used in this analysis were readily available for download from public websites. All data for this research study were limited to incidents occurring between January 1, 2010 and December 31, 2019. It should also be noted that there were no fees incurred related to the use or download of the data used for this research inquiry.

After receiving IRB approval, I downloaded data from each source and inspected the data for accuracy and completeness. All downloaded data met the requirements for each analysis as a means to answer the research questions. I determined that no additional data collection was necessary, as the open-source data were considered complete for my research purposes. While I did have to parse multiple websites and databases to collect data for this research project, I located the requisite components needed to complete this inquiry. After my data were collected, I sorted the data by type, converted it to reflect the same measurement units, and compiled it into a single database for SPSS analysis. Descriptive statistics for each analysis are presented in the study results.

Study Results

In addition to the inferential analysis, descriptive statistics were used to demonstrate the annual differences in quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries to LEOs between years in each of the four defined counties and eight regions in the St. Louis, MO metropolitan area. Descriptive statistics were used to determine differences within and between counties or regions for a given year. For RQ3, inferential analysis incorporated three additional variables (i.e., race, socioeconomic index, number of LEOs) to explain the relationship between crime (i.e., violent crimes and LEOKA) and de-policing (i.e., criminal and traffic arrests, traffic stops and outcomes, searches, and contraband identification). For ease of understanding, each research question was addressed separately. Moreover, because each of the research questions contained the same elements, each element was addressed independently to inform analysis and results.

In my study, I sought to examine the Ferguson Effect's impact on crime in the St. Louis, MO metropolitan area between 2010 and 2019. To determine the effects of de-policing practices on crime, I identified several independent and dependent variables as well as covariates that might mediate the effect of the relationship between the independent and dependent variables. The dependent variable of de-policing was evaluated from data pertaining to (a) criminal arrests, (b) traffic stops, (c) traffic stop outcome rates, (d) search rates, (e) contraband hit rates, and (f) arrest rates related to vehicle stops. Crime also served as the dependent variable and was measured using data relating to part I crimes such as violent and property crimes, homicide, and LEOKA. Each of the variables was quantitative and measured on a continuous scale.

Time was designated as the independent variable in RQ1, while region and time became the independent variables for RQ2. For RQ3, the covariates served as the independent variables for analysis. The covariates, which were racial/ethnic make-up, socioeconomic index, and the number of LEOs per capita, were measured on a continuous scale from 0 to 100. Racial make-up is expressed as a percentage of non-White residents. The socioeconomic index is the average of the percentage of persons living in poverty, unemployed, and with less than a high school diploma or GED. The number of LEOs per capita was calculated by dividing the number of LEOs at a given department or within a given region by the total population. The result was then multiplied by 1,000 to yield the number of law enforcement officers per 1,000 persons.

RQ1

RQ1 was developed to determine if there are between year differences or trends in de-policing through evaluation of quantities of traffic stops, citation issuance rates, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries to LEOs between 2010 and 2019 in the St. Louis, MO metropolitan area. For each variable, a one-way repeated measure ANOVA was conducted to evaluate annual differences in crime and traffic stop data at 10 points in time between 2010 and 2019. This research design was the best method to assess mean differences across time for a single variable because it allows for analysis that applies a within-subjects design using the same sample at 10 specific points in time. Conducting independent *t*-tests or one-way ANOVA would not be the best choice as they involve assuming data are derived from different groups. Table 1 depicts annual differences between each of the independent and dependent variables. Table 2 includes descriptive statistics for analysis, while Table 3 summarizes Mauchly's test for sphericity.

To evaluate whether annual differences in crime and policing changed across time, a one-way repeated-measures ANOVA was performed for each variable using the SPSS general linear model (GLM) with data derived from the MSHP UCR and MOAG VSR databases. Data are derived from 80 law enforcement agencies across the St. Louis, MO metropolitan area to assess alterations in crime and policing at 10 points in time.

Crime rates, criminal arrest rates, LEOKA, and traffic stops were assessed based on a total count using a continuous scale. Traffic arrest rates, citation issuance rates, search rates, and contraband hit rates were analyzed using a scale from 0 to 100, whereby rates were expressed as a function of the total number of traffic stops, which allowed for a more robust year-by-year comparison that accounted for fluctuations in the total number of traffic stops.

The independent variable for this analysis is time. The dependent variables, which were assessed individually, are total crime, violent crime, property crime, murder, LEOKA, criminal and traffic arrests, traffic stops, citation rates, search rates, and contraband hit rates. The research question for this analysis is: *What are the annual differences in the quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries to law enforcement officers between years in the St. Louis, MO metropolitan area?* The null hypothesis is: *There are no annual differences in the quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries to law enforcement officers between years in the St. Louis, MO metropolitan area*. The alternative hypothesis is: *There are annual differences in the quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries to law enforcement officers between years in the St. Louis, MO metropolitan area.*

Table 1

Annual Differences in Policing and Crime

	Year									
Variable	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Crime										
Total crime	78946	75949	69944	65355	62190	65120	63911	63496	60609	61659
Violent crime	10628	10147	9642	8823	9374	10466	10676	11352	10236	10688
Property crime	68318	65802	60302	56522	51816	54698	53235	52144	50373	50971
Murder	194	161	167	166	202	261	269	308	304	312
LEOKA	1258	1264	1262	1128	1074	1068	1023	1018	801	894
Policing										
Criminal arrests	126784	133977	133361	123281	107444	93217	89120	86495	77745	63274
Traffic stops	494944	500926	489069	489506	454243	401779	384478	378506	403357	412525
Citation rate	63.90	63.01	63.20	62.63	62.39	57.13	57.62	55.29	53.01	50.69
Search rate	7.77	7.72	7.86	7.73	6.74	6.93	6.75	6.70	6.21	6.16
Contraband hit rate	18.97	20.06	20.35	20.05	20.78	25.1	29.98	32.75	32.13	31.56
Traffic arrest rate	5.73	4.91	5.22	5.07	4.62	4.43	4.23	4.31	4.04	3.894

Table 2

Descriptive Statistics

	Year														
	2010			2011			2012			2013			2014		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	35.7	22.0	68	36.2	22.6	68	35.0	23.8	68	32.9	21.2	68	30.2	18.4	68
Violent Crime	4.1	4.9	68	3.9	4.8	68	4.1	5.3	68	3.4	3.6	68	3.4	3.7	68
Property Crime	31.6	18.8	68	32.3	19.6	68	30.9	21.2	68	29.5	19.4	68	26.8	16.3	68
Murder	.4	1.3	68	.6	1.8	68	.6	1.4	68	.3	.7	68	.5	1.9	68
LEOKA	.2	.2	68	.2	.2	68	.2	.2	68	.1	.1	68	.1	.2	68
Criminal Arrests	1722.4	4102.9	68	1844.4	4494.4	68	1812.7	4342.2	68	1663.8	3966.3	68	1461.6	3353.4	68
Traffic Stops	6159.2	12815.7	80	6237.3	12773.8	80	6099.0	12276.4	80	6116.0	12123.1	80	5675.6	9534.5	80
Citation Rate	71.5	23.0	80	69.9	24.6	80	66.7	26.91	80	66.3	27.5	80	65.6	25.7	80
Search Rate	9.8	7.2	80	8.9	8.1	80	9.2	10.0	80	8.4	8.4	80	8.5	7.8	80
Contraband Hit Rate	17.9	10.2	80	17.5	10.6	80	18.0	11.2	80	19.3	12.4	80	20.3	12.5	80
Traffic Arrest Rate	5.3	4.0	80	4.7	4.2	80	4.6	4.5	80	4.7	4.8	80	4.7	5.0	80

	Year														
	2015			2016			2017			2018			2019		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	33.0	20.2	68	33.6	21.1	68	31.5	20.6	68	34.1	21.8	68	70.7	189.8	68
Violent Crime	4.1	4.6	68	4.2	4.5	68	4.0	4.1	68	4.2	4.9	68	7.7	19.6	68
Property Crime	28.8	17.3	68	29.1	17.9	68	27.6	17.9	68	29.9	18.6	68	63.0	171.0	68
Murder	.7	1.8	68	1.0	2.6	68	1.0	2.8	68	.5	1.4	68	2.1	7.4	68
LEOKA	.1	.1	68	.2	.2	68	.2	.2	68	.2	.2	68	.1	.2	68
Criminal Arrests	1266.9	3230.7	68	1267.7	3410.7	68	1201.9	3205.0	68	1084.2	2820.6	68	914.3	2444.0	68
Traffic Stops	5014.8	8984.3	80	4795.8	9000.5	80	4720.4	8202.9	80	5030.4	9326.6	80	5144.9	9464.8	80
Citation Rate	59.6	25.8	80	55.2	26.9	80	51.8	27.1	80	52.5	27.9	80	51.1	27.8	80
Search Rate	9.2	8.13	80	8.7	8.6	80	9.6	10.1	80	9.8	9.5	80	10.7	12.0	80
Contraband Hit Rate	23.4	14.7	80	27.5	20.3	80	29.9	19.7	80	28.8	17.9	80	28.0	18.7	80
Traffic Arrest Rate	4.2	3.2	80	3.5	2.7	80	3.3	2.9	80	3.4	3.1	80	3.4	3.2	80

Table 3

Mauchly's Test for Sphericity

	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon Greenhouse-Geisser	Epsilon Huynh-Feldt	Epsilon Lower-bound
Total Crime	.00	2031.99	44	.000	.12	.12	.11
Violent Crime	.00	1272.43	44	.000	.17	.18	.11
Property Crime	.00	1988.85	44	.000	.12	.12	.11
Murder	.00	879.28	44	.000	.30	.31	.11
LEOKA	.06	185.87	44	.000	.53	.57	.11
Criminal Arrests	.00	1211.24	44	.000	.14	.14	.11
Traffic Stops	.00	922.79	44	.000	.17	.17	.11
Citation Rate	.01	403.93	44	.00	.39	.41	.11
Search Rate	.01	390.87	44	.000	.44	.47	.11
Contraband Hit Rate	.03	230.15	44	.000	.58	.64	.11
Traffic Arrest Rate	.01	434.01	44	.000	.29	.30	.111

Note. Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

Total Crime

The Mauchly test was performed to assess possible violation of the sphericity assumption; this was statistically significant: Mauchly's $W = .00$, $\chi^2(2) = 1703.48$, $p < .001$. The assumption of sphericity is therefore violated. The Greenhouse-Geisser ε value of .18 suggested that the sample variance/covariance matrix did depart substantially from sphericity. Because the Greenhouse-Geisser ε value was close to 0, it is the most accurate method to evaluate the F ratio's significance by adjusting the degrees of freedom.

The overall *F* for differences in the mean number of total crimes across the ten points in time were not statistically significant: $F(1.38, 95.28) = 1.76$, $p = 19$; the corresponding effect size was a partial η^2 of .03. Therefore, because the differences were not significant, we should fail to reject the null hypothesis that there is an equal difference in the means of total crime rates across time. In other words, there is no evidence of statistically significant changes in total crime rates across time.

Violent Crime

The Mauchly test was performed to assess possible violation of the sphericity assumption; this was statistically significant: Mauchly's $W = .00$, $\chi^2(2) = 1354.73$, $p < .001$. The assumption of sphericity is therefore violated. The Greenhouse-Geisser ε value of .20 suggested that the sample variance/covariance matrix did depart substantially from sphericity. Because the Greenhouse-Geisser ε value was close to 0, it is the most accurate method to evaluate the F ratio's significance by adjusting the degrees of freedom.

The overall *F* for differences in the mean number of violent crimes across the ten points in time were not statistically significant: $F(1.80, 124.07) = 2.23$, $p = .12$; the corresponding effect size was a partial η^2 of .03. Therefore, because the differences were not significant, we should fail to reject the null hypothesis that there is an equal difference in the means of violent crime rates across time. In other words, there is no evidence of statistically significant changes in violent crime rates across time.

Property Crime

The Mauchly test was performed to assess possible violation of the sphericity assumption; this was statistically significant: Mauchly's $W = .00$, $\chi^2(2) = 1787.82$, $p < .001$. The assumption of sphericity is therefore violated. The Greenhouse-Geisser ε value of .18 suggested that the sample variance/covariance matrix did depart substantially from sphericity. Because the Greenhouse-Geisser ε value was close to 0, it is the most accurate method to evaluate the F ratio's significance by adjusting the degrees of freedom.

The overall *F* for differences in the mean number of property crimes across the ten points in time was statistically significant: $F(1.38, 95.28) = 1.85$, $p = .1.7$; the corresponding effect size was a partial η^2 of .03. Therefore, because the differences were not significant, we should fail to reject the null hypothesis that there is an equal difference in the means of property crime rates across time. In other words, there is no evidence of statistically significant changes in property crime rates across time.

Murder

The Mauchly test was performed to assess possible violation of the sphericity assumption; this was statistically significant: Mauchly's $W = .00$, $\chi^2(2) = 1645.54$, $p < .001$. The assumption of sphericity is therefore violated. The Greenhouse-Geisser ε value of .18 suggested that the sample variance/covariance matrix did depart substantially from sphericity. Because the Greenhouse-Geisser ε value was close to 0, it is the most accurate method to evaluate the F ratio's significance by adjusting the degrees of freedom.

The overall F for differences in the mean number of murders across the ten points in time was statistically significant: $F(1.12, 77.43) = 2.25$, $p = .14$; the corresponding effect size was a partial η^2 of .03. Therefore, because the differences were not significant, we should fail to reject the null hypothesis that there is an equal difference in the means of murder rates across time. In other words, there is no evidence of statistically significant changes in murder rates across time.

LEOKA

The Mauchly test was performed to assess possible violation of the sphericity assumption; this was statistically significant: Mauchly's $W = .00$, $\chi^2(2) = 885.36$, $p < .001$. The assumption of sphericity is therefore violated. The Greenhouse-Geisser ε value of .18 suggested that the sample variance/covariance matrix did depart substantially from sphericity. Because the Greenhouse-Geisser ε value was close to 0, it is the most accurate method to evaluate the F ratio's significance by adjusting the degrees of freedom.

The overall *F* for differences in the mean number of LEOKA across the ten points in time was statistically significant: *F*(1.52, 106.29) = 1.80, *p* = .18; the corresponding effect size was a partial η^2 of .03. Therefore, because the differences were not significant, we should fail to reject the null hypothesis that there is an equal difference in the means of LEOKA across time. In other words, there is no evidence of statistically significant changes in LEOKA across time.

Criminal Arrests

The Mauchly test was performed to assess possible violation of the sphericity assumption; this was statistically significant: Mauchly's *W* = .00, $\chi^2(2) = 1211.24$, *p* < .001. The assumption of sphericity is therefore violated. The Greenhouse-Geisser ε value of .18 suggested that the sample variance/covariance matrix did depart substantially from sphericity. Because the Greenhouse-Geisser ε value was close to 0, it is the most accurate method to evaluate the F ratio's significance by adjusting the degrees of freedom.

The overall *F* for differences in the mean number of criminal arrests across the ten points in time was statistically significant: *F*(1.1.25, 84.68) = 12.56, *p* < .001; the corresponding effect size was a partial η^2 of .16. In other words, after individual differences in the quantity of criminal arrests were taken into account, about 16% of the variance in criminal arrests was related to time. Note that even if the ε correction factor is applied to the degrees of freedom for *F*, the obtained value of *F* for differences in the mean number of criminal arrests across time remains statistically significant.

Planned contrasts were obtained to compare the mean traffic arrest rates across time. The mean traffic arrest rates decreased between 2010 and 2019. The mean decrease is statistically significant in 2015 (*MD* = 442.35, *p* = .03; *MD* = 564.42, *p* = .04, *MD* = 536.00, *p* = .03; *MD* = 394.61, *p* = .01; *MD* = 195.12, *p* = .02), 2016 (*MD* = 442.07, *p* = .01; *MD* = 564.15, *p* = .01; *MD* = 535.73, *p* = .01; *MD* = 394.33, *p* = .01; *MD* = 194.84, *p* = .01), 2017 (*MD* = 508.01, *p* = .007; *MD* = 630.09, *p* = .01; *MD* = 601.67, *p* = .01; *MD* = 460.28, *p* = .01; *MD* = 260.78, *p* < .001), 2018 (*MD* = 624.86, *p* = .03; *MD* = 746.93, *p* = .03; *MD* = 718.51, *p* = .02; *MD* = 577.12, *p* = .03; *MD* = 377.62, *p* = .01), and 2019 (*MD* = 792.75, *p* = .03; *MD* = 914.83, *p* = .04; *MD* = 886.41, *p* = .03 *MD* = 745.01, *p* = .02; *MD* = 545.52, *p* = .01) when compared to 2010, 2011, 2012, 2013, and 2014, respectively (see Table 4). Therefore, we reject the null hypothesis that there is no difference in means for the number of criminal arrests across time. Thus, of the three statistically significant time points in this study, the number of criminal arrests in 2015 and 2016 had significantly lower mean number of criminal arrests when compared to 2014, indicating some de-policing may be taking place.

Traffic Stops

The Mauchly test was performed to assess possible violation of the sphericity assumption; this was statistically significant: Mauchly's *W* = .00, $\chi^2(2) = 973.41$, *p* < .001. The assumption of sphericity is therefore violated. The Greenhouse-Geisser ε value of .18 suggested that the sample variance/covariance matrix did depart substantially from sphericity. Because the Greenhouse-Geisser ε value was close to 0, it is the most accurate method to evaluate the F ratio's significance by adjusting the degrees of freedom.

The overall *F* for differences in the mean number of traffic stops across the ten points in time was statistically significant: $F(1.58, 124.54) = 4.56$, $p = .02$; the corresponding effect size was a partial η^2 of .06. In other words, after individual differences in the quantity of traffic stops were taken into account, about 6% of the variance in traffic stops was related to time. Note that even if the ε correction factor is applied to the degrees of freedom for *F*, the obtained value of *F* for differences in the mean number of traffic stops across time remains statistically significant.

Planned contrasts were obtained to compare the mean number of traffic stops across time. The mean number of traffic stops decreased in 2012 ($M = 6099.03$), 2014 ($M = 5675.60$), 2015 ($M = 5014.78$), 2016 ($M = 4795.78$), and 2017 ($M = 4720.40$) when compared to the previous year. The mean number of traffic stops was significantly lower in 2015 ($MD = 660.83$, $p < .001$) and 2016 ($MD = 879.83$, $p = .001$), when compared to 2014. Therefore, we reject the null hypothesis that there is no difference in means for the number of traffic stops across time. Thus, of the three statistically significant time points in this study, the number of traffic stops in 2015 and 2016 had a significantly lower mean number of traffic stops when compared to 2014, indicating some de-policing may be taking place.

Table 4

Mean Differences in Criminal Arrest Rates

	Year																			
	2010		2011		2012		2013		2014		2015		2016		2017		2018		2019	
	MD	Sig	*MD*	Sig	*MD*	Sig	*MD*	Sig	*MD*	Sig	*MD*	Sig	*MD*	Sig	*MD*	Sig	*MD*	Sig	*MD*	Sig
2010	-	-	-122.07	1.00	-93.65	1.00	47.74	1.00	247.23	.96	**442.35**	**.03**	**442.07**	**.000**	**508.01**	**.01**	**624.86**	**.02**	**792.75**	**.02**
2011	122.07	1.00	-	-	28.42	1.00	169.81	1.00	369.30	.58	**564.42**	**.04**	**564.14**	**.01**	**630.09**	**.01**	**746.93**	**.03**	**914.83**	**.04**
2012	93.65	1.00	-28.42	1.00	-	-	141.39	.92	340.88	.40	**536.00**	**.03**	**535.72**	**.000**	**601.67**	**.01**	**718.51**	**.02**	**886.41**	**.03**
2013	-47.74	1.00	-169.81	1.00	-141.39	.92	-	-	199.49	.60	**394.61**	**.01**	**394.33**	**.000**	**460.28**	**.000**	**577.12**	**.02**	**745.01**	**.02**
2014	-247.23	.96	-369.30	.58	-340.88	.40	-199.49	.60	-	-	**195.12**	**.02**	**194.84**	**.01**	**260.78**	**.000**	**377.62**	**.000**	**545.52**	**.01**
2015	**-442.35**	**.03**	**-564.42**	**.04**	**-536.00**	**.03**	**-394.61**	**.01**	**-195.12**	**.02**	-	-	-0.28	1.00	65.67	1.00	182.51	.63	350.41	.07
2016	**-442.07**	**.000**	**-564.14**	**.01**	**-535.72**	**.000**	**-394.33**	**.000**	**-194.84**	**.01**	0.28	1.00	-	-	65.94	1.00	182.78	1.00	350.68	.45
2017	**-508.01**	**.01**	**-630.09**	**.01**	**-601.67**	**.01**	**-460.28**	**.000**	**-260.78**	**.000**	-65.67	1.00	-65.94	1.00	-	-	116.84	1.00	284.74	.44
2018	**-624.86**	**.03**	**-746.93**	**.03**	**-781.51**	**.02**	**-577.12**	**.02**	**-377.62**	**.01**	-182.51	.63	-182.78	1.00	-116.84	1.00	-	-	167.90	.40
2019	**-792.75**	**.03**	**-914.83**	**.04**	**-886.41**	**.03**	**-745.01**	**.02**	**-545.52**	**.01**	**-350.41**	**.07**	**-350.68**	**.45**	**-284.74**	**.44**	**-167.90**	**.40**	**-**	-

Citation Rates

The Mauchly test was performed to assess possible violation of the sphericity assumption; this was statistically significant: Mauchly's $W = .003$, $\chi^2(2) = 451.22$, $p < .001$. The assumption of sphericity is therefore violated. The Greenhouse-Geisser ε value of .37 suggested that the sample variance/covariance matrix did depart substantially from sphericity. Because the Greenhouse-Geisser ε value was closer to 0, it is the most accurate method to evaluate the F ratio's significance by adjusting the degrees of freedom.

The overall *F* for differences in the mean citation rates across the ten points in time was statistically significant: $F(3.37, 265.99) = 18.27$, $p < .001$; the corresponding effect size was a partial η^2 of .19. In other words, after individual differences in the mean citation rates were taken into account, about 19% of the variance in the mean citation rates were related to time. Note that even if the ε correction factor is applied to the degrees of freedom for *F*, the obtained value of *F* for differences in the mean citation rates across time remains statistically significant.

Planned contrasts were obtained to compare the mean citation rates across time. The mean citation rate decreased in 2011 ($M = 69.93$), 2012 ($M = 66.65$), 2013 ($M = 66.25$), 2014 ($M = 65.57$), 2015 ($M = 59.59$), 2016 ($M = 51.78$), and 2018 ($M = 51.08$) when compared to the previous year. The mean citation rate was significantly lower in 2015 ($MD = 11.93$, $p = .006$; $MD = 10.34$, $p = .007$; $MD = 7.06$, $p = .05$; $MD = 6.67$, $p = .02$; $MD = 5.98$, $p < .001$), 2016 ($MD = 16.31$, $p < .001$; $MD = 14.72$, $p < .001$; $MD =$

11.44, $p = .002$; $MD = 11.04$, $p = .002$; $MD = 10.36$, $p = .001$), 2017 ($MD = 19.74$, $p < .001$; $MD = 18.15$, $p < .001$; $MD = 14.87$, $p < .001$; $MD = 14.47$, $p < .001$; $MD = 13.79$, $p < .001$), 2018 ($MD = 19.01$, $p < .001$; $MD = 17.42$, $p < .001$; $MD = 14.14$, $p = .001$; $MD = 13.74$, $p = .001$; $MD = 13.06$, $p < .001$), and 2019 ($MD = 20.44$, $p < .001$; $MD = 18.85$, $p < .001$; $MD = 15.57$, $p < .001$; $MD = 15.17$, $p < .001$; $MD = 14.49$, $p < .001$) when compared to 2010, 2011, 2012, 2013, and 2014, respectively (see Table 5). Therefore, we reject the null hypothesis that there is no difference in mean citation rate across time. Thus, of the statistically significant time points in this study, the number of citations issued between 2015 and 2019 had significantly lower mean citation rate when compared to 2010, 2012, 2013, and 2014, indicating some de-policing may be taking place.

Table 5

Mean Differences in Citation Rates

	Year																			
	2010		2011		2012		2013		2014		2015		2016		2017		2018		2019	
	MD	Sig.	*MD*	Sig.	*MD*	Sig.	*MD*	Sig.	*MD*	Sig.	*MD*	Sig.	*MD*	Sig.	*MD*	Sig.	*MD*	Sig.	*MD*	Sig.
2010	-	-	-.64	1.00	.10	1.00	-.14	1.00	.78	1.00	**7.32**	**.07**	**8.41**	**.02**	**12.27**	**.001**	**11.44**	**.01**	**13.06**	**.001**
2011	.64	1.00	-	-	.74	1.00	.50	1.00	1.43	1.00	**7.96**	**.01**	**9.05**	**.001**	**12.91**	**.001**	**12.09**	**.001**	**13.70**	**.001**
2012	-.10	1.00	-.74	1.00	-	-	-.24	1.00	.68	1.00	**7.22**	**.04**	**8.31**	**.01**	**12.17**	**.001**	**11.34**	**.01**	**12.96**	**.001**
2013	.14	1.00	-.50	1.00	.24	1.00	-	-	.92	1.00	**7.46**	**.02**	**8.55**	**.001**	**12.41**	**.001**	**11.59**	**.001**	**13.20**	**.001**
2014	-.78	1.00	-1.43	1.00	-.68	1.00	-.92	1.00	-	-	**6.54**	**.001**	**7.62**	**.001**	**11.49**	**.001**	**10.66**	**.001**	**12.28**	**.001**
2015	**-7.32**	**.07**	**-7.96**	**.01**	**-7.22**	**.04**	**-7.46**	**.02**	**-6.54**	**.001**	-	-	1.09	1.00	4.95	1.00	4.12	1.00	5.74	1.00
2016	**-8.41**	**.02**	**-9.05**	**.001**	**-8.31**	**.01**	**-8.55**	**.001**	**-7.62**	**.001**	-1.09	1.00	-	-	3.86	1.00	3.04	1.00	4.65	1.00
2017	**-12.27**	**.001**	**-12.91**	**.001**	**-12.17**	**.001**	**-12.41**	**.001**	**-11.49**	**.001**	-4.95	1.00	-3.86	1.00	-	-	-.83	1.00	.79	1.00
2018	**-11.44**	**.01**	**-12.09**	**.001**	**-11.34**	**.01**	**-11.59**	**.001**	**-10.66**	**.001**	-4.12	1.00	-3.04	1.00	.83	1.00	-	-	1.62	1.00
2019	**-13.06**	**.001**	**-13.70**	**.001**	**-12.96**	**.001**	**-13.20**	**.001**	**-12.28**	**.001**	-5.74	1.00	-4.65	1.00	-.79	1.00	-1.62	1.00	-	-

Search rates. The Mauchly test was performed to assess possible violation of the sphericity assumption; this was statistically significant: Mauchly's $W = .006$, $\chi^2(2) = 390.87$, $p < .001$. The assumption of sphericity is therefore violated. The Greenhouse-Geisser ε value of .44 suggested that the sample variance/covariance matrix did depart substantially from sphericity. Because the Greenhouse-Geisser ε value was closer to 0, it is the most accurate method to evaluate the F ratio's significance by adjusting the degrees of freedom.

The overall *F* for differences in the mean search rate across the ten points in time were not statistically significant: $F(3.98, 314.30) = 1.35$, $p = .25$; the corresponding effect size was a partial η^2 of .02. Therefore, because the differences were not significant, we should fail to reject the null hypothesis that there is an equal difference in the means of search rates across time. In other words, there is no evidence of statistically significant changes in search rates across time.

Contraband Hit Rates

The Mauchly test was performed to assess possible violation of the sphericity assumption; this was statistically significant: Mauchly's $W = .029$, $\chi^2(2) = 269.39$, $p < .001$. The assumption of sphericity is therefore violated. The Greenhouse-Geisser ε value of .56 suggested that the sample variance/covariance matrix did depart substantially from sphericity. Because the Greenhouse-Geisser ε value was closer to 0, it is the most accurate method to evaluate the F ratio's significance by adjusting the degrees of freedom.

The overall *F* for differences in the mean search rate across the ten points in time were statistically significant: $F(5.08, 401.06) = 17.28$, $p < .001$; the corresponding effect size was a partial η^2 of .18. In other words, after individual differences in the mean citation rates were taken into account, about 18% of the variance in the mean citation rates were related to time. Note that even if the ε correction factor is applied to the degrees of freedom for *F*, the obtained value of *F* for differences in the mean contraband hit rates across time remains statistically significant.

Planned contrasts were obtained to compare the mean contraband hit rates across time. The mean contraband hit rates decreased in 2015 (*MD* = 5.51, *p* = .03; *MD* = 5.90, *p* = .003; *MD* = 5.37, *p* = .008), 2016 (*MD* = 9.67, *p* = .001; *MD* = 10.06, *p* = .001; *MD* = 9.53, *p* < .001), 2017 (*MD* = 112.06, *p* < .001; *MD* = 12.45, *p* < .001; *MD* = 11.91, *p* < .001), 2018 (*MD* = 10.92, *p* < .001; *MD* = 111.31, *p* < .001; *MD* = 10.02, *p* < .001), and 2019 (*MD* = 10.16, *p* < .001; *MD* = 10.55, *p* < .001; *MD* = 10.12, *p* < .001) when compared to 2010, 2011, and 2012, respectively. The mean contraband hit rates also decreased in 2016 (*MD* = 8.22, *p* = .005; *MD* = 7.24, *p* = .04), 2017 (*MD* = 10.61, *p* < .001; *MD* = 9.62, *p* < .001), 2018 (*MD* = 9.47, *p* < .001; *MD* = 8.48, *p* < .001), and 2019 (*MD* = 8.71, *p* = .001; *MD* = 7.73, *p* < .001) when compared to 2013 and 2014, respectively (see Table 46). The mean contraband hit rates also decreased in 2017 (*MD* = 6.55, *p* = .001) and 2018 (*MD* = 5.41, *p* = .04) when compared to 2015. Therefore, we reject the null hypothesis that there is no difference in mean contraband hit rates across time. Thus, of the statistically significant time points in this study, the contraband hit rates between 2015 and 2019 had significantly lower contraband hit rates before 2014, indicating some de-policing may be taking place.

Traffic Arrest Rates

The Mauchly test was performed to assess possible violation of the sphericity assumption; this was statistically significant: Mauchly's $W = .002$, $\chi^2(2) = 464.16$, $p < .001$. The assumption of sphericity is therefore violated. The Greenhouse-Geisser ε value of .33 suggested that the sample variance/covariance matrix did depart substantially from sphericity. Because the Greenhouse-Geisser ε value was closer to 0, it is the most accurate method to evaluate the F ratio's significance by adjusting the degrees of freedom.

The overall F for differences in the mean search rate across the ten points in time were statistically significant: $F(2.93, 231.28) = 5.14$, $p = .002$; the corresponding effect size was a partial η^2 of .06. In other words, after individual differences in the mean traffic arrest rates were taken into account, about 6% of the variance in the mean traffic arrest rates were related to time. Note that even if the ε correction factor is applied to the degrees of freedom for F, the obtained value of F for differences in the mean contraband hit rates across time remains statistically significant.

Planned contrasts were obtained to compare the mean traffic arrest rates across time. The mean traffic arrest rates decreased between 2010 and 2019. The mean decrease is statistically significant in 2016 ($MD = 1.77$, $p = .02$), 2017 ($MD = 1.94$, $p = .02$), 2018 ($MD = 1.86$, $p = .04$), and 2019 ($MD = 1.84$, $p = .04$) when compared to 2010. Therefore, we reject the null hypothesis that there is no difference in mean traffic arrest rates across time. Thus, of the statistically significant time points in this study, the traffic arrest rates between 2016 and 2019 had significantly lower traffic arrest rates than in 2010. However, the mean differences in traffic arrest rates between 2015 and 2019, when compared to 2014, are not statistically significant.

Table 6

Mean Differences in Contraband Hit Rates

	Year																			
	2010		2011		2012		2013		2014		2015		2016		2017		2018		2019	
	MD	Sig.	*MD*	Sig.	*MD*	Sig.	*MD*	Sig.	*MD*	Sig.	*MD*	Sig.	*MD*	Sig.	*MD*	Sig.	*MD*	Sig.	*MD*	Sig.
2010	-	-	-.10	1.00	-.77	1.00	-2.53	1.00	-3.33	.69	**-6.73**	**.001**	**-12.35**	**.001**	**-15.04**	**.001**	**-13.76**	**.001**	**-12.91**	**.001**
2011	.10	1.00	-	-	-.67	1.00	-2.43	1.00	-3.23	.73	**-6.63**	**.001**	**-12.25**	**.001**	**-14.94**	**.001**	**-13.66**	**.001**	**-12.81**	**.001**
2012	.77	1.00	.67	1.00	-	-	-1.76	1.00	-2.56	1.00	**-5.96**	**.001**	**-11.58**	**.001**	**-14.27**	**.001**	**-12.99**	**.001**	**-12.14**	**.001**
2013	2.53	1.00	2.43	1.00	1.76	1.00	-	-	-.81	1.00	-4.20	.25	**-9.82**	**.001**	**-12.51**	**.001**	**-11.23**	**.001**	**-10.38**	**.001**
2014	3.33	.69	3.23	.73	2.56	1.00	.81	1.00	-	-	-3.40	.38	**-9.02**	**.01**	**-11.71**	**.001**	**-10.42**	**.001**	**-9.57**	**.001**
2015	**6.73**	**.001**	**6.63**	**.001**	**5.96**	**.001**	4.20	.25	3.40	.38	-	-	-5.62	.36	**-8.31**	**.001**	**-7.03**	**.001**	**-6.18**	**.04**
2016	**12.35**	**.001**	**12.25**	**.001**	**11.58**	**.001**	**9.82**	**.001**	**9.02**	**.01**	5.62	.36	-	-	-2.69	1.00	-1.41	1.00	-.55	1.00
2017	**15.04**	**.001**	**14.94**	**.001**	**14.27**	**.001**	**12.51**	**.001**	**11.71**	**.001**	**8.31**	**.001**	2.69	1.00	-	-	1.28	1.00	2.13	1.00
2018	**13.76**	**.001**	**13.66**	**.001**	**12.99**	**.001**	**11.23**	**.001**	**10.42**	**.001**	**7.03**	**.001**	1.41	1.00	-1.28	1.00	-	-	.85	1.00
2019	**12.91**	**.001**	**12.81**	**.001**	**12.14**	**.001**	**10.38**	**.001**	**9.57**	**.001**	**6.18**	**.04**	.55	1.00	-2.13	1.00	-.85	1.00	-	-

Conclusion of the Analysis

When evaluating data related to crime (i.e., total crime, violent crime, property crime, murder, and LEOKA, several conclusions may be drawn from the data. Alterations in crime were not found to be statistically significant, despite fluctuations in crime rates. In general, crime rates pertaining to total crime, property crimes, and LEOKA decreased over time. However, there has been a general upward trend in violent crimes and murder rates since 2013, with the largest increase occurring between 2014 and 2015.

The data pertaining to de-policing (i.e., criminal arrests, traffic stops, citation rates, search rates, contraband hit rates, and traffic stop arrests) produced mixed results. Decreases in criminal arrests, traffic stops, citation rates, contraband hit rates, and traffic arrest rates were statistically significant, indicating that the null hypothesis of no difference should be rejected. Mean differences in search rates were not statistically significant, causing us to fail to reject the null hypothesis of no difference. Therefore, data conclusions support the premise that the null hypothesis of no difference should be rejected as a majority of the variables analyzed demonstrated statistically significant mean differences across time. When viewing the aggregate data from the St. Louis, MO metropolitan area, one may conclude that the entire region has experienced statistically significant differences in policing activities, with no statistically significant difference in crime rates. Therefore, it may not be proved that there is a statistically significant relationship between crime and de-policing.

RQ2

RQ2 addressed how policing practices and crime different between regions for a given year. The research question builds upon the first research question by comparing regions at a specific point in time to identify regional differences in policing and crime. To evaluate whether the geographical differences in crime and policing existed within a given year, a one-way MANOVA was performed to assess the 11 continuous dependent variables (i.e., total crime, violent crime, property crime, murder, LEOKA, criminal and traffic arrests, traffic stops, citation rates, search rates, and contraband hit rates) across an eight-level factor of region using SPSS general linear model (GLM) with data derived from the MSHP UCR database and the MOAG VSR. An analysis using MANOVA was employed because it allowed me to assess 11 different dependent variables across a categorical fixed independent variable of region.

The variables and analysis are identical to those conducted for the first research question; however, data for this analysis were divided by region and compared for each year. The dependent variables of total crime, violent crime, property crime, murder were continuous measures of rates calculated based on population (i.e., rate per 1,000 residents), while LEOKA was a function of the number of LEOs for a given department. Criminal arrests and traffic stops comprised total outcomes measured. The dependent variables of citation rates, search rates, contraband hit rates, and vehicle stop arrests were expressed as a function of the total number of traffic stops (i.e., citations, searches, contraband hit rates, and vehicle stop arrests divided by the total number of traffic stops, respectively). The fixed factor (i.e., independent variable) was a categorical measure of region with eight levels within the St. Louis, MO metropolitan region: Jefferson County, St. Charles County, St. Louis City, St. Louis County, Unincorporated St. Louis County, St. Louis County – East-Central Corridor, North St. Louis County, South St. Louis County, and West St. Louis County. A separate analysis was conducted for each of the 10 years (i.e., 2010-2019) studied in this research study. Tables 7-16 depict the regional differences in each of the independent and dependent variables for each of the 10 years evaluated for this study.

The research question for this analysis is: *What are the annual differences in the quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries to law enforcement officers between geographical regions in the St. Louis, MO metropolitan area across time?* The null hypothesis is: *There are no annual differences in the quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries to law enforcement officers between geographical regions in the St. Louis, MO metropolitan area across time*. The alternative hypothesis is: *There are annual differences in the quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries to law enforcement officers between geographical regions in the St. Louis, MO metropolitan area across time.*

2010

Preliminary data screening did not indicate any serious violations of the assumption of multivariate normality or the assumption of linearity of associations between quantitative outcome variables. The Box *M* test and post hoc tests were not conducted because there were two instances where regions contained fewer than two measures (i.e., St. Louis city and unincorporated St. Louis County). For the overall MANOVA, all four multivariate tests were statistically significant (using $\alpha = .05$ as the criterion). For the crime and policing by region type interaction, Wilks' $\Lambda = .04$, approximate $F(11, 60) = 127.54$, $p < .001$. The corresponding η^2 effect size of .96 indicated a strong effect for this interaction. The low value associated with Wilks' Λ implies a strong association between crime and policing (i.e., dependent variables) and region type (Warner, 2013). The main effect for region type was also statistically significant, with $\Lambda = .01$, approximate $F(77, 366.99) = 5.33$, $p < .001$; this corresponded to a moderate effect size ($\eta^2 = .47$) with a moderate association. A pairwise comparison of means revealed statistically significant differences in means across the dependent variables associated with total crime, violent crime, property crime, criminal arrests, traffic stops, and the fixed factor (i.e., regions).

Table 7

Regional Differences in Policing and Crime for 2010

	Jefferson County			St. Charles County			St. Louis City			Unincorporated St. Louis County		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	31.3	9.3	8	26.6	18.5	8	105.9	-	1	24.3	-	1
Violent Crime	3.0	1.5	8	1.6	.4	8	19.4	-	1	2.4	-	1
Property Crime	28.2	8.7	8	25.0	18.3	8	86.5	-	1	21.9	-	1
Murder	.1	.3	8	.1	.2	8	4.5	-	1	.4	-	1
LEOKA	.2	.3	8	.2	.1	8	.3	-	1	.4	-	1
Criminal Arrests	1219.5	1689.2	8	1966.0	1818.0	8	24201.0	-	1	24239.0	-	1
Traffic Stops	3232.0	2909.7	8	8429.4	5029.8	8	72510.0	-	1	91091.0	-	1
Citation Rate	63.2	31.7	8	58.1	17.2	8	37.6	-	1	66.0	-	1
Search Rate	11.3	11.7	8	15.3	4.6	8	18.5	-	1	17.6	-	1
Contraband Hit Rate	16.3	9.5	8	26.8	9.9	8	14.3	-	1	21.6	-	1
Traffic Arrest Rate	5.1	4.3	8	5.5	1.9	8	4.6	-	1	5.5	-	1

Variable	East-Central Corridor *M*	*SD*	*N*	North St. Louis County *M*	*SD*	*N*	South St. Louis County *M*	*SD*	*N*	West St. Louis County *M*	*SD*	*N*	Total *M*	*SD*	*N*
Total Crime	28.2	23.0	13	51.4	26.9	37	22.1	1.3	2	21.0	11.7	8	39.4	26.3	78
Violent Crime	1.4	1.1	13	9.2	9.0	37	.9	1.3	2	.8	.4	8	5.4	7.4	78
Property Crime	26.9	22.3	13	42.2	20.0	37	21.2	2.7	2	20.2	11.7	8	34.0	20.7	78
Murder	.1	.3	13	1.8	5.7	37	.6	.8	2	.1	.4	8	1.0	4.0	78
LEOKA	.1	.2	13	.2	.2	37	.1	.1	2	.1	.1	8	.2	.2	78
Criminal Arrests	636.6	503.2	13	937.6	937.9	37	250.5	326.0	2	731.7	356.8	8	1580.1	3851.7	78
Traffic Stops	4858.0	2302.6	13	3217.4	3311.3	37	1888.5	2421.8	2	5823.0	4283.9	8	6275.0	12960.1	78
Citation Rate	69.8	14.2	13	76.7	25.4	37	62.3	4.3	2	75.5	16.5	8	71.1	23.1	78
Search Rate	6.2	4.1	13	9.7	7.4	37	6.5	.6	2	7.0	3.0	8	9.7	7.2	78
Contraband Hit Rate	18.2	6.8	13	17.1	11.3	37	4.4	6.2	2	16.6	5.0	8	17.8	10.1	78
Traffic Arrest Rate	2.9	1.7	13	5.8	4.0	37	2.8	3.1	2	4.6	1.6	8	5.0	3.4	78

Total Crime. The main effect for total crime per 1,000 residents was statistically significant, where $F(7, 70) = 4.61$, $p < .001$, $\eta^2 = .32$. For the variable, total crime, there was a statistically significant difference between St. Louis City and St. Charles County ($MD = 79.26$, $p = .05$), the East-Central Corridor of St. Louis County ($MD = 77.68$, $p = .05$), and West St. Louis County ($MD = 84.95$, $p = .02$). A statistically significant difference in total crime is also present between North St. Louis County and West St. Louis County ($MD = 30.44$, $p = .03$). While there is a statistically significant difference between regional means ($M = 39.4$), there is less of a difference between North St. Louis County ($M = 51.4$) and West St. Louis County ($M = 21.0$) and St. Louis City ($M = 105.9$) and West St. Louis County. The significance, then, is indicative of greater differences in total crime in the city of St. Louis as compared to St. Charles County and West St. Louis County.

Violent Crime. The main effect for violent crime per 1,000 residents was statistically significant, where $F(5, 70) = 4.51$, $p < .001$, $\eta^2 = .31$. For the variable, violent crime, there was a statistically significant difference between St. Charles County ($MD = 7.58$, $p = .10$), East-Central Corridor ($MD = 7.83$, $p = .01$), and West St. Louis County ($MD = 8.43$, $p = .04$) when compared to North St. Louis County when adjusting the *p*-value to .10. The most significant difference lies between West St. Louis County ($M = 0.8$) and North St. Louis County ($M = 9.2$) when evaluating regional means ($M = 5.4$). The difference in means in St. Charles County ($M = 1.6$) and the East-Central Corridor

(*M* = 1.4), though significant when compared to North St. Louis County, were less than the observed values for West St. Louis County.

Property Crime. The main effect for property crime per 1,000 residents was statistically significant, where $F(7, 70) = 3.64$, $p = .01$, $\eta^2 = .27$. When adjusting the *p*-value to .10, there is a statistically significant difference in the means of property crimes in St. Charles County (*MD* = 61.47, *p* = .07), the East-Central Corridor (*MD* = 59.60, *p* = .08), and West St. Louis County (*MD* = 66.26, *p* = .04) when compared to St. Louis City. There is also a statistically significant difference of means between North St. Louis County and West St. Louis County (*MD* = 22.01, *p* = .01). The greatest difference in means occurs between West St. Louis County (*M* = 20.2) and St. Louis City (*M* = 86.5, though there are significant differences found in the East-Central Corridor (*M* = 26.9) and St. Charles County (*M* = 25.0) when compared to the region (*M* = 34.0). The mean value of property crime in North St. Louis County (*M* = 42.2) was also significantly above the regional mean. Therefore, one may conclude that West St. Louis County experienced the lowest property crime when compared to St. Louis City and North St. Louis County.

Murder. The main effect for murders per 10,000 residents was not statistically significant, where $F(7, 70) = .55$, $p = .79$, $\eta^2 = .05$. Therefore, there were no observable differences in murder rates between regions. Murder rates in St. Louis City (*M* = 4.5) and North St. Louis County (*M* = 1.8) were noted to be significantly higher than any other region analyzed and when compared to the regional mean (*M* = 1.0). In 2010, the entire region recorded 193 murders, 144 of which occurred in the city of St. Louis.

LEOKA. The main effect for LEOKA per total number of officers employed at a given department was not statistically significant, where $F(7, 70) = .82$, $p = .58$, $\eta^2 = .08$. Therefore, there were no observable differences in LEOKA between regions. Mean rates for LEOKA in 2010 were lowest in South St. Louis County ($M = 0.1$) and highest in the independent city of St. Louis ($M = 0.3$) and unincorporated St. Louis County ($M = 0.4$). Moreover, most regions did not differ significantly from the regional mean ($M = 0.2$). Of all the 1258 law enforcement officers assaulted in 2010, only one officer was killed in the line of duty.

Criminal Arrests. The main effect for criminal arrests was statistically significant, where $F(7, 70) = 134.94$, $p < .001$, $\eta^2 = .93$. There was a statistically significant difference between St. Louis City and Jefferson County ($MD = 22981.50$, $p < .001$), St. Charles County ($MD = 22235.00$, $p < .001$), the East-Central Corridor ($MD = 23564.39$, $p < .001$), North St. Louis County ($MD = 23263.41$, $p < .001$), South St. Louis County ($MD = 23950.50$, $p < .001$), and West St. Louis County ($MD = 23469.25$, $p < .001$). There were also statistically significant differences in criminal arrests in unincorporated St. Louis County and Jefferson County ($MD = 23019.50$, $p < .001$), St. Charles County ($MD = 22273.00$, $p < .001$), the East-Central Corridor ($MD = 23602.39$, $p < .001$), North St. Louis County ($MD = 23301.41$, $p < .001$), South St. Louis County ($MD = 23988.50$, $p < .001$), and West St. Louis County ($MD = 23507.25$, $p < .001$). The most significant differences were experienced in South St. Louis County ($M = 250.5$) when compared to St. Louis City ($M = 24201.0$) and unincorporated St. Louis County (M

= 24239.0). The disparity in means is also prevalent when analyzing the other mean values for criminal arrests in the region (*M* = 1580.08): Jefferson County (*M* = 1219.5), St. Charles County (*M* = 1966.0), the East-Central Corridor (*M* = 636.6), North St. Louis County (*M* = 937.6), and West St. Louis County (*M* = 731.8). While the population differences associated with the law enforcement agencies between South St . Louis County and other regions may explain the mean difference when compared to other regions, differences in the population do not necessarily account for the statistically significant differences between other regions when compared to St. Louis City or unincorporated St. Louis County.

Traffic Stops. The main effect for traffic stops were statistically significant, where $F(7, 70) = 146.00$, $p < .001$, $\eta^2 = .94$. There was a statistically significant difference between St. Louis City and Jefferson County (*MD* = 69278.00, $p < .001$), St. Charles County (*MD* = 64080.63, $p < .001$), unincorporated St. Louis County (*MD* = 18581.00, $p < .001$), the East-Central Corridor (*MD* = 67652.00, $p < .001$), North St. Louis County (*MD* = 69292.57, $p < .001$), South St. Louis County (*MD* = 70.621.50, $p < .001$), and West St. Louis County (*MD* = 66687.00, $p < .001$). There were also statistically significant differences found between unincorporated St. Louis County and Jefferson County (*MD* = 87859.00, $p < .001$), St. Charles County (*MD* = 82661.63, $p < .001$), the East-Central Corridor (*MD* = 86233.00, $p < .001$), North St. Louis County (*MD* = 87873.57, $p < .001$), South St. Louis County (*MD* = 89202.50, $p < .001$), and West St. Louis County (*MD* = 85288.00, $p < .001$). Statistically significant differences in means of traffic stops conducted were also observed between North St. Louis County and St. Charles County (*MD* = 5211.94, $p = .01$). The most significant differences was noted between unincorporated St. Louis County (*M* = 91091.0) and Jefferson (*M* = 3232.0), North St. Louis Counties (*M* = 3217.4) and South St. Louis County (*M* = 1888.5), especially when compared to the regional mean (*M* = 6275.0). A disparity in means was also observable in St. Charles County (*M* = 8429.4), the East-Central Corridor, West St. Louis County (*M* = 5823.0), and the independent city of St. Louis (*M* = 72510.0). Differences in traffic stops, then, in the region were found to vary significantly.

Citation Rates. The main effect for citations issued per traffic stop was not statistically significant, where $F(7, 70) = 1.22$, $p = .301$, $\eta^2 = .11$. Therefore, there were no observable statistically significant differences in the citation rates between regions. The fewest mean number of citations were issued in St. Louis City (*M* = 37.6), while the most were issued in West (*M* = 75.5) and North (*M* = 76.7) St. Louis County, which greatly differed from the regional mean (*M* = 71.1).

Search Rates. The main effect for searches conducted per traffic stop was not statistically significant, where $F(7, 70) = 1.93$, $p = .07$, $\eta^2 = .16$. Therefore, there were no observable differences in search rates between regions. Mean search rates were lowest in the East-Central Corridor (*M* = 6.2), South St. Louis County (*M* = 6.5), West St. Louis County (*M* = 7.0) and highest in St. Charles County (*M* = 15.3), unincorporated St. Louis County (*M* = 17.5), and St. Louis City (*M* = 18.5), which differed significantly from the regional mean (*M* = 9.7).

Contraband Hit Rates. The main effect for contraband hits per traffic stop was not statistically significant, where $F(7, 70) = 1.62$, $p = .34$, $\eta^2 = .10$. Therefore, there were no statistically significant observable differences in contraband hit rates between regions. Most of the regional contraband hit rates were at or near the regional mean ($M = 17.9$); however, search rates were much lower in South St. Louis County ($M = 4.4$) when compared to unincorporated St. Louis County ($M = 21.6$) and St. Charles County ($M = 26.8$).

Traffic Arrest Rates. The main effect for arrests per traffic stop was not statistically significant, where $F(7, 70) = 1.15$, $p = .34$, $\eta^2 = .10$. Therefore, there were no observable differences in traffic arrest rates between regions. Traffic arrest rates were significantly lower in South St. Louis County ($M = 2.76$) and the East-Central Corridor ($M = 2.9$) when compared to the region ($M = 5.0$), as well as to unincorporated St. Louis County ($M = 5.5$), St. Charles County ($M = 5.5$), and North St. Louis County ($M = 5.8$).

Conclusion. When evaluating crime and policing rates across regions in 2010, there were statistically different rates of total crime, violent crime, and property crime, with the most significant differences occurring between the independent city of St. Louis and North St. Louis County when compared to West St. Louis County. Observable differences were also found in St. Charles County and the East Central Corridor when compared to St. Louis City and North St. Louis County. No statistically significant differences were found in murder rates per 10,000 persons or LEOKA rates. When evaluating data related to policing, regional differences were only identified in the mean differences of criminal arrests and traffic stops, which were not adjusted for population. The most considerable differences were observed between the City of St. Louis and unincorporated St. Louis County and the rest of the region. All other measures of policing being equal, it is evident that crime rates are higher in St. Louis City and North County, lowest in West St. Louis County, and levels of policing across the region are relatively constant in 2010, indicating no regional disparities in policing.

2011

Preliminary data screening did not indicate any serious violations of the assumption of multivariate normality or the assumption of linearity of associations between quantitative outcome variables. The Box *M* test and post hoc tests were not conducted because there were two instances where regions contained fewer than two measures (i.e., St. Louis city and unincorporated St. Louis County). For the overall MANOVA, all four multivariate tests were statistically significant (using $\alpha = .05$ as the criterion). For the crime and policing by region type interaction, Wilks' $\Lambda = .04$, approximate $F(11, 77) = 142.94$, $p < .001$. The corresponding η^2 effect size of .96 indicated a strong effect for this interaction. The low value associated with Wilks' Λ implies a strong association between crime and policing (i.e., dependent variables) and region type (Warner, 2013). The main effect for region type was also statistically significant, with $\Lambda = .01$, approximate $F(77, 378.97) = 5.58$, $p < .001$; this corresponded to a moderate effect size ($\eta^2 = .48$) with a moderate association.

Table 8

Regional Differences in Policing and Crime for 2011

	Jefferson County			St. Charles County			St. Louis City			Unincorporated St. Louis County		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	31.3	12.3	9	28.8	19.2	8	99.6	.	1	23.6	.	1
Violent Crime	2.9	2.0	9	1.5	.9	8	18.6	.	1	2.3	.	1
Property Crime	28.2	11.3	9	27.3	19.6	8	81.0	.	1	21.3	.	1
Murder	0	0	9	0	.1	8	3.6	.	1	.4	.	1
LEOKA	.2	.3	9	.2	.2	8	.3	.	1	.3	.	1
Criminal Arrests	1128.0	1488.1	9	2132.3	1638.3	8	26842.0	.	1	26468.0	.	1
Traffic Stops	3709.9	3294.0	9	8855.5	5336.7	8	73720.0	.	1	89151.0	.	1
Citation Rate	72.4	17.8	9	57.1	19.0	8	34.0	.	1	68.2	.	1
Search Rate	12.7	14.5	9	13.7	6.5	8	27.6	.	1	17.5	.	1
Contraband Hit Rate	17.1	10.9	9	25.7	8.0	8	17.7	.	21.9	21.6	.	1
Traffic Arrest Rate	5.7	5.1	9	4.7	1.4	8	5.0	.	1	6.0	.	1

	East-Central Corridor			North St. Louis County			South St. Louis County			West St. Louis County			Total		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	29.7	25.1	13	50.6	22.5	38	16.3	9.3	2	21.9	14.8	8	39.4	24.3	80
Violent Crime	1.3	1.1	13	8.2	6.6	38	.7	.4	2	.7	.4	8	5.0	5.9	80
Property Crime	28.5	24.4	13	42.4	18.2	38	14.9	8.2	2	21.1	14.7	8	34.4	20.4	80
Murder	.1	.3	13	1.2	2.7	38	0	0	2	.1	.3	8	.7	1.9	80
LEOKA	.1	.2	13	.3	.4	38	.1	.1	2	0	0	8	.2	.3	80
Criminal Arrests	679.8	580.6	13	1008.6	1040.8	38	255.5	313.2	2	743.3	354.8	8	1676.7	4171.6	80
Traffic Stops	4779.5	2602.3	13	3174.8	3417.1	38	1924.0	2450.8	2	5657.4	4140.5	8	6237.3	12773.8	80
Citation Rate	67.7	15.1	13	73.0	30.6	38	71.5	10.7	2	73.2	16.9	8	69.9	24.6	80
Search Rate	6.1	3.5	13	8.1	7.5	38	5.52	2.1	2	5.7	2.3	8	8.9	8.1	80
Contraband Hit Rate	17.6	6.7	13	16.1	12.2	38	4.0	5.7	2	18.7	6.6	8	17.5	10.5	80
Traffic Arrest Rate	2.7	1.6	13	5.5	5.2	38	2.4	2.7	2	3.7	1.5	8	4.7	4.2	80

Total Crime. The main effect for total crime per 1,000 residents was statistically significant, where $F(7, 72) = 4.84$, $p < .001$, $\eta^2 = .32$. There was a statistically significant difference between St. Louis City and South St. Louis County (*MD* = 83.28, $p = .05$) and West St. Louis County (*MD* = 77.75, $p = .02$). There was also a statistically significant difference between the means of North St. Louis County and West St. Louis County (*MD* = 28.73, $p = .02$). The most significant differences were noted between St. Louis City (*M* = 99.6) and South St. Louis County (*M* = 16.3). A lesser difference is also present between St. Louis City and West St. Louis County (*M* = 21.9) as well as between North St. Louis County (*M* = 50.6) and West St. Louis County, especially when considering the regional mean (*M* = 39.4). In other words, the greatest differences in means of total crime lie between St. Louis City and South St. Louis County. While South St. Louis County is policed by two agencies, adding statistics for all of unincorporated St. Louis County, which comprises a large portion of the Southern part of St. Louis County, does not greatly alter the mean difference indicating a disparity in total crime between the independent city of St. Louis and South St. Louis County.

Violent Crime. The main effect for violent crime per 1,000 residents was statistically significant, where $F(7, 72) = 6.75$, $p < .001$, $\eta^2 = .40$. There was a statistically significant difference between St. Louis City and St. Charles County (*MD* = 17.13, $p = .03$), the East-Central Corridor (*MD* = 17.38, $p = .02$), and West St. Louis County (*MD* = 17.1392, $p = .02$). There was a statistically significant difference between North St. Louis County and St. Charles County (*MD* = 6.72, $p = .02$), the East-Central Corridor (*MD* =

6.97, $p = .01$), and West St. Louis County ($MD = 7.51$, $p = .01$). The largest mean differences lies between St. Louis City ($M = 18.6$) and West St. Louis County ($M = 0.7$). Less of a mean difference lies between North St. Louis County ($M = 8.2$) when compared to St. Charles County ($M = 1.50$), the East-Central Corridor ($M = 1.3$), and the entire region ($M = 5.0$). In other words, St. Louis City has the highest rates of violent crime per 1,000 residents, while West St. Louis County has the lowest levels.

Property Crime. The main effect for property crime per 1,000 residents was statistically significant, where $F(7, 72) = 3.38$, $p = .01$, $\eta^2 = .25$. There was a statistically significant difference between St. Louis City and West St. Louis County ($MD = 59.84$, $p = .09$) when adjusting the p-value to a .10 level of significance. When comparing the means of property crime per 1,000 residents in St. Louis City ($M = 81.0$) with West St. Louis County ($M = 21.1$) and the entire region ($M = 34.4$), the disparity becomes obvious.

Murder. The main effect for murders per 10,000 residents was not statistically significant, where $F(7, 72) = 1.34$, $p = .25$, $\eta^2 = .12$. Therefore, there were no observable differences in murder rates per 10,000 residents between regions. In 2011, the entire region experienced 161 murders, with 114 murders taking place in the city of St. Louis—a decrease when compared to 2010. Nonetheless, mean murder rates in the city of St. Louis ($M = 3.6$) and North St. Louis County ($M = 1.2$) were much greater than the regional mean ($M = 0.7$).

LEOKA. The main effect for LEOKA per total number of officers employed at a given department was not statistically significant, where $F(7, 72) = 0.84$, $p = .56$, $\eta^2 =$

.08. Therefore, there were no observable differences in LEOKA rates between regions. The mean rate of LEOKA did not vary significantly across the region (M = 0.20) where South (M = 0.1) and West (M = 0.1) St. Louis County experienced the lowest levels and St. Louis City (M = 0.3) and unincorporated St. Louis County (M = 0.3) had the highest mean rates of LEOKA. In 2011, only one law enforcement officer was killed in the line of duty, despite 1264 law enforcement officers injured or assaulted during the year.

Criminal Arrests. The main effect for criminal arrests was statistically significant, where $F(7, 72) = 162.99$, $p < .001$, $\eta^2 = .94$. There was a statistically significant difference between St. Louis City and St. Charles County (MD = 24709.75, $p < .001$), the East-Central Corridor (MD = 26162.23, $p < .001$), North St. Louis County (MD = 25833.45, $p < .001$), South St. Louis County (MD = 26586.50, $p < .001$), and West St. Louis County (MD = 26098.75, $p < .001$). There was a statistically significant difference between unincorporated St. Louis County and Jefferson County (MD = 25340.00, $p < .001$) St. Charles County (MD = 24335.75, $p < .001$), the East-Central Corridor (MD = 25788.23, $p < .001$), North St. Louis County (MD = 25459.48, $p < .001$), South St. Louis County (MD = 26212.50, $p < .001$), and West St. Louis County (MD = 25724.75, $p < .001$). The largest means difference lies between St. Louis City (M = 26842.0) and St. Louis County (M = 255.5), the East-Central Corridor (M = 679.8), and West St. Louis County (M = 743.3). The means of Jefferson County (M = 1128.0), St. Charles County (M = 2132.3), and North St. Louis County (M = 1008.6) are also of significance. When comparing the means of the total number of criminal arrests across the region (*M* = 1676.7), the number of agencies, population, and law enforcement officers policing the region may be an underlying factor in the mean disparity of criminal arrests.

Traffic Stops. The main effect for traffic stops was statistically significant, where $F(7, 72) = 132.98$, $p < .001$, $\eta^2 = .93$. There was a statistically significant difference between St. Louis City and Jefferson County (*MD* = 70010.11, $p < .001$), St. Charles County (*MD* = 64864.50, $p < .001$), the East-Central Corridor (*MD* = 68940.54, $p < .001$), North St. Louis County (*MD* = 70545.34, $p < .001$), South St. Louis County (*MD* = 71796.00, $p < .001$), and West St. Louis County (*MD* = 68062.63, $p < .001$). Statistically significant differences also lie between unincorporated St. Louis County and Jefferson County (*MD* = 85441.11, $p < .001$), St. Charles County (*MD* = 80295.50, $p < .001$), the East-Central Corridor (*MD* = 84371.54, $p < .001$), North St. Louis County (*MD* = 85976.24, $p < .001$), South St. Louis County (*MD* = 87277.00, $p < .001$), and West St. Louis County (*MD* = 83493.63, $p < .001$). The greatest differences of means lies between unincorporated St. Louis County (*M* = 89151.00) and Jefferson County (*M* = 3709.9), St. Charles County (*M* = 80295.5), the East-Central Corridor (*M* = 4779.5), North St. Louis County (*M* = 3174.8), South St. Louis County (*M* = 1924.0), and West St. Louis County (*M* = 5657.4). In other words, the difference between unincorporated St. Louis County and the rest of the region (*M* = 6237.3) is greater than the difference between St. Louis City (*M* = 73720.0) and the rest of the region.

Citation Rates. The main effect for citations issued per traffic stop was not statistically significant, where $F(7, 72) = 0.74$, $p = .64$, $\eta^2 = .07$. Therefore, there were no observable differences in the number of citations issued per traffic stop between regions. The highest mean rate of citations issued was found in Jefferson County ($M = 72.4$), North St. Louis County ($M = 73.0$), and West St. Louis County ($M = 73.2$), while the mean rate of citations issued was lowest in St. Louis City ($M = 34.0$), especially when considering the regional mean ($M = 69.9$).

Search Rates. The main effect for searches conducted per traffic stop was statistically significant, where $F(7, 72) = 2.35$, $p = .03$, $\eta^2 = .19$. However, when reviewing the regional pairwise comparison of regions, none of the interactions was significant even when adjusting the *p*-value upward to .10. Mean search rates in South ($M = 5.5$) and West ($M = 5.7$) were far lower than the regional mean ($M = 8.9$) as well as the mean search rate in the independent city of St. Louis ($M = 27.6$).

Contraband Hit Rates. The main effect for contraband hits per traffic stop was not statistically significant, where $F(7, 72) = 1.34$, $p = .24$, $\eta^2 = .12$. Therefore, there were no observable differences in contraband hit rates per traffic stop between regions. Contraband hit rates varied significantly from the regional mean ($M = 17.5$) in South St. Louis County ($M = 4.0$) and St. Charles County ($M = 25.7$) and unincorporated St. Louis County ($M = 21.9$).

Traffic Arrest Rates. The main effect for arrests per traffic stop was not statistically significant, where $F(7, 72) = 0.85$, $p = .55$, $\eta^2 = .07$. Therefore, there were no observable differences in traffic arrests per traffic stop between regions. Traffic arrest rates were significantly lower in South St. Louis County (*M* = 2.4) and the East-Central Corridor (*M* = 2.7) when compared to the region (*M* = 4.7) and North St. Louis County (*M* = 5.5), Jefferson County (*M* = 5.7), and unincorporated St. Louis County (*M* = 6.0).

Conclusion. While criminal arrest rates and traffics stops were measured as total counts, one would expect a mean disparity across regions. However, crime rates (i.e., total, violent, and property crime), which were measured per 1,000 residents, did vary significantly across regions indicating measurable differences between the regions of St. Louis County. The most significant differences in crime were found between St. Louis City and South and West St. Louis County. Elevated crime rates were also observed in North St. Louis County, where levels of policing were at or near the mean for the region.

2012

Preliminary data screening did not indicate any serious violations of the assumption of multivariate normality or the assumption of linearity of associations between quantitative outcome variables. The Box *M* test and post hoc tests were not conducted because there were two instances where regions contained fewer than two measures (i.e., St. Louis city and unincorporated St. Louis County). For the overall MANOVA, all four multivariate tests were statistically significant (using $\alpha = .05$ as the criterion). For the crime and policing by region type interaction, Wilks' $\Lambda = .05$, approximate $F(10, 63) = 122.35$, $p < .001$. The corresponding η^2 effect size of .95 indicated a strong effect for this interaction. The low value associated with Wilks' Λ

implies a strong association between crime and policing (i.e., dependent variables) and region type (Warner, 2013). The main effect for region type was also statistically significant, with $\Lambda = .01$, approximate $F(70, 374.17) = 5.75$, $p < .001$; this corresponded to a moderate effect size ($\eta^2 = .46$) with a moderate association

Total Crime. The main effect for total crime per 1,000 residents was statistically significant, where $F(7, 72) = 2.78$, $p = .01$, $\eta^2 = .21$. However, when reviewing the regional pairwise comparison of regions, none of the interactions was significant even when adjusting the *p*-value upward to .10. Total crime was highest in the city of St. Louis ($M = 87.3$) and North St. Louis County ($M = 48.3$). The lowest mean levels of total crime were noted in South St. Louis County ($M = 15.9$), West St. Louis County ($M = 20.4$), and unincorporated St. Louis County ($M = 21.0$), especially when considering the mean for the region ($M = 37.6$).

Violent Crime. The main effect for violent crime per 1,000 residents was statistically significant, where $F(7, 72) = 2.77$, $p = .01$, $\eta^2 = .21$. However, when reviewing the regional pairwise comparison of regions, none of the interactions was significant even when adjusting the *p*-value upward to .10. Mean levels of violent crime were highest in the city of St. Louis ($M = 17.73$) and North St. Louis County ($M = 9.4$), when compared to the region ($M = 5.5$), West ($M = 0.8$) and South ($M = 1.1$) St. Louis County, the East-Central Corridor ($M = 1.5$), and St. Charles County ($M = 1.6$).

Table 9

Regional Differences in Policing and Crime for 2012

	Jefferson County			St. Charles County			St. Louis City			Unincorporated St. Louis County		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	30.5	13.6	9	25.5	11.9	8	87.3	.	1	21.0	.	1
Violent Crime	2.5	1.2	9	1.6	1.1	8	17.7	.	1	2.2	.	1
Property Crime	28.0	12.8	9	23.9	11.1	8	69.6	.	1	18.8	.	1
Murder	.1	.2	9	0	.1	8	3.5	.	1	.2	.	1
LEOKA	.2	.2	9	.2	.2	8	.4	.	1	.3	.	1
Criminal Arrests	1090.3	1658.9	9	2216.4	1587.8	8	24966.0	.	1	26231.0	.	1
Traffic Stops	389.1	3512.0	9	8440.4	4801.9	8	64084.0	.	1	90528.0	.	1
Citation Rate	69.0	18.3	9	52.9	19.1	8	32.5	.	1	68.2	.	1
Search Rate	11.0	10.8	9	18.4	17.5	8	33.1	.	1	16.7	.	1
Contraband Hit Rate	20.4	5.3	9	27.8	7.8	8	15.7	.	1	21.9	.	1
Traffic Arrest Rate	5.2	2.7	9	6.9	5.9	8	5.5	.	1	5.5	.	1

	East-Central Corridor			North St. Louis County			South St. Louis County			West St. Louis County			Total		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	30.0	34.6	13	48.3	28.0	38	15.8	4.6	2	20.4	15.3	8	37.6	27.6	80
Violent Crime	1.5	1.1	13	9.3	11.6	38	1.1	.4	2	.8	.4	8	5.5	9.0	80
Property Crime	28.5	33.6	13	39.0	19.8	38	14.7	5.0	2	19.6	14.9	8	32.1	14.9	80
Murder	.4	1.0	13	1.9	5.6	38	.6	.8	2	0	0	8	1.1	4.0	80
LEOKA	.2	.2	13	.2	.4	38	0	.1	2	0	0	8	.2	.3	80
Criminal Arrests	647.4	604.2	13	1023.7	1170.9	38	262	335.2	2	742.4	364.5	8	1656.5	4037.0	80
Traffic Stops	4684.5	2682.6	13	3066.5	3400.3	38	1939.5	2544.9	2	6275.1	4366.4	8	6099.0	12276.4	80
Citation Rate	68.6	16.6	13	67.4	34.4	38	80.0	19.2	2	71.7	12.5	8	66.7	26.9	80
Search Rate	6.3	4.9	13	8.0	8.8	38	6.2	.2	2	5.6	2.5	8	9.2	10.0	80
Contraband Hit Rate	18.9	8.2	13	14.9	13.1	37	5.7	8.1	2	21.6	6.6	8	18.0	11.1	80
Traffic Arrest Rate	2.4	1.5	13	4.8	5.5	38	3.3	1.6	2	3.5	1.3	8	4.6	4.5	80

Property Crime. The main effect for property crime per 1,000 residents was not statistically significant, where $F(7, 72) = 1.97$, $p = .07$, $\eta^2 = .16$. Therefore, there were no observable differences in rates of property crime per 1,000 residents between regions. Similar to other types of crime, mean rates of property crime were higher in the city of St. Louis ($M = 69.6$) and North St. Louis County ($M = 39.0$) when compared to the region ($M = 32.1$), South St. Louis County ($M = 14.7$), unincorporated St. Louis County ($M = 18.8$), and West St. Louis County ($M = 19.6$).

Murder. The main effect for murders per 10,000 residents was not statistically significant, where $F(7, 72) =0 .58$, $p = .77$, $\eta^2 = .05$. Therefore, there were no observable differences in murder rates per 10,000 residents between regions. Consistent with previous years, mean murder rates in St. Louis City ($M = 3.4$) and North St. Louis County ($M = 1.3$) were higher than the regional mean ($M = 1.1$) and the means for West St. Louis County ($M = 0.0$), St. Charles County ($M = 0.1$), and Jefferson County ($M = 0.1$). Moreover, the entire metropolitan region experienced 167 murders, a slight increase over 2011, with 113 of the murders committed in the city of St. Louis.

LEOKA. The main effect for LEOKA per total number of officers employed at a given department was not statistically significant, where $F(7, 72) = 0.48$, $p = .84$, $\eta^2 = .05$. Therefore, there were no observable differences in LEOKA rates between regions. Mean rates of LEOKA varied little across the region ($M = 0.2$), where the fewest mean rate of assaults occurred in South ($M = 0.1$) and West ($M = 0.1$) St. Louis County, and the highest mean were found in unincorporated St. Louis County (*M* = 0.3) and St. Louis City (*M* = 0.4). No officers were killed in the line of duty during 2012.

Criminal Arrests. The main effect for criminal arrests was statistically significant, where $F(7, 72) = 127.93$, $p < .001$, $\eta^2 = .93$. There was a statistically significant difference in criminal arrests in Jefferson County (*MD* = 23875.67, *p* < .001; *MD* = 25140.67, *p* < .001), St. Charles County (*MD* = 22749.63, *p* < .001; *MD* = 24014.63, *p* < .001), the East-Central Corridor (*MD* = 24318.62, *p* < .001; *MD* = 25583.62, *p* < .001), North St. Louis County (*MD* = 23942.26, *p* < .001; *MD* = 25207.26, *p* < .001), South St. Louis County (*MD* = 24704.00, *p* < .001; *MD* = 25969.00, *p* < .001), and West St. Louis County (*MD* = 24223.63, *p* < .001; *MD* = 25488.63, *p* < .001) when compared to St. Louis City and unincorporated St. Louis County, respectively. When evaluating the means, there appears to be a wide variance between St. Louis City (*M* = 24966.0) and unincorporated St. Louis County (*M* = 26231.0) and Jefferson County (*M* = 1090.33), St. Charles County (*M* = 2216.4), the East-Central Corridor (*M* = 647.4), North St. Louis County (*M* = 1023.7), South St. Louis County (*M* = 262.0), West St. Louis County (*M* = 742.4), and the entire region (*M* = 1656.5). The largest variance in criminal arrests, therefore, is between West St. Louis County, the East-Central Corridor, and South St. Louis County and unincorporated St. Louis County and the independent city of St. Louis.

Traffic Stops. The main effect for traffic stops was statistically significant, where $F(7, 72) = 123.68$, $p < .001$, $\eta^2 = .92$. There was a statistically significant difference in traffic stops in Jefferson County (*MD* = 60274.89, $p < .001$; *MD* = 86718.89, $p < .001$), St. Charles County (*MD* = 55643.63, $p < .001$; *MD* = 82087.63, $p < .001$), the East-Central Corridor (*MD* = 59399.54, $p < .001$; *MD* = 85843.54, $p < .001$), North St. Louis County (*MD* = 61017.50, $p < .001$; *MD* = 87461.50, $p < .001$), South St. Louis County (*MD* = 62144.50, $p < .001$; *MD* = 88588.50 $p < .001$), and West St. Louis County (*MD* = 57808.88, $p < .001$; *MD* = 84252.88, $p < .001$) when compared to St. Louis City and unincorporated St. Louis County, respectively. There was a statistically significant difference in traffic stops between St. Charles County and North St. Louis County (*MD* = 5373.88, $p = .01$). There appears to be a wide variance in mean levels of traffic stops between St. Louis City (*M* = 64084.0) and unincorporated St. Louis County (*M* = 90528.0) and the mean for the region (*M* = 6099.0), Jefferson County (*M* = 3809.1), St. Charles County (*M* = 8440.4), the East-Central Corridor (*M* = 4684.5), North St. Louis County (*M* = 3066.5), South St. Louis County (*M* = 1939.5), and West St. Louis County (*M* = 6275.1). A significant difference was also observed when comparing North St. Louis County to St. Charles County. Also of note is the low number of traffic stops conducted in North St. Louis County when compared to the rest of the region.

Citation Rates. The main effect for citations issued per traffic stop was not statistically significant, where $F(7, 72) = 0.64$, $p = .72$, $\eta^2 = .21$. Therefore, there were no observable differences in the number of citations issued per traffic stop between regions. Consistent with previous years, St. Louis City (*M* = 32.5) issued the lowest mean number of citations when compared to the region (*M* = 66.7) and West (*M* = 71.7) and South (*M* = 80.0) St. Louis County.

Search Rates. The main effect for searches conducted per traffic stop was statistically significant, where $F(7, 72) = 2.66$, $p = .02$, $\eta^2 = .21$. However, when reviewing the regional pairwise comparison of regions, none of the interactions was significant even when adjusting the *p*-value upward to .10. Search rates were below the regional mean (*M* = 9.2) in West St. Louis County (*M* = 5.60), West St. Louis County (*M* = 6.2), and the East-Central Corridor (*M* = 6.3) and well above the regional mean in St. Charles County (*M* = 18.4) and St. Louis City (*M* = 33.1).

Contraband Hit Rates. The main effect for contraband hits per traffic stop was not statistically significant, where $F(7, 72) = 2.02$, $p = .06$, $\eta^2 = .16$. Therefore, there were no observable differences in contraband hit rates between regions. Searches yielded the highest mean rates of contraband in St. Charles County (*M* = 27.8), unincorporated St. Louis County (*M* = 21.9), and West St. Louis County (*M* = 21.6). Contraband hit rates were far below the regional mean (*M* = 18.0) in South St. Louis County (*M* = 5.7).

Traffic Arrest Rates. The main effect for arrests per traffic stop was not statistically significant, where $F(7, 72) = 0.87$, $p = .53$, $\eta^2 = .08$. Therefore, there were no observable differences in the number of traffic arrest rates between regions. Mean rates for traffic arrests were below the regional mean (*M* = 4.55) in the East-Central Corridor (*M* = 2.5) and South (*M* = 3.3) and West (*M* = 3.5) St. Louis County and above the regional mean in St. Charles County (*M* = 6.9), unincorporated St. Louis County (*M* = 5.5), St. Louis City (*M* = 5.5), and Jefferson County (*M* = 5.2).

Conclusion. No statistically significant regional variances in crime rates were observed in 2013. Moreover, consistent with previous years, the mean differences in criminal arrests and traffics stops made across the region varied the greatest between the independent city of St. Louis and unincorporated St. Louis County and the rest of the region. All other measures of policing (i.e., citation rates, search rates, contraband hit rates, and traffic arrests) appear to be constant across the region.

2013

Preliminary data screening did not indicate any serious violations of the assumption of multivariate normality or the assumption of linearity of associations between quantitative outcome variables. The Box *M* test and post hoc tests were not conducted because there were two instances where regions contained fewer than two measures (i.e., St. Louis city and unincorporated St. Louis County). For the overall MANOVA, all four multivariate tests were statistically significant (using $\alpha = .05$ as the criterion). For the crime and policing by region type interaction, Wilks' $\Lambda = .04$, approximate $F(10, 62) = 129.86$, $p < .001$. The corresponding η^2 effect size of .95 indicated a strong effect for this interaction. The low value associated with Wilks' Λ implies a strong association between crime and policing (i.e., dependent variables) and region type (Warner, 2013). The main effect for region type was also statistically significant, with $\Lambda = .01$, approximate $F(70, 368.34) = 5.68$, $p < .001$; this corresponded to a moderate effect size ($\eta^2 = .46$) with a moderate association.

Total Crime. The main effect for total crime per 1,000 residents was statistically significant, where $F(7, 71) = 4.27$, $p = .01$, $\eta^2 = .30$. There was a statistically significant difference in total crime in North St. Louis County when compared to St. Charles County ($MD = 25.20$, $p = .05$) and West St. Louis County ($MD = 25.79$, $p = .04$). The greatest mean differences of significance, then, are between North St. Louis County ($M = 45.7$) and West St. Louis County ($M = 19.9$), though there is a similar means difference between North St. Louis County and St. Charles County ($M = 20.5$) as well. The mean level of total crime in the city of St. Louis ($M = 83.0$) was also well above the mean level for the entire metropolitan region ($M = 35.2$), though the difference was not considered significant compared to other regions. Moreover, the highest significant level of disparity lies between St. Louis City and North St. Louis County and West St. Louis and St. Charles Counties.

Table 10

Regional Differences in Policing and Crime for 2013

	Jefferson County			St. Charles County			St. Louis City			Unincorporated St. Louis County		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	31.7	16.8	9	20.5	8.5	8	83.0	.	1	20.00	.	1
Violent Crime	2.5	1.9	9	1.0	.7	8	16.0	.	1	2.3	.	1
Property Crime	29.2	16.9	9	19.6	8.5	8	67.0	.	1	17.7	.	1
Murder	.1	.3	9	.1	.1	8	3.8	.	1	.2	.	1
LEOKA	.1	.2	9	.2	.1	8	.3	.	1	.3	.	1
Criminal Arrests	1113.1	1443.9	9	2147.0	1530.1	8	23620.0	.	1	232.65.0	.	1
Traffic Stops	4021.3	34462.5	9	8695.4	4630.5	8	67984.0	.	1	85895.0	.	1
Citation Rate	69.0	17.8	9	52.1	17.5	8	38.2	.	1	60.9	.	1
Search Rate	11.1	12.0	9	14.8	5.9	8	29.2	.	1	18.1	.	1
Contraband Hit Rate	22.9	8.9	9	27.8	11.6	8	13.7	.	1	19.0	.	1
Traffic Arrest Rate	6.2	3.3	9	5.6	2.3	8	5.2	.	1	5.2	.	1

	East-Central Corridor			North St. Louis County			South St. Louis County			West St. Louis County			Total		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	26.3	22.7	13	45.7	21.9	37	18.3	4.0	2	19.9	16.9	8	35.2	22.7	79
Violent Crime	1.2	.8	13	8.3	9.6	37	1.6	.7	2	.6	.2	8	4.8	7.6	79
Property Crime	25.1	22.0	13	37.4	17.2	37	16.6	4.7	2	19.3	16.9	8	30.4	18.7	79
Murder	.1	.1	13	2.3	11.0	37	0	0	2	.3	.6	8	1.2	7.6	79
LEOKA	.1	.1	13	.2	.2	37	0	.1	2	0	0	8	.1	.2	79
Criminal Arrests	590.2	562.7	13	909.8	1027.9	37	249.0	302.6	2	673.0	306.2	8	1544.8	3711.7	79
Traffic Stops	4714.2	2357.2	13	3195.9	3604.2	37	1537.0	2023.7	2	5889.4	4153.4	8	6193.4	12180.4	79
Citation Rate	70.1	16.5	13	68.7	34.5	37	70.9	5.1	2	71.1	13.9	8	67.1	26.6	79
Search Rate	5.2	5.1	13	7.5	8.5	37	5.6	1.0	2	5.9	2.3	8	8.5	8.4	79
Contraband Hit Rate	19.0	9.6	13	17.9	14.6	37	4.6	6.5	2	20.1	3.5	8	19.6	12.3	79
Traffic Arrest Rate	2.0	1.2	13	5.4	6.4	37	2.6	2.3	2	3.9	1.5	8	4.7	4.8	79

Property Crime. The main effect for property crime per 1,000 residents was statistically significant, where $F(7, 71) = 2.85$, $p = .01$, $\eta^2 = .22$. However, when reviewing the regional pairwise comparison of regions, none of the interactions was significant even when adjusting the *p*-value upward to .10. The mean levels of property crime were highest in St. Louis City ($M = 67.0$) and North St. Louis County ($M = 37.4$) and lowest in South St. Louis County ($M = 16.6$), unincorporated St. Louis County ($M = 17.7$), West St. Louis County ($M = 19.3$), and St. Charles County ($M = 19.6$), when compared to the regional mean ($M = 30.4$).

Murder. The main effect for murders per 10,000 residents was not statistically significant, where $F(7, 71) = 0.24$, $p = .97$, $\eta^2 = .02$. Therefore, there were no observable differences in murder rates per 10,000 residents between regions. In 2013, there were 166 murders, one fewer murder than in 2012. Of those homicides, 121 occurred in the city of St. Louis, an increase of eight murders over the previous year. Consistent with the high number of homicides, St. Louis City‘s ($M = 3.8$) mean murder rate was more than three times the regional mean ($M = 1.2$). North St. Louis County ($M = 2.3$) also experienced a high mean rate of homicides, especially when compared to South St. Louis County ($M = 0.0$), the East-Central Corridor ($M = 0.1$), and St. Charles County ($M = 0.1$).

LEOKA. The main effect for LEOKA per total number of officers employed at a given department was not statistically significant, where $F(7, 71) = 1.50$, $p = .18$, $\eta^2 = .13$. Therefore, there were no observable differences in LEOKA between regions. There was a decrease in the total number of LEOKA ($N = 1128$) in the region when compared to previous years, with no law enforcement officers killed in the line of duty. St. Louis City (*M* = 0.3) and unincorporated St. Louis County (*M* = 0.3) experienced rates well above the regional mean (*M* = 0.1), while West (*M* = 0.1) and South (*M* = 0.1) St. Louis County had rates below the regional mean.

Criminal Arrests. The main effect for criminal arrests was statistically significant, where $F(7, 71) = 133.93$, $p < .001$, $\eta^2 = .93$. There was a statistically significant difference in criminal arrests in St. Louis City and unincorporated St. Louis County, respectively, when compared to the Jefferson County (*MD* = 22506.89, $p < .001$; *MD* = 22151.89, $p < .001$), St. Charles County (*MD* = 21473.00, $p < .001$; *MD* = 21118.00, $p < .001$), the East-Central Corridor (*MD* = 23029.77, $p < .001$; *MD* = 22674.77, $p < .001$), North St. Louis County (*MD* = 22690.22, $p < .001$; *MD* = 22335.22, $p < .001$), South St. Louis County (*MD* = 23371.00, $p < .001$; *MD* = 23016.00, $p < .001$), and West St. Louis County (*MD* = 22506.89, $p < .001$; *MD* = 22506.89, $p < .001$). There is also a statistically significant difference in criminal arrests between St. Charles County and the East-Central Corridor (*MD* = 1556.77, $p < .001$). The greatest mean differences of significance in the total number of criminal arrests in the region is between South St. Louis County (*M* = 249.0), the East-Central Corridor (*M* = 590.23), and West St. Louis County (*M* = 673.0) when compared to the independent city of St. Louis (*M* = 23620.0), unincorporated St. Louis County (*M* = 23265.0), and the region (*M* = 1544.8), though the differences in criminal arrest rates in Jefferson (*M* = 1113.1), St. Charles (*M* = 2147.0) and North St. Louis Counties (*M* = 929.78) are also significant. In other words, the largest observed difference of significance is criminal arrests lies between the independent city of St. Louis and unincorporated St. Louis County and South St. Louis County, the East-Central Corridor, and West St. Louis County.

Traffic Stops. The main effect for traffic stops was statistically significant, where $F(7, 71) = 119.53$, $p < .001$, $\eta^2 = .92$. There was a statistically significant difference in traffic stops in St. Louis City and unincorporated St. Louis County, respectively, when compared to Jefferson County (*MD* = 63962.67, $p < .001$; *MD* = 81873.67, $p < .001$), St. Charles County (*MD* = 59298.63, $p < .001$; *MD* = 77209.63, $p < .001$), the East-Central Corridor (*MD* = 63269.77, p =.02; *MD* = 17911.00, $p < .001$), North St. Louis County (*MD* = 64788.08, $p < .001$; *MD* = 82699.08, $p < .001$), South St. Louis County (*MD* = 66447.00, $p < .001$; *MD* = 84358.00, $p < .001$), and West St. Louis County (*MD* = 62094.63, $p < .001$; *MD* = 80005.63, $p < .001$). There is also a statistically significant difference in traffic stops between St. Charles County and North St. Louis County (*MD* = 5489.46, $p < .001$). When viewing regional means, unincorporated St. Louis County (*M* = 85.895.0) and St. Louis city (*M* = 67984.0) had the highest mean value for traffic stops (*M* = 85.895.0), while South St. Louis County (*M* = 1537.0), North St. Louis County (*M* = 3195.9), Jefferson County (*M* = 4021.3), the East-Central Corridor (*M* = 4714.2), West St. Louis County (*M* = 5889.4), and St. Charles County (*M* = 8685.4) had the fewest mean traffic stops when considering the mean for the region (*M* = 6193.4). Therefore, the most statistically significant disparity lies between unincorporated St. Louis County and South and North St. Louis Counties.

Citation Rates. The main effect for citations issued per traffic stop was not statistically significant, where $F(7, 71) = 0.60$, $p = .76$, $\eta^2 = .06$. Therefore, there were no observable differences in the number of citations issued per traffic ticket between regions. Similar to previous years, St. Louis City ($M = 38.19$) issued a below-average number of citations per traffic stop when considering mean rates for the region ($M = 67.1$) as well as rates in the East-Central Corridor ($M = 70.1$) and South ($M = 70.9$) and West ($M = 71.1$) St. Louis County.

Search Rates. The main effect for searches conducted per traffic stop was statistically significant, where $F(7, 71) = 2.69$, $p = .02$, $\eta^2 = .21$. However, when reviewing the regional pairwise comparison of regions, none of the interactions was significant even when adjusting the *p*-value upward to .10. Mean search rates for the East-Central Corridor ($M = 5.2$) and South ($M = 5.6$) and West ($M = 5.9$) St. Louis County were also noted to be well below the regional mean ($M = 8.5$) and mean rates in unincorporated St. Louis County ($M = 18.1$) and St. Louis City ($M = 29.2$).

Contraband Hit Rates. The main effect for contraband hits per traffic stop was not statistically significant, where $F(7, 71) = 1.19$, $p = .32$, $\eta^2 = .11$. Therefore, there were no observable differences in contraband hit rates per traffic stop between regions. Less contraband was identified in traffic stops in South St. Louis County ($M = 4.6$) when compared to the entire region ($M = 19.6$) and Jefferson ($M = 22.9$) and St. Charles ($M = 27.8$) Counties.

Traffic Arrest Rates. The main effect for arrests per traffic stop was not statistically significant, where $F(7, 71) = 0.96$, $p = .47$, $\eta^2 = .09$. Therefore, there were no observable differences in traffic arrest rates per traffic stop between regions. The East-Central Corridor ($M = 2.0$) and South St. Louis County ($M = 2.6$) effected fewer arrests during traffic stops when compared to the entire region ($M = 4.7$) and mean rates in unincorporated St. Louis County ($M = 5.2$), St. Louis City ($M = 5.2$), North St. Louis County ($M = 5.4$), St. Charles ($M = 5.6$) and Jefferson ($M = 6.2$) Counties.

Conclusion. When comparing means for total crime, North St. Louis County demonstrated significantly higher means compared to West St. Louis and St. Charles Counties. Similarly, mean levels of violent crime were also statistically significant when comparing North St. Louis County to the East-Central Corridor and West St. Louis County. There were no statistically significant differences in means in property crime, murder, or LEOKA. Criminal arrests and traffic stops were also higher in the independent city of St. Louis and unincorporated St. Louis County when compared to the rest of the region, though this may be a function of agency size, policy, and resources rather than regional differences.

2014

Preliminary data screening did not indicate any serious violations of the assumption of multivariate normality or the assumption of linearity of associations between quantitative outcome variables. The Box *M* test and post hoc tests were not conducted because there were two instances where regions contained fewer than two measures (i.e., St. Louis city and unincorporated St. Louis County). For the overall MANOVA, all four multivariate tests were statistically significant (using $\alpha = .05$ as the criterion). For the crime and policing by region type interaction, Wilks' $\Lambda = .04$, approximate $F(10, 61) = 135.97$, $p < .001$. The corresponding η^2 effect size of .96 indicated a strong effect for this interaction. The low value associated with Wilks' Λ implies a strong association between crime and policing (i.e., dependent variables) and region type (Warner, 2013). The main effect for region type was also statistically significant, with $\Lambda = .02$, approximate $F(70, 362.51) = 5.10$, $p < .001$; this corresponded to a moderate effect size ($\eta^2 = .44$) with a moderate association.

Total Crime. The main effect for total crime per 1,000 residents was statistically significant, where $F(7, 70) = 4.33$, $p < .001$, $\eta^2 = .30$. There was a statistically significant difference in total crime in St. Louis City and North St. Louis County, respectively, when compared to West St. Louis County ($MD = 63.64$, $p = .05$; $MD = 25.95$, $p = .02$). The highest means for total crime per 1,000 residents in the region was found in the city of St. Louis ($M = 80.5$) and North St. Louis County ($M = 42.8$), the lowest levels of total crime are found in West St. Louis County ($M = 16.8$), which was well below the regional mean ($M = 32.8$).

Table 11

Regional Differences in Policing and Crime for 2014

	Jefferson County			St. Charles County			St. Louis City			Unincorporated St. Louis County		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	27.1	14.1	9	22.0	17.6	8	80.5	.	1	19.8	.	1
Violent Crime	2.7	1.9	9	1.4	1.0	8	16.9	.	1	2.9	.	1
Property Crime	24.4	13.4	9	20.6	16.6	8	63.6	.	1	17.0	.	1
Murder	0	.1	9	0	.1	8	5.0	.	1	.3	.	1
LEOKA	.2	.2	9	.2	.1	8	.3	.	1	.3	.	1
Criminal Arrests	1046.3	1317.2	9	1958.9	1414.4	8	19702.0	.	1	19783.0	.	1
Traffic Stops	3675.9	3763.5	9	9792.8	5384.1	8	57150.0	.	1	61592.0	.	1
Citation Rate	68.6	19.8	9	50.4	16.6	8	40.3	.	1	61.6	.	1
Search Rate	11.4	8.1	9	13.9	4.2	8	22.1	.	1	16.4	.	1
Contraband Hit Rate	20.9	5.7	9	30.6	8.2	8	11.9	.	1	21.2	.	1
Traffic Arrest Rate	5.7	2.4	9	5.0	1.8	8	4.5	.	1	5.0	.	1

	East-Central Corridor			North St. Louis County			South St. Louis County			West St. Louis County			Total		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	24.5	19.4	13	42.8	20.7	36	20.4	7.1	2	16.8	11.0	8	32.8	21.2	78
Violent Crime	1.2	1.2	13	7.2	7.2	36	2.9	2.8	2	.6	.2	8	4.4	5.8	78
Property Crime	23.3	18.4	13	25.6	16.6	36	17.5	9.9	2	16.2	11.0	8	28.4	17.5	78
Murder	0	0	13	2.3	5.5	36	0	0	2	0	0	8	1.1	3.9	78
LEOKA	0	.1	13	.2	.3	36	.1	.1	2	0	.1	8	.2	.2	78
Criminal Arrests	510.8	488.3	13	846.3	891.1	36	219.5	280.7	2	624.4	368.4	8	1373.3	3151.9	78
Traffic Stops	4147.0	1920.4	13	3323.8	3407.0	36	1689.5	2215.4	2	5867.0	4409.4	8	5821.1	9613.0	78
Citation Rate	68.9	14.9	13	69.8	30.0	36	70.0	8.0	2	71.8	9.9	8	67.3	23.8	78
Search Rate	4.1	3.6	13	8.9	9.1	36	7.3	3.3	2	4.7	2.4	8	8.7	7.8	78
Contraband Hit Rate	19.0	10.7	13	20.0	14.7	36	8.1	11.4	2	21.8	7.7	8	20.8	12.2	78
Traffic Arrest Rate	1.7	1.2	13	6.1	6.7	36	4.6	.4	2	3.2	1.4	8	4.8	5.0	78

Violent Crime. The main effect for violent crime per 1,000 residents was statistically significant, where $F(7, 70) = 4.18$, $p = .01$, $\eta^2 = .30$. There was a statistically significant difference in violent crime in North St. Louis County when compared to the East-Central Corridor (*MD* = 5.92, $p = .02$). At the same time, the largest mean difference lies between the independent city of St. Louis (*M* = 16.9) and West St. Louis County (*M* = 0.6), given the regional mean (*M* = 4.4). However, the most significant difference in means of violent crime per capita is present between the East-Central Corridor (*M* = 1.2) and North St. Louis County (*M* = 7.2).

Property Crime. The main effect for property crime per 1,000 residents was statistically significant, where $F(7, 70) = 3.13$, $p = .01$, $\eta^2 = .24$. However, when reviewing the regional pairwise comparison of regions, the mean differences in property crime between North St. Louis County and West St. Louis County (*MD* = 19.418, $p = .08$) were significant when adjusting the *p*-value upward to .10. Although the independent city of St. Louis has the highest property crime per capita (*M* = 63.6), given the regional mean (*M* = 28.4), the mean difference between North St. Louis County (*M* = 35.6) and West St. Louis County (*M* = 16.2) yields the most significant difference in property crime means.

Murder. The main effect for murders per 10,000 residents was not statistically significant, where $F(7, 70) = 1.05$, $p = .41$, $\eta^2 = .10$. Therefore, there were no observable differences in murder rates per 10,000 residents between regions. In 2014, homicide rates in the region rose significantly (*N* = 202) and were greater than each of the previous four years of this analysis. Of the number of homicides recorded in the region, the city of St. Louis logged 159 murders leading to the highest mean murder rate in the region (*M* = 5.0). North St. Louis County (*M* = 2.3) was more than twice the regional mean (*M* = 1.1) rate for murders. Moreover, three regions (i.e., the East-Central Corridor, South St. Louis County, and West St. Louis County) recorded no murders, yielding a zero mean.

LEOKA. The main effect for LEOKA per total number of officers employed at a given department was not statistically significant, where $F(7, 70) = 1.21$, $p = .31$, $\eta^2 = .11$. Therefore, there were no observable differences in LEOKA between regions. There was a decrease in the number of LEOKA in the region, with zero law enforcement officers killed in the line of duty that year. The mean rates for LEOKA were highest in the St. Louis City (*M* = 0.3) and unincorporated St. Louis County (*M* = 0.3) and lowest in the East-Central Corridor (*M* = 0.1) and West St. Louis County (*M* = 0.1) when compared to the regional mean (*M* = 0.2).

Criminal Arrests. The main effect for criminal arrests was statistically significant, where $F(7, 70) = 118.43$, $p < .001$, $\eta^2 = .92$. There was a statistically significant difference in criminal arrests in St. Louis City and unincorporated St. Louis County, respectively, when compared to the Jefferson County (*MD* = 18655.67, $p < .001$; *MD* = 18736.67 $p < .001$), St. Charles County (*MD* = 17743.13, $p < .001$; *MD* = 17824.13, $p < .001$), the East-Central Corridor (*MD* = 19191.23, $p < .001$; *MD* = 19272.23, $p < .001$), North St. Louis County (*MD* = 18855.67, $p < .001$; *MD* = 18936.67, $p < .001$), South St. Louis County (*MD* = 19482.50, $p < .001$; *MD* = 19563.50, $p < .001$), and West St. Louis County (*MD* = 19077.63, $p < .001$; *MD* = 19158.63, $p < .001$). There is also a statistically significant difference in criminal arrests between St. Charles County and the East-Central Corridor (*MD* = 1448.11, $p = .02$). The greatest mean number of criminal arrests were in unincorporated St. Louis County (*M* = 19783.0) and the independent city of St. Louis (*M* = 19702.0), respectively, because these regions are comprised of a single agency. When comparing the means of other agencies in the region (*M* = 1373.3), St. Charles County (*M* = 1958.9) had the highest mean when compared to Jefferson County (*M* = 1046.3). the East-Central Corridor (*M* = 510.8), North St. Louis County (*M* = 846.3), South St. Louis County (*M* = 219.5), and West St. Louis County (*M* = 624.4).

Traffic Stops. The main effect for traffic stops was statistically significant, where $F(7, 70) = 68.39$, $p < .001$, $\eta^2 = .87$. There was a statistically significant difference in traffic stops in St. Louis City and unincorporated St. Louis County, respectively, when compared to Jefferson County (*MD* = 53474.11, $p < .001$; *MD* = 57916.11, $p < .001$), St. Charles County (*MD* = 47357.20, $p < .001$; *MD* = 51799.25, $p < .001$), the East-Central Corridor (*MD* = 53003.00, $p < .001$; *MD* = 57445.00, $p < .001$), North St. Louis County (*MD* = 53826.25, $p < .001$; *MD* = 58268.25, $p < .001$), South St. Louis County (*MD* = 55460.50, $p < .001$; *MD* = 59902.50, $p < .001$), and West St. Louis County (*MD* = 51283.00, $p < .001$; *MD* = 55725.00, $p < .001$). There is also a statistically significant difference in traffic stops between St. Charles County and Jefferson County (*MD* = 6116.86, $p = .02$), the East-Central Corridor (*MD* = 5645.75, $p = .02$), and North St.

Louis County (*MD* = 6469.00, *p* =.01). When viewing regional means, unincorporated St. Louis County (*M* = 61592.0) and St. Louis city (*M* = 57150.0) had the highest mean rate of traffic stops, likely because the regions comprised of a single agency, while South St. Louis County (*M* = 1689.5), North St. Louis County (*M* = 3323.8), Jefferson County (*M* = 3675.9), the East-Central Corridor (*M* = 4147.0), West St. Louis County (*M* = 5867.0), and St. Charles County (*M* = 9792.8) had the fewest mean traffic stops when considering the region as a whole (*M* = 5821.1).

Citation Rates. The main effect for citations issued per traffic stop was not statistically significant, where $F(7, 70) = 1.22$, $p = .301$, $\eta^2 = .11$. Therefore, there were no observable differences in the number of traffic citations issued per traffic stop between regions. The mean rate of the number of citations issued per traffic stop were lowest in St. Louis City (*M* = 40.3) and St. Charles County (*M* = 50.4) when compared to the entire region (*M* = 67.3) and rates in the Jefferson County (*M* = 68.6), the East-Central Corridor (*M* = 69.0), and North (*M* = 69.8), South (*M* = 70.0) and West (*M* = 71.8) St. Louis County.

Search rates. The main effect for searches conducted per traffic stop was not statistically significant, where $F(7, 70) = 2.46$, $p = .53$, $\eta^2 = .08$. Therefore, there were no observable differences in search rates between regions. Mean search rates were well below the regional mean rate (*M* = 8.7) in the East-Central Corridor (*M* = 4.1) and West St. Louis County (*M* = 4.7) and above the regional mean in Jefferson County (*M* = 11.4), St. Charles County (*M* = 13.9), unincorporated St. Louis County (*M* = 16.4), and St. Louis City (*M* = 22.2).

Contraband Hit Rates. The main effect for contraband hits per traffic stop was not statistically significant, where $F(7, 70) = 1.22$, $p = .31$, $\eta^2 = .11$. Therefore, there were no observable differences in contraband hit rates between regions. Contraband hit rates in South St. Louis County (*M* = 8.1) and St. Louis City (*M* = 11.9) were below the mean for the region (*M* = 20.8), while hit rates in St. Charles County (*M* = 30.6) were significantly above the regional mean.

Traffic Arrest Rates. The main effect for arrests per traffic stop was not statistically significant, where $F(7, 70) = 1.26$, $p = .28$, $\eta^2 = .11$. Therefore, there were no observable differences in traffic arrest rates between regions. Mean levels of traffic arrest rates were far below the regional mean (*M* = 4.8) in the East-Central Corridor (*M* = 1.7) and well above the regional mean in Jefferson County (*M* = 5.7) and North St. Louis County.

Conclusion. Consistent with previous years, St. Louis City and County have the highest rates of criminal arrests and traffic stops due to a single agency when compared to multiple smaller agencies in the various regions. However, when viewing per capita crime rates, total crime, violent crime, and property crime rates in the independent city of St. Louis and North St. Louis County were consistently higher when compared to other regions. The most significant differences were present between North St. Louis County and West St. Louis County. In terms of measures of policing, there were no statistically significant differences among regions in citation, search, contraband hit, and traffic arrest rates across the region in 2014, despite wide variances in the rates.

2015

Preliminary data screening did not indicate any serious violations of the assumption of multivariate normality or the assumption of linearity of associations between quantitative outcome variables. The Box *M* test and post hoc tests were not conducted because there were two instances where regions contained fewer than two measures (i.e., St. Louis city and unincorporated St. Louis County). For the overall MANOVA, all four multivariate tests were statistically significant (using $\alpha = .05$ as the criterion). For the crime and policing by region type interaction, Wilks' $\Lambda = .04$, approximate $F(11, 59) = 137.82$, $p < .001$. The corresponding η^2 effect size of .96 indicated a strong effect for this interaction. The low value associated with Wilks' Λ implies a strong association between scores related to crime and policing (i.e., dependent variables) and region type (Warner, 2013). The main effect for region type was also statistically significant, with $\Lambda = .01$, approximate $F(77, 361.00) = 5.66$, $p < .001$; this corresponded to a moderate effect size ($\eta^2 = .49$) with a moderate association.

Total Crime. The main effect for total crime per 1,000 residents was statistically significant, where $F(7, 69) = 3.92$, $p = .01$, $\eta^2 = .29$. There was a statistically significant difference in total crime in North St. Louis County when compared to St. Charles County ($MD = 30.00$, $p = .04$). The highest means for total crime per 1,000 residents in the region ($M = 68.6$) 36.4) was found in the city of St. Louis ($M = 82.3$) and North St. Louis

County (M = 48.7), the lowest levels of total crime are found in St. Charles County (M = 18.7), West St. Louis County (M = 20.1), and South St. Louis County (M = 20.8).

Violent Crime. The main effect for violent crime per 1,000 residents was statistically significant, where $F(7, 69) = 2.42$, $p = .03$, $\eta^2 = .20$. However, when reviewing the regional pairwise comparison of regions, none of the interactions was significant even when adjusting the p-value upward to .10. As with other crime, mean levels of violent crime were lowest in Jefferson (M = 2.6) and St. Charles (M = 2.0) Counties as well as West St. Louis County (M = 0.7), when compared to the St. Louis City (M = 18.24) and North St. Louis County (M = 9.8), where crime levels are the highest per capita when considering the mean levels of violent crime for the region (M = 5.8).

Property Crime. The main effect for property crime per 1,000 residents was statistically significant, where $F(7, 69) = 3.42$, $p = .01$, $\eta^2 = .26$. There was a statistically significant difference in property crime in North St. Louis County when compared to St. Charles County (MD = 22.22, p = .04). The mean levels of property crime were lowest in St. Charles County (M = 16.7), unincorporated St. Louis County (M = 17.2), South St. Louis County (M = 17.5), and West St. Louis County (M = 19.4) when compared to the entire region (M = 30.7) as well as to St. Louis City (M = 64.4) and North St. Louis County (M = 38.9), where crime levels are the highest per capita.

Table 12

Regional Differences in Policing and Crime for 2015

	Jefferson County			St. Charles County			St. Louis City			Unincorporated St. Louis County		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	27.1	12.4	9	18.7	12.0	8	82.6	.	1	20.6	.	1
Violent Crime	2.6	1.9	9	2.0	2.9	8	18.2	.	1	3.5	.	1
Property Crime	24.5	11.9	9	16.7	9.8	8	64.4	.	1	17.2	.	1
Murder	.3	.6	9	.1	.1	8	5.9	.	1	.6	.	1
LEOKA	.1	.1	9	.1	.1	8	.3	.	1	.3	.	1
Criminal Arrests	901.1	1094.0	9	1700.1	1197.9	8	20866.0	.	1	17005.0	.	1
Traffic Stops	3482.4	3571.9	9	9254.8	5723.1	8	53897.0	.	1	56790.0	.	1
Citation Rate	63.0	19.7	9	47.3	15.6	8	41.5	.	1	56.1	.	1
Search Rate	13.1	9.6	9	14.5	3.7	8	20.3	.	1	16.5	.	1
Contraband Hit Rate	25.1	10.0	9	36.4	5.4	8	14.9	.	1	24.4	.	1
Traffic Arrest Rate	6.1	2.7	9	4.8	2.0	8	4.4	.	1	4.8	.	1

	East-Central Corridor			North St. Louis County			South St. Louis County			West St. Louis County			Total			
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*
Total Crime	29.5	25.1	12	48.7	27.1	36	20.8	9.5	2	20.1	11.6	8	36.4	25.7	77	
Violent Crime	1.6	1.7	12	9.8	12.5	36	3.3	2.2	2	.7	.4	8	5.8	9.6	77	
Property Crime	27.9	23.7	12	38.9	18.1	36	17.5	11.8	2	19.4	11.2	8	30.6	19.7	77	
Murder	0	.1	12	1.4	3.0	36	.6	.8	2	.2	.4	8	.8	2.2	77	
LEOKA	.1	.1	12	.2	.3	36	.3	.2	2	0	.1	8	.2	.2	77	
Criminal Arrests	428.8	456.5	12	601.8	722.7	36	212.5	276.5	2	533.6	292.5	8	1182.9	3047.3	77	
Traffic Stops	3471.0	1865.3	12	2618.7	3208.4	36	2073.5	2669.3	2	5187.3	3765.8	8	5164.1	9120.9	77	
Citation Rate	61.3	21.8	12	64.0	30.0	36	60.2	1.6	2	665.2	11.1	8	61.4	24.3	77	
Search Rate	5.1	3.9	12	9.4	9.4	36	7.7	3.9	2	6.1	4.2	8	9.5	8.1	77	
Contraband Hit Rate	19.9	12.7	12	23.4	17.1	36	6.9	9.8	2	23.8	10.4	8	23.9	14.5	77	
Traffic Arrest Rate	1.9	1.3	12	4.9	3.8	36	3.2	.7	2	2.8	1.2	8	4.3	3.1	77	

Murder. The main effect for murders per 10,000 residents was not statistically significant, where $F(7, 69) = 1.70$, $p = .12$, $\eta^2 = .15$. Therefore, there were no observable differences in murder rates per 10,000 residents between regions. Despite a lack of significance, mean murder rates per 10,000 residents varied between the East-Central Corridor and St. Charles County ($M = 0.0$ and $M = 0.1$), respectively, when compared to entire region ($M = 0.82$), North St. Louis County ($M = 1.4$), and the city of St. Louis ($M = 6.0$). Also, of note, murder rates increased across all regions in 2015, from 202 in 2014 to 261 in 2015, or a 29% increase in the number of homicides in the metropolitan area. St. Louis City experienced 188 murders in the calendar year 2015.

LEOKA. The main effect for LEOKA per total number of officers employed at a given department was not statistically significant, where $F(7, 69) = 1.11$, $p = .37$, $\eta^2 = .10$. Therefore, there were no observable differences in LEOKA between regions. The mean number of LEOKA in the region is relatively stable, ranging from the lowest mean level in West St. Louis County ($M = 0.0$) to the highest mean levels in St. Louis City ($M = 0.3$), unincorporated St . Louis County ($M = 0.3$), and South St. Louis County ($M = 0.3$). Of the 1068 LEOKAs in 2015, none were killed in the line of duty.

Criminal Arrests. The main effect for criminal arrests was statistically significant, where $F(7, 69) = 160.36$, $p < .001$, $\eta^2 = .94$. There was a statistically significant difference in criminal arrests in St. Louis City and unincorporated St. Louis County, respectively, when compared to the Jefferson County ($MD = 19964.89$, $p < .001$; $MD = 16103.89$ $p < .001$), St. Charles County ($MD = 19165.88$, $p < .001$; $MD =$

15304.88, $p < .001$), the East-Central Corridor (*MD* = 20437.25, $p < .001$; *MD* = 16576.25, $p < .001$), North St. Louis County (*MD* = 20264.17, $p < .001$; *MD* = 16403.17, $p < .001$), South St. Louis County (*MD* = 20653.50, $p < .001$; *MD* = 16792.50, $p < .001$), and West St. Louis County (*MD* = 20332.38, $p < .001$; *MD* = 16471.38, $p < .001$). There is also a statistically significant difference in criminal arrests between the independent city of St. Louis and unincorporated St. Louis County (*MD* = 3861.00, $p = .02$), and St. Charles County and the East-Central Corridor (*MD* = 1271.38 $p = .02$) and North St. Louis County (*MD* = 1098.29, $p = .01$). Moreover, criminal arrest rates were highest in St. Louis City (*M* = 20866.0) and unincorporated St. Louis County (*M* = 17005.0) due to rates for a single agency. However, when comparing the means for the region (*M* = 1183.0), South St. Louis County (*M* = 252.5), the East-Central Corridor (*M* = 428.8), West St. Louis County (*M* = 533.6), and North St. Louis County (*M* = 601.8) had the fewest mean number of criminal arrests in the region.

Traffic Stops. The main effect for traffic stops was statistically significant, where $F(7, 69) = 164.67$ $p < .001$, $\eta^2 = .87$. There was a statistically significant difference in traffic stops in St. Louis City and unincorporated St. Louis County, respectively, when compared to Jefferson County (*MD* = 50414.56, $p < .001$; *MD* = 53307.56, $p < .001$), St. Charles County (*MD* = 44642.25, $p < .001$; *MD* = 47535.25, $p < .001$), the East-Central Corridor (*MD* = 50426.00, $p < .001$; *MD* = 53319.00, $p < .001$), North St. Louis County (*MD* = 51278.33, $p < .001$; *MD* = 54171.33, $p < .001$), South St. Louis County (*MD* = 51823.50, $p < .001$; *MD* = 54716.50, $p < .001$), and West St. Louis County (*MD* =

48709.75, $p < .001$; *MD* = 51602.75, $p < .001$). There is also a statistically significant difference in traffic stops between St. Charles County and Jefferson County (*MD* = 5772.31, $p = .03$), the East-Central Corridor (*MD* = 5783.75, $p = .02$), and North St. Louis County (*MD* = 6636.08, $p < .001$). When viewing regional means, unincorporated St. Louis County (*M* = 56790.0) and St. Louis city (*M* = 53897.0) had the rate of traffic stops, likely because the regions comprised of a single agency, while South St. Louis County (*M* = 2073.5), North St. Louis County (*M* = 2618.7), the East-Central Corridor (*M* = 3471.0), Jefferson County (*M* = 3482.4), West St. Louis County (*M* = 5187.3, and St. Charles County (*M* = 9254.8) had the fewest mean traffic stops when compared to the entire region (*M* = 5164.1).

Citation Rates. The main effect for citations issued per traffic stop was not statistically significant, where $F(7, 69) = 0.56$, $p = .79$, $\eta^2 = .05$. Therefore, there were no observable differences in the number of citations issued per traffic stop between regions. When considering the mean citation rates for the entire region (*M* = 61.4), the fewest mean rate for issuing citations occurred in St. Louis City (*M* = 41.5) and St. Charles County (*M* = 47.3), while the highest mean number of citations were issued in Jefferson County (*M* = 63.0), North St. Louis County (*M* = 64.0), and West St. Louis County (*M* = 65.2).

Search Rates. The main effect for searches conducted per traffic stop was not statistically significant, where $F(7, 69) = 1.90$, $p = .08$, $\eta^2 = .16$. Therefore, there were no observable differences in search rates between regions. Given the mean search rate for the region (*M* = 9.5), the greatest mean search rates per traffic stop were found in St. Louis City (*M* = 20.3), while the lowest mean search rates occurred in the East-Central Corridor (*M* = 5.1) and West St. Louis County (*M* = 6.1).

Contraband Hit Rates. The main effect for contraband hits per traffic stop was not statistically significant, where $F(7, 69) = 1.52$, $p = .18$, $\eta^2 = .13$. Therefore, there were no observable differences in contraband hit rates between regions. The lowest mean levels of contraband hits were found in South St. Louis County (*M* = 6.9), while the highest rates were found in St. Charles County (*M* = 36.5) when comparing the regions to the mean contraband hit rate for the entire region (*M* = 23.9).

Traffic Arrest Rates. The main effect for arrests per traffic stop was statistically significant, where $F(7, 69) = 2.20$, $p = .04$, $\eta^2 = .18$. However, when reviewing the regional pairwise comparison of regions, two sets of the interactions were significant when adjusting the *p*-value upward to .10. The mean levels of traffic arrest rates between Jefferson County and the East-Central Corridor (*MD* = 4.23, $p = .06$) and North St. Louis County and the East-Central Corridor (*MD* = 3.09, $p = .08$). The lowest mean number of traffic arrest rates effected in the East-Central Corridor (*M* = 1.9), and West St. Louis County (*M* = 2.9) and the highest mean traffic arrest rates occurring in Jefferson County (*M* = 6.1) when compared to the entire region (*M* = 4.3).

Conclusion. As crime rates trended upward across the entire metropolitan region, St. Louis City and North St. Louis County experienced the highest total crime, violent crime, property crime, and murder rates. However, there were only statistically significant differences in mean levels of total and property crime between North St. Louis County and St. Charles County. Crime rates were also found to be the lowest in West St. Louis County, the East-Central Corridor, and St. Charles County. Criminal arrests and traffic stops were also varied across the region with statistically significant mean differences between St. Charles County and the East-Central Corridor, North St. Louis County, and West St. Louis County. St. Charles County also issued a low number of citations while conducting a higher-than-average mean number of searches per traffic stop, achieving the highest mean number of contraband hits, and a higher than average arrest rate per traffic stop. Conversely, North St. Louis County agencies effected considerably fewer traffic stops and criminal arrests and issued fewer citations.

2016

Preliminary data screening did not indicate any serious violations of the assumption of multivariate normality or the assumption of linearity of associations between quantitative outcome variables. The Box *M* test and post hoc tests were not conducted because there were two instances where regions contained fewer than two measures (i.e., St. Louis city and unincorporated St. Louis County). For the overall MANOVA, all four multivariate tests were statistically significant (using $\alpha = .05$ as the criterion). For the crime and policing by region type interaction, Wilks' $\Lambda = .03$, approximate $F(11, 56) = 154.68$, $p < .001$. The corresponding η^2 effect size of .97 indicated a strong effect for this interaction. The low value associated with Wilks' Λ implies a strong association between crime and policing (i.e., dependent variables) and region type (Warner, 2013). The main effect for region type was also statistically significant, with Λ = .01, approximate F(77, 343.02) = 6.15, p < .001; this corresponded to a moderate effect size (η2 = .52) with a moderate association.

Total Crime. The main effect for total crime per 1,000 residents was statistically significant, where $F(7, 66) = 3.28$, $p = .01$, $\eta^2 = .26$. However, when reviewing the regional pairwise comparison of regions, none of the interactions was significant even when adjusting the *p*-value upward to .10. Given the overall mean levels of total crime for the region (*M* = 44.9), the mean levels of total crime remained the highest for the independent city of St. Louis (*M* = 80.0) and North St. Louis County (*M* = 44.9) and the lowest in South (*M* = 16.4) and West (*M* = 20.5) St. Louis County.

Violent Crime. The main effect for violent crime per 1,000 residents was statistically significant, where $F(7, 66) = 6.54$ $p < .001$, $\eta^2 = .41$. There was a statistically significant difference in mean values of violent crime in St. Louis City and North St. Louis County, respectively, when compared to the Jefferson County (*MD* = 16.81, *p* = .05; *MD* = 6.18 *p* = .04), St. Charles County (*MD* = 17.98, *p* = .03; *MD* = 7.34, *p* = .01), the East-Central Corridor (*MD* = 17.52, *p* = .03; *MD* = 6.89, *p* = .01), and West St. Louis County (*MD* = 18.54, *p* = .02; *MD* = 7.91, *p* = .01). The highest means for violent crime per capita were seen in the independent city of St. Louis (*M* = 19.3) and North St. Louis County (*M* = 8.6) and the lowest were found in West St. Louis County (*M* = 0.7), St. Charles County (*M* = 1.3), and the East-Central Corridor (*M* = 1.7), given the regional mean (*M* = 4.9).

Table 13

Regional Differences in Policing and Crime for 2016

	Jefferson County			St. Charles County			St. Louis City			Unincorporated St. Louis County		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	26.0	12.6	9	22.2	18.8	8	80.0	.	1	22.7	.	1
Violent Crime	2.4	1.7	9	1.3	.6	8	19.2	.	1	3.9	.	1
Property Crime	23.6	11.9	9	18.7	12.8	8	60.7	.	1	18.9	.	1
Murder	.4	.8	9	.2	.2	8	6.1	.	1	.6	.	1
LEOKA	.1	.1	9	.1	.1	8	.3	.	1	.3	.	1
Criminal Arrests	909.4	901.7	9	1639.1	1083.7	8	20626.0	.	1	19660.0	.	1
Traffic Stops	3801.7	4167.0	9	7719.9	4504.8	8	51806.0	.	1	59616.0	.	1
Citation Rate	60.8	17.5	9	46.6	15.2	8	45.6	.	1	63.2	.	1
Search Rate	13.7	9.3	9	17.2	6.6	8	15.6	.	1	13.5	.	1
Contraband Hit Rate	27.2	12.9	9	43.3	26.1	8	15.4	.	1	27.3	.	1
Traffic Arrest Rate	5.7	1.7	9	5.3	2.3	8	3.2	.	1	4.5	.	1

Variable	East-Central Corridor			North St. Louis County			South St. Louis County			West St. Louis County			Total		
	M	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	32.3	23.1	13	44.9	23.1	32	16.4	5.2	2	20.5	14.3	8	34.7	22.8	74
Violent Crime	1.7	1.5	13	8.6	7.0	32	2.0	1.2	2	.7	.4	8	4.9	6.1	74
Property Crime	30.6	21.8	13	36.6	18.2	32	14.4	6.3	2	19.7	14.2	8	29.5	18.4	74
Murder	.0	.0	13	4.3	12.3	32	.0	.0	2	.0	.0	8	2.0	8.3	74
LEOKA	.1	.1	13	.2	.2	32	.1	.2	2	.1	.1	8	.2	.2	74
Criminal Arrests	377.2	371.2	13	530.1	771.7	32	142.5	178.9	2	487.0	299.6	8	1184.2	3280.1	74
Traffic Stops	2942.8	1869.0	13	3067.0	3535.4	32	1793.0	2279.7	2	4535.1	3680.6	8	5184.6	9253.3	74
Citation Rate	56.4	21.9	13	64.7	27.9	32	67.4	4.7	2	56.4	9.2	8	59.7	22.6	74
Search Rate	5.2	3.8	13	9.0	9.8	32	3.2	3.5	2	5.2	2.4	8	9.4	8.6	74
Contraband Hit Rate	33.0	17.3	13	27.9	20.4	32	12.9	18.2	2	27.5	16.8	8	29.8	19.4	74
Traffic Arrest Rate	1.5	1.0	13	4.0	3.0	32	2.2	3.1	2	3.1	1.4	8	3.8	2.6	74

Property Crime. The main effect for property crime per 1,000 residents was statistically significant, where $F(7, 66) = 2.40$, $p = .03$, $\eta^2 = .20$. However, when reviewing the regional pairwise comparison of regions, none of the interactions was significant even when adjusting the *p*-value upward to .10. Considering the regional mean property crime rate per 1,000 residents ($M = 29.5$), the city of St. Louis ($M = 60.2$) and North St. Louis County ($M = 36.3$) were above the mean for the region, while South St. Louis County ($M = 14.4$), St. Charles County ($M = 18.7$), unincorporated St. Louis County ($M = 18.9$, and West St. Louis County ($M = 19.8$) were all below the regional mean.

Murder. The main effect for murders per 10,000 residents was not statistically significant, where $F(7, 66) = 0.65$, $p = .71$, $\eta^2 = .07$. Therefore, there were no observable differences in murder rates per 10,000 residents between regions. Given the mean murder rate for the region ($M = 2.0$), homicide rates in the city of St. Louis ($M = 6.0$) and North St. Louis County ($M = 4.3$) were significantly greater than the rest of the region. For the third straight year, homicide rates increased. Of the 269 homicides in the region, 188 occurred in the city of St. Louis, which was no change over the previous year.

LEOKA. The main effect for LEOKA per total number of officers employed at a given department was not statistically significant, where $F(7, 66) = 0.99$, $p = .46$, $\eta^2 = .10$. Therefore, there were no observable differences in LEOKA between regions. The mean values for LEOKA were relatively stable and were lowest in West St. Louis County ($M = 0.1$) and highest in unincorporated St. Louis County ($M = 0.3$) and St. Louis City

(*M* = 0.3) when compared to the regional mean (*M* = 0.2). Despite an overall decrease in LEOKA since 2010, one law enforcement officer was killed in the line of duty.

Criminal Arrests. The main effect for criminal arrests was statistically significant, where $F(7, 66) = 199.17$, $p < .001$, $\eta^2 = .96$. There was a statistically significant difference in criminal arrests in St. Louis City and unincorporated St. Louis County, respectively, when compared to the Jefferson County (*MD* = 19716.56, $p < .001$; *MD* = 18750.56, $p < .001$), St. Charles County (*MD* = 18986.88, $p < .001$; *MD* = 18020.88, $p < .001$), the East-Central Corridor (*MD* = 20248.85, $p < .001$; *MD* = 19282.85, $p < .001$), North St. Louis County (*MD* = 20095.91, $p < .001$; *MD* = 19129.91, $p < .001$), South St. Louis County (*MD* = 20483.50, $p < .001$; *MD* = 19517.50, $p < .001$), and West St. Louis County (*MD* = 20139.00, $p < .001$; *MD* = 19173.00, $p < .001$). There is also a statistically significant difference in criminal arrests between St. Charles County and the East-Central Corridor (*MD* = 1261.97, $p = .01$) and North St. Louis County (*MD* = 1109.03, $p = .01$). Although the city of St. Louis (*M* = 20626.0) and unincorporated St. Louis County (*M* = 19660.0) had the highest number of criminal arrests, there was a significant mean difference between South St. Louis County (*M* = 142.5), the East Central Corridor (*M* = 377.2), West St. Louis County (*M* = 487.0), and North St. Louis County (*M* = 530.1) when compared to St. Charles County (*M* = 1639.1), when compared to the mean for the entire metropolitan area (*M* = 1184.2).

Traffic Stops. The main effect for traffic stops was statistically significant, where $F(7, 66) = 63.30$, $p < .001$, $\eta^2 = .87$. There was a statistically significant difference in traffic stops in St. Louis City and unincorporated St. Louis County, respectively, when compared to Jefferson County (*MD* = 44004.33, $p < .001$; *MD* = 55814.33, $p < .001$), St. Charles County (*MD* = 44086.13, $p < .001$; *MD* = 51896.13, $p < .001$), the East-Central Corridor (*MD* = 48863.23, $p < .001$; *MD* = 56673.23, $p < .001$), North St. Louis County (*MD* = 48739.03, $p < .001$; *MD* = 56549.03, $p < .001$), South St. Louis County (*MD* = 50013.00, $p < .001$; *MD* = 57823.00, $p < .001$), and West St. Louis County (*MD* = 47270.88, $p < .001$; *MD* = 55080.88, $p < .001$). There is also a statistically significant difference in traffic stops between St. Charles County and North St. Louis County (*MD* = 4652.91, $p = .04$). The mean number of traffic stops conducted in the region in 2016 was the lowest since 2010 (*M* = 5184.6), where St. Louis City (*M* = 51806.0) and unincorporated St. Louis County (*M* = 59616.0) effected the highest mean number of traffic stops and South St. Louis County (*M* = 1793.0), the East-Central Corridor (*M* = 2942.8), North St. Louis County (*M* = 3067.0), and Jefferson County (*M* = 3801.7) conducted the fewest mean number traffic stops.

Citation Rates. The main effect for citations issued per traffic stop was not statistically significant, where $F(7, 66) = 0.74$, $p = .64$, $\eta^2 = .07$. Therefore, there were no observable differences in the number of citations issued per traffic strop between regions. Mean citation rates in St. Louis City (*M* = 45.7) and St. Charles County (*M* = 46.6) were the lowest when compared to North (*M* = 64.7) and South (*M* = 67.4) St. Louis County, given the regional mean (*M* = 59.7).

Search Rates. The main effect for searches conducted per traffic stop was statistically significant, where $F(7, 66) = 2.58$, $p = .02$, $\eta^2 = .22$. There was a statistically significant difference in traffic stops between St. Charles County and the East-Central Corridor ($MD = 11.95$, $p = .04$), indicating a disparity in mean search rates between the two regions. Moreover, search rates were found to be the highest in Jefferson ($M = 13.7$) and St. Charles ($M = 17.2$) Counties, St. Louis City ($M = 15.6$), and unincorporated St. Louis County ($M = 13.5$) and lowest in South St. Louis County ($M = 3.2$), the East-Central Corridor ($M = 5.2$), and West St. Louis County ($M = 5.2$) when compared to the entire region ($M = 9.4$).

Contraband Hit Rates. The main effect for contraband hits per traffic stop was not statistically significant, where $F(7, 66) = 0.98$, $p = .45$, $\eta^2 = .09$. Therefore, there were no observable differences in contraband hit rates between regions. The region with the greatest contraband hit rate mean was St. Charles County ($M = 43.3$), while the lowest mean contraband hit rates were experienced in South St. Louis County ($M = 12.9$) and the independent city of St. Louis ($M = 15.4$), which differed significantly from the regional mean ($M = 29.8$).

Traffic Arrest Rates. The main effect for arrests per traffic stop was statistically significant, where $F(7, 66) = 3.21$, $p = .01$ $\eta^2 = .25$. There was a statistically significant difference in traffic stops between Jefferson and St. Charles Counties, respectively, and the East-Central Corridor ($MD = 4.12$, $p = .01$; $MD = 3.76$, $p = .02$). In other words, more traffic arrests were made per traffic stop in Jefferson and St. Charles Counties when compared to the East-Central Corridor. Additionally, mean traffic arrest rates were lowest in the East-Central Corridor (*M* = 1.5) and highest in St. Charles (*M* = 5.3) and Jefferson (*M* = 5.7) Counties, respectively, given the regional mean (*M* = 3.8).

Conclusion. Consistent with previous years, the highest levels of crime were found in North St. Louis County and the independent city of St. Louis, while the lowest levels of crime were generally found in the East-Central Corridor and South and West St. Louis County. Measures of policing (i.e., arrests, traffic stops, citation, search, contraband hit, and vehicle stop arrest rates) varied among regions. However, the regions with the fewest number of criminal and traffic arrests, traffic stops, and vehicle searches were the East-Central Corridor and South St. Louis County. Criminal arrests, traffic stops, vehicle searches, and contraband hit rates were also below regional means in North St. Louis County.

2017

Preliminary data screening did not indicate any serious violations of the assumption of multivariate normality or the assumption of linearity of associations between quantitative outcome variables. The Box *M* test and post hoc tests were not conducted because there were two instances where regions contained fewer than two measures (i.e., St. Louis city and unincorporated St. Louis County). For the overall MANOVA, all four multivariate tests were statistically significant (using $\alpha = .05$ as the criterion). For the crime and policing by region type interaction, Wilks' $\Lambda = .04$, approximate $F(11, 53) = 125.58$, $p < .001$. The corresponding η^2 effect size of .96

indicated a strong effect for this interaction. The low value associated with Wilks' Λ implies a strong association between crime and policing (i.e., dependent variables) and region type (Warner, 2013). The main effect for region type was also statistically significant, with $\Lambda = .01$, approximate $F(77, 325.04) = 5.80$, $p < .001$; this corresponded to a moderate effect size ($\eta^2 = .52$) with a moderate association.

Total Crime. The main effect for total crime per 1,000 residents was statistically significant, where $F(7, 63) = 3.46$, $p = .01$, $\eta^2 = .28$. However, when reviewing the regional pairwise comparison of regions, several interactions became significant when adjusting the *p*-value upward to .10. When comparing the independent city of St. Louis to Jefferson (*MD* = 58.27 $p = .10$) and St. Charles (*MD* = 61.24, $p = .10$) Counties and West St. Louis County (*MD* = 62.94, $p = .05$), the interactions were significant. St. Louis City's mean rate of total crime (*M* = 82.6) was far above the mean rate for the region (*M* = 31.1), while South (*M* = 16.4) and West (*M* = 19.7) St. Louis County were well below the mean rate of total crime per 1,000 persons. Jefferson (*M* = 24.3) and St. Charles (*M* = 21.4) Counties were also below the regional mean, while North St. Louis County (*M* = 40.5) remained above the mean total crime rate for the region.

Table 14

Regional Differences in Policing and Crime for 2017

	Jefferson County			St. Charles County			St. Louis City			Unincorporated St. Louis County		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	24.3	10.8	9	21.4	16.6	8	82.6	.	1	22.0	.	1
Violent Crime	2.3	1.0	9	1.8	.8	8	21.0	.	1	4.1	.	1
Property Crime	22.2	10.2	9	19.6	15.9	8	61.6	.	1	17.9	.	1
Murder	.0	.1	9	.1	.1	8	6.7	.	1	.7	.	1
LEOKA	.1	.2	9	.1	.1	8	.3	.	1	.3	.	1
Criminal Arrests	751.8	724.7	9	1475.3	964.2	8	19424.0	.	1	18373.0	.	1
Traffic Stops	3519.3	3346.2	9	7558.6	5125.9	8	44756.0	.	1	53427.0	.	1
Citation Rate	49.5	22.2	9	43.1	14.2	8	44.5	.	1	59.9	.	1
Search Rate	13.6	11.8	9	23.4	7.3	8	15.4	.	1	12.6	.	1
Contraband Hit Rate	29.1	12.6	9	41.5	8.5	8	17.7	.	1	32.1	.	1
Traffic Arrest Rate	4.6	2.5	9	6.4	2.9	8	3.1	.	1	4.8	.	1

	East-Central Corridor			North St. Louis County			South St. Louis County			West St. Louis County			Total		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	27.0	23.5	13	40.5	19.0	29	16.4	5.0	2	19.7	15.4	8	31.1	20.5	71
Violent Crime	1.6	1.6	13	6.8	4.3	29	2.7	1.2	2	.9	.4	8	4.1	4.3	71
Property Crime	25.4	22.1	13	33.7	16.8	29	13.7	6.2	2	18.8	15.1	8	27.1	17.8	71
Murder	.4	.6	13	2.0	4.0	29	.0	.0	2	.0	.0	8	1.0	2.8	71
LEOKA	.1	.2	13	.2	.3	29	.2	.3	2	.1	.1	8	.2	.2	71
Criminal Arrests	338.5	382.9	13	602.7	892.0	29	179.5	231.2	2	473.1	307.2	8	1160.4	3142.1	71
Traffic Stops	3001.4	1748.0	13	3110.3	3797.8	29	2129.5	2751.4	2	4604.1	3494.5	8	5079.4	8432.6	71
Citation Rate	56.6	18.0	13	64.5	25.8	29	68.8	10.3	2	53.4	14.2	8	57.3	21.9	71
Search Rate	4.9	4.6	13	10.1	10.7	29	5.0	5.0	2	7.0	4.8	8	10.7	10.1	71
Contraband Hit Rate	34.7	12.3	13	34.4	24.1	29	10.9	15.5	2	30.3	10.1	8	33.2	18.1	71
Traffic Arrest Rate	1.6	1.0	13	3.9	3.2	29	2.6	3.7	2	2.9	1.4	8	3.7	2.9	71

Violent Crime. The main effect for violent crime per 1,000 residents was statistically significant, where $F(7, 63) = 11.72$, $p < .001$, $\eta^2 = .57$. There was a statistically significant difference in violent crime rates in St. Louis City, when compared to Jefferson County (*MD* = 18.71, $p < .001$), St. Charles County (*MD* = 19.20, $p < .001$), unincorporated St. Louis County (*MD* = 16.84, $p = .01$), the East-Central Corridor (*MD* = 19.38, $p < .001$), North St. Louis County (*MD* = 14.17, $p < .001$), South St. Louis County (*MD* = 18.23, $p < .001$), and West St. Louis County (*MD* = 20.07, $p < .001$). There was also a statistically significant difference in violent crime rates in Jefferson County (*MD* = 4.54, $p = .01$), St. Charles County (*MD* = 5.03, $p = .01$), the East-Central Corridor (*MD* = 5.21, $p < .001$), and West St. Louis County (*MD* = 5.90, $p < .001$) when compared to North St. Louis County. The mean rate of violent crime in St. Louis City (*M* = 21.0) and North St. Louis County (*M* = 6.8) were above the regional mean rate (*M* = 4.1) for violent crime, while West St. Louis County (*M* = 0.9), the East-Central Corridor (*M* = 1.6), and Jefferson (*M* = 2.3) and St. Charles (*M* = 1.8) Counties were well below the regional average. Unincorporated St. Louis County (*M* = 4.1) was near the regional average in terms of the mean rate of violent crime experienced by the region.

Property Crime. The main effect for property crime per 1,000 residents was not statistically significant, where $F(7, 63) = 2.08$, $p = .06$, $\eta^2 = .19$. Therefore, there were no observable differences in property crime between regions. However, when reviewing the regional pairwise comparison of regions, none of the interactions was significant even when adjusting the *p*-value upward to .10. Mean rates of property crime were highest in the independent city of St. Louis (*M* = 61.6) and North St. Louis County (*M* = 33.7) and lowest in South St. Louis County (*M* = 13.7), unincorporated St. Louis County (*M* = 17.9), West St. Louis County (*M* = 18.8), St. Charles County (*M* = 19.6), and Jefferson County (*M* = 22.2), while the East-Central Corridor (*M* = 25.4) was slightly below the regional mean (*M* = 27.1).

Murder. The main effect for murders per 10,000 residents was not statistically significant, where $F(7, 63) = 1.80$, $p = .10$, $\eta^2 = .17$. Therefore, there were no observable differences in murder rates per 10,000 residents between regions. While most of the metropolitan region experienced murder rates well below the regional mean (*M* = 1.0), the independent city of St. Louis (*M* = 6.8) and North St. Louis County (*M* = 2.0) experienced higher mean rates for murder per 10,000 residents as well as the largest increase in total homicides. In 2017, the St. Louis, MO metropolitan area logged 308 homicides, while the independent city of St. Louis experienced 208 homicides.

LEOKA. The main effect for LEOKA per total number of officers employed at a given department was not statistically significant, where $F(7, 63) = 1.00$, $p = .44$, $\eta^2 = .10$. Therefore, there were no observable differences in LEOKA between regions. St. Louis City (*M* = 0.30), unincorporated St. Louis County (*M* = 0.3), and North St. Louis County (*M* = 0.2) all experienced higher mean rates of LEOKA when compared to the rest of the region (*M* = 0.2). Moreover, the number of LEOKA continued to decline for the sixth straight year, with no law enforcement officers killed in the line of duty.

Criminal Arrests. The main effect for criminal arrests was statistically significant, where $F(7, 63) = 166.39$, $p < .001$, $\eta^2 = .95$. There was a statistically significant difference in criminal arrests in St. Louis City and unincorporated St. Louis County, respectively, when compared to the Jefferson County (*MD* = 18672.22, $p < .001$; *MD* = 17621.22, $p < .001$), St. Charles County (*MD* = 17948.75, $p < .001$; *MD* = 16897.75, $p < .001$), the East-Central Corridor (*MD* = 19085.46, $p < .001$; *MD* = 18034.46, $p < .001$), North St. Louis County (*MD* = 18821.31, $p < .001$; *MD* = 17770.31, $p < .001$), South St. Louis County (*MD* = 19244.50, $p < .001$; *MD* = 18193.50, $p < .001$), and West St. Louis County (*MD* = 18950.88, $p < .001$; *MD* = 17899.88, $p < .001$). There is also a statistically significant difference in criminal arrests between St. Charles County and the East-Central Corridor (*MD* = 1136.71, $p = .04$). Consistent with previous years and due to the agency size and single agency within the region, St. Louis City (*M* = 19424.0) and unincorporated St. Louis County (*M* = 18373.0) had the highest number and mean rates of criminal arrests in the region. The rest of the region remained well below the region mean (*M* = 1160.4), with the exception of St. Charles County (*M* = 1475.3). Regionally, South (*M* = 179.5) and West (*M* = 473.1) St . Louis County and the East-Central Corridor (*M* = 338.5) experienced the fewest mean number of criminal arrests in the region.

Traffic Stops. The main effect for traffic stops was statistically significant, where $F(7, 63) = 46.51$, $p < .001$, $\eta^2 = .84$. There was a statistically significant difference in traffic stops in St. Louis City and unincorporated St. Louis County, respectively, when compared to Jefferson County (*MD* = 41236.67, $p < .001$; *MD* = 49907.67, $p < .001$), St. Charles County (*MD* = 37197.38, $p < .001$; *MD* = 45868.38, $p < .001$), the East-Central Corridor (*MD* = 41754.62, $p < .001$; *MD* = 50425.62, $p < .001$), North St. Louis County (*MD* = 41645.66, $p < .001$; *MD* = 50316.66, $p < .001$), South St. Louis County (*MD* = 42626.50, $p < .001$; *MD* = 51297.50, $p < .001$), and West St. Louis County (*MD* = 40151.88, $p < .001$; *MD* = 48822.88, $p < .001$). Consistent with previous years and due to the agency size and single agency within the region, St. Louis City (*M* = 44756.0) and unincorporated St. Louis County (*M* = 53427.0) had the highest number and mean rates of traffic stops in the region. St. Charles County (*M* = 7558.6) conducted a higher mean rate of traffic stops, when compared to the rest of the region (*M* = 5079.38), whereas South (*M* = 2129.5) St. Louis County, the East-Central Corridor (*M* = 3001.38), and North St. Louis County (*M* = 3110.3) conducted fewer traffic stops.

Citation Rates. The main effect for citations issued per traffic stop was not statistically significant, where $F(7, 63) = 1.29$, $p = .27$, $\eta^2 = .13$. Therefore, there were no observable differences in citation rates between regions. A majority of the region was below the regional mean rate (*M* = 57.3) for citations issued per traffic stop; however, North (*M* = 64.5) and South (*M* = 68.8) St. Louis County issued higher mean rates of traffic citations, especially when compared to Jefferson (*M* = 49.5) and St. Charles (*M* = 43.1) Counties and the independent city of St. Louis (*M* = 44.5).

Search Rates. The main effect for searches conducted per traffic stop was statistically significant, where $F(7, 63) = 3.53$, $p = .01$, $\eta^2 = .28$. There was a statistically significant difference in traffic stops between St. Charles County and the East-Central Corridor (*MD* = 18.50, *p* = .01), North St. Louis County (*MD* = 13.26, *p* = .01), and West St. Louis County (*MD* = 16.37, *p* = .02), indicating a disparity in mean search rates between the regions. Moreover, search rates were found to be the highest in St. Charles County (*M* = 23.4), St. Louis City (*M* = 15.4), and unincorporated St. Louis County (*M* = 12.6) and lowest in the East-Central Corridor (*M* = 4.8), South St. Louis County (*M* = 5.0), and West St. Louis County (*M* = 7.0). North St. Louis County (*M* = 10.1) conducted searches on traffic stops at a rate nearly identical to the regional mean rate for searches (*M* = 10.7).

Contraband Hit Rates. The main effect for contraband hits per traffic stop was not statistically significant, where $F(7, 63) = 0.90$, $p = .51$, $\eta^2 = .09$. Therefore, there were no observable differences in contraband hit rates between regions. The mean rate of contraband identification rates in St. Charles County (*M* = 41.5) far exceeded the mean rate for the region (*M* = 33.2), while South St. Louis County (*M* = 10.9) and St. Louis City (*M* = 17.8) experienced lower than average mean rates of contraband hits.

Traffic Arrest Rates. The main effect for arrests per traffic stop was statistically significant, where $F(7, 63) = 2.62$, $p = .02$, $\eta^2 = .23$. There was a statistically significant difference in traffic arrest rates between St. Charles County and the East-Central Corridor (*MD* = 4.72, *p* = .01). The significant relationship between the two regions is further supported by St. Charles County's (*M* = 6.4) above average arrest rate when compared to the rest of the region (*M* = 3.7), especially the East-Central Corridor (*M* = 1.7), which had the lowest mean rate of traffic arrests in the region.

Conclusion. The highest mean rates for all types of crime were experienced in St. Louis City and North St. Louis County. However, St. Louis City experienced lower than average citation issuance, contraband hit, and traffic arrest rates compared to the rest of the region, though they conducted a higher-than-average mean number of searches for the entire metropolitan region. Compared to the rest of the region, North St. Louis County made fewer criminal arrests, conducted fewer traffic stops, and searched fewer vehicles than mean rates for the region despite experiencing above-average levels of citation issuance, contraband hit, and traffic stop arrest rates. St. Charles County also experienced among the lowest levels of all types of crime with higher than mean rates for the number of criminal arrests, traffic stops, searches, contraband hits, and traffic stop arrests. Preliminary conclusions, then, indicate a relationship between crime and policing.

2018

Preliminary data screening did not indicate any serious violations of the assumption of multivariate normality or the assumption of linearity of associations between quantitative outcome variables. The Box *M* test and post hoc tests were not conducted because there were two instances where regions contained fewer than two measures (i.e., St. Louis city and unincorporated St. Louis County). For the overall MANOVA, all four multivariate tests were statistically significant (using $\alpha = .05$ as the criterion). For the crime and policing by region type interaction, Wilks' $\Lambda = .04$, approximate $F(10, 55) = 131.22$, $p < .001$. The corresponding η^2 effect size of .96 indicated a strong effect for this interaction. The low value associated with Wilks' Λ implies a strong association between crime and policing (i.e., dependent variables) and region type (Warner, 2013). The main effect for region type was also statistically significant, with $\Lambda = .01$, approximate $F(70, 327.52) = 5.51$, $p < .001$; this corresponded to a moderate effect size ($\eta^2 = .48$) with a moderate association.

Total Crime. The main effect for total crime per 1,000 residents was statistically significant, where $F(7, 64) = 4.85$, $p < .001$, $\eta^2 = .35$. There was a statistically significant difference in total crime in North St. Louis County, when compared to Jefferson County (*MD* = 24.58, $p = .04$), St. Charles County (*MD* = 28.13, $p = .02$), and West St. Louis County (*MD* = 27.78, $p = .02$). Total crime per 1,000 residents was determined to be the highest in St. Louis City ($M = 78.7$) and North St. Louis County ($M = 48.2$), when compared to the mean for the region ($M = 34.7$). The lowest mean rate of crime was found in St. Charles County ($M = 20.1$) and West St. Louis County ($M = 20.4$).

Violent Crime. The main effect for violent crime per 1,000 residents was statistically significant, where $F(7, 64) = 4.61$, $p < .001$, $\eta^2 = .34$. There was a statistically significant difference in violent crime rates in North St. Louis County, when compared to the East-Central Corridor (*MD* = 6.77, $p = .01$) and West St. Louis County (*MD* = 7.39, $p = .03$). Mean values for violent crime were the highest in St. Louis City ($M = 18.2$) and North St. Louis County ($M = 8.1$) and lowest in West ($M = 0.7$) and South ($M = 1.0$) St.

Louis County, the East-Central Corridor (*M* = 1.4), and St. Charles County (*M* = 2.0) when compared to the regional mean levels of violent crime (*M* = 4.6).

Property Crime. The main effect for property crime per 1,000 residents was statistically significant, where $F(7, 64) = 3.62$, $p = .01$, $\eta^2 = .28$. There was a statistically significant difference in violent crime rates in North St. Louis County when compared to St. Charles County (*MD* = 22.01, $p = .04$). Mean rates of property crime were well above average in St. Louis City (*M* = 60.5) and North St. Louis County (*M* = 40.1) when compared to the regional mean rate for property crime (*M* = 30.1). Conversely, St. Charles County (*M* = 18.1), West St. Louis County (*M* = 19.7), Jefferson County (*M* = 20.8), South St. Louis County (*M* = 21.5), and unincorporated St. Louis County (*M* = 21.9) were far below the regional mean.

Murder. The main effect for murders per 10,000 residents was not statistically significant, where $F(7, 64) = 0.58$, $p = .77$, $\eta^2 = .06$. Therefore, there were no observable differences in murder rates per 10,000 residents between regions. Similar to crime rates, mean murder rates in St. Louis City (*M* = 6.3) and North St. Louis County (*M* = 1.8) far exceeded the regional mean (*M* = 0.9) and means for the East-Central Corridor (*M* = 0.1), West St. Louis County (*M* = 0.1), and St. Charles (*M* = 0.2) and Jefferson (*M* = 0.2) Counties. Consistent with a small decrease in the total number of homicides (*N* = 304) in the region, the city of St. Louis recorded 189 murders—a decrease of 19 over the previous year.

Table 15

Regional Differences in Policing and Crime for 2018

	Jefferson County			St. Charles County			St. Louis City			Unincorporated St. Louis County		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	23.6	10.2	9	20.0	17.3	8	78.7	.	1	24.2	.	1
Violent Crime	2.8	1.8	9	2.0	1.4	8	18.2	.	1	2.4	.	1
Property Crime	20.8	9.8	9	18.0	16.1	8	60.5	.	1	21.8	.	1
Murder	.2	.5	9	.2	.3	8	6.2	.	1	.5	.	1
LEOKA	.2	.3	9	.1	.1	8	.2	.	1	.2	.	1
Criminal Arrests	692.1	636.1	9	1121.8	1003.7	8	17370.0	.	1	15880.0	.	1
Traffic Stops	3919.9	4828.9	9	7741.0	4968.4	8	54943.0	.	1	58820.0	.	1
Citation Rate	59.9	19.3	9	41.7	13.0	8	41.0	.	1	59.2	.	1
Search Rate	15.2	12.1	9	21.7	5.5	8	16.4	.	1	10.2	.	1
Contraband Hit Rate	37.1	8.8	9	36.7	4.8	8	19.2	.	1	32.9	.	1
Traffic Arrest Rate	5.2	3.1	9	6.0	2.7	8	3.1	.	1	4.3	.	1

Variable	East-Central Corridor *M*	*SD*	*N*	North St. Louis County *M*	*SD*	*N*	South St. Louis County *M*	*SD*	*N*	West St. Louis County *M*	*SD*	*N*	Total *M*	*SD*	*N*
Total Crime	28.3	23.1	13	48.2	21.9	30	22.4	1.8	2	20.4	11.3	8	34.7	22.8	72
Violent Crime	1.4	1.1	13	8.1	7.9	30	.9	1.3	2	.7	.4	8	4.6	6.3	72
Property Crime	27.0	22.4	13	40.1	16.9	30	21.5	3.1	2	19.7	11.3	8	30.1	18.7	72
Murder	.1	.3	13	1.8	6.4	30	.4	.8	2	.1	.4	8	.9	4.2	72
LEOKA	.1	.1	13	.2	.2	30	.3	.3	2	.0	.0	8	.2	.2	72
Criminal Arrests	336.5	343.9	13	608.4	798.2	30	136.0	173.9	2	451.2	363.0	8	1041.2	2746.6	72
Traffic Stops	3209.0	2438.2	13	3484.1	4224.7	30	1835.0	2429.6	2	5194.4	4229.8	8	5589.4	9675.6	72
Citation Rate	56.5	14.5	13	64.5	28.7	30	67.1	15.1	2	53.3	16.5	8	58.4	22.8	72
Search Rate	4.2	3.2	13	10.7	9.6	30	5.4	7.7	2	7.2	5.5	8	10.8	9.4	72
Contraband Hit Rate	29.1	12.8	13	32.4	20.0	30	5.3	7.5	2	32.7	14.5	8	32.0	15.9	72
Traffic Arrest Rate	1.8	1.2	13	4.0	3.5	30	3.0	4.2	2	2.7	1.2	8	3.8	3.0	72

LEOKA. The main effect for LEOKA per total number of officers employed at a given department was not statistically significant, where $F(7, 64) = 1.59$, $p = .15$, $\eta^2 = .15$. Therefore, there were no observable differences in LEOKA between regions. Mean LEOKA rates were relatively constant in the region ($M = 0.2$) and ranged from a low in West St. Louis County ($M = 0.0$) to a high in South St. Louis County ($M = 0.3$). The rate of LEOKA continued to decline in 2018, and no law enforcement officers were killed in the line of duty during 2018.

Criminal Arrests. The main effect for criminal arrests was statistically significant, where $F(7, 64) = 148.13$, $p < .001$, $\eta^2 = .94$. There was a statistically significant difference in criminal arrests in St. Louis City and unincorporated St. Louis County, respectively, when compared to the Jefferson County ($MD = 16677.89$, $p < .001$; $MD = 15187.88$, $p < .001$), St. Charles County ($MD = 16248.25$, $p < .001$; $MD = 14758.25$, $p < .001$), the East-Central Corridor ($MD = 17033.46$, $p < .001$; $MD = 15543.46$, $p < .001$), North St. Louis County ($MD = 16761.57$, $p < .001$; $MD = 15271.57$, $p < .001$), South St. Louis County ($MD = 17234.00$, $p < .001$; $MD = 15744.00$, $p < .001$), and West St. Louis County ($MD = 116918.75$, $p < .001$; $MD = 15428.75$, $p < .001$). Consistent with previous years and due to the agency size and single agency within the region, St. Louis City ($M = 17370.0$) and unincorporated St. Louis County ($M = 15880.0$) had the highest number and mean rates of criminal arrests in the region. The rest of the region remained well below the region mean ($M = 1041.2$), with the exception of St. Charles County ($M = 1121.8$). Regionally, South ($M = 136.0$) and West ($M = 451.3$) St .

Louis County and the East-Central Corridor (*M* = 336.5) experienced the fewest mean number of criminal arrests in the region.

Traffic Stops. The main effect for traffic stops was statistically significant, where $F(7, 64) = 47.16$, $p < .001$, $\eta^2 = .84$. There was a statistically significant difference in traffic stops in St. Louis City and unincorporated St. Louis County, respectively, when compared to Jefferson County (*MD* = 51023.11, $p < .001$; *MD* = 54900.11, $p < .001$), St. Charles County (*MD* = 47202.00, $p < .001$; *MD* = 51079.00, $p < .001$), the East-Central Corridor (*MD* = 51734.00, $p < .001$; *MD* = 50425.62, $p < .001$), North St. Louis County (*MD* = 41645.66, $p < .001$; *MD* = 55611.00, $p < .001$), South St. Louis County (*MD* = 53108.00, $p < .001$; *MD* = 56985.00, $p < .001$), and West St. Louis County (*MD* = 49748.63, $p < .001$; *MD* = 53625.63, $p < .001$). Consistent with previous years and due to the agency size and single agency within the region, St. Louis City (*M* = 54943.0) and unincorporated St. Louis County (*M* = 58820.0) had the highest number and mean rates of traffic stops in the region. St. Charles County (*M* = 7741.0) conducted a higher mean rate of traffic stops, when compared to the rest of the region (*M* = 5589.4), whereas South St. Louis County (*M* = 1835.0), the East-Central Corridor (*M* = 3209.0), and North St. Louis County (*M* = 3484.1) conducted fewer traffic stops.

Citation Rates. The main effect for citations issued per traffic stop was not statistically significant, where $F(7, 64) = 1.14$, $p = .35$, $\eta^2 = .11$. Therefore, there were no observable differences in citation rates between regions. The highest mean rate for issuing citations occurred in North (*M* = 64.5) and South (*M* = 67.1) St. Louis County, while the lowest rates were present in St. Louis City (*M* = 41.0) and St. Charles County (*M* = 41.7) when compared to the mean for the region (*M* = 58.4).

Search Rates. The main effect for searches conducted per traffic stop was statistically significant, where $F(7, 64) = 3.87$, $p = .01$, $\eta^2 = .30$. There was a statistically significant difference in traffic stops between St. Charles County and the East-Central Corridor (*MD* = 17.49, $p < .001$), North St. Louis County (*MD* = 11.02, $p = .04$), and West St. Louis County (*MD* = 14.52, $p = .03$), indicating a disparity in mean search rates between the regions. Moreover, search rates were found to be more than double the regional rate (*M* = 10.8) in St. Charles County (*M* = 21.7). Search rates were also higher than the regional mean in St. Louis City (*M* = 16.4) and Jefferson County (*M* = 15.2) and lowest in the East-Central Corridor (*M* = 4.2), South St. Louis County (*M* = 5.4), and West St. Louis County (*M* = 7.2). North St. Louis County (*M* = 10.7) conducted searches on traffic stops at a rate nearly identical to the regional mean rate for searches (*M* = 10.8).

Contraband Hit Rates. The main effect for contraband hits per traffic stop was not statistically significant, where $F(7, 64) = 1.23$, $p = .30$, $\eta^2 = .12$. Therefore, there were no observable differences in contraband hit rates between regions. Contraband hit rates varied across the region (*M* = 32.0), where South St. Louis County (*M* = 5.3) had the lowest mean for identifying contraband during vehicle stops and Jefferson (*M* = 37.1) and St. Charles (*M* = 36.7) Counties had the highest mean rates for locating contraband.

Traffic Arrest Rates. The main effect for arrests per traffic stop was not statistically significant, where $F(7, 64) = 2.06$, $p = .06$, $\eta^2 = .18$. Therefore, there were no observable differences in traffic arrest rates between regions. Traffic stop arrests varied across regions where the East-Central Corridor (M = 1.8) experienced the lowest mean rate while Jefferson (M = 5.2) and St. Charles (M = 6.0) Counties had the highest rates when compared to the regional mean rate (M = 3.8).

Conclusion. Statistically significant differences in means were identified in crime rates between North St. Louis County and St. Charles County, though there were large numerical differences when comparing North St. Louis County to the rest of the metropolitan area. Measures of policing (i.e., criminal arrests, traffic stops, search rates, and traffic stop arrest rates) were also lower in North St. Louis County and higher in St. Charles County when compared to the rest of the region. Preliminary conclusions, then, indicate a relationship between crime and policing.

2019

Preliminary data screening did not indicate any serious violations of the assumption of multivariate normality or the assumption of linearity of associations between quantitative outcome variables. The Box M test and post hoc tests were not conducted because there were two instances where regions contained fewer than two measures (i.e., St. Louis city and unincorporated St. Louis County). For the overall MANOVA, all four multivariate tests were statistically significant (using $\alpha = .05$ as the criterion). For the crime and policing by region type interaction, Wilks' $\Lambda = .04$, approximate $F(10, 54) = 133.11$, $p < .001$. The corresponding η^2 effect size of .96

indicated a strong effect for this interaction. The low value associated with Wilks' Λ implies a strong association between crime and policing (i.e., dependent variables) and region type (Warner, 2013). The main effect for region type was also statistically significant, with $\Lambda = .01$, approximate $F(70, 321.69) = 5.30$, $p < .001$; this corresponded to a moderate effect size ($\eta^2 = .47$) with a moderate association.

Total Crime. The main effect for total crime per 1,000 residents was not statistically significant, where $F(7, 63) = 0.71$, $p = .67$, $\eta^2 = .07$. Therefore, there were no observable differences in total crime rates between regions. For the first time across this 10-year analysis, mean total crime was higher in North St. Louis County ($M = 128.1$) when compared to St. Louis City ($M = 73.9$) and the rest of the region ($M = 68.7$). The lowest mean rate for total crime was found in unincorporated St. Louis County ($M = 17.2$), Jefferson County ($M = 22.5$), West St. Louis County ($M = 24.1$), and St. Charles County ($M = 24.8$).

Violent Crime. The main effect for violent crime per 1,000 residents was not statistically significant, where $F(7, 63) = 1.16$, $p = .34$, $\eta^2 = .11$. Therefore, there were no observable differences in violent crime rates between regions. Although violent crime was the highest in St. Louis City ($M = 19.5$), North St. Louis County's ($M = 14.9$) mean rate for violent crime far exceeded the regional mean ($M = 7.6$). Consistent with previous years, the lowest mean levels of violent crime were experienced in West St. Louis County ($M = 1.0$), the East-Central Corridor ($M = 1.4$), and St. Charles County ($M = 2.0$).

Table 16

Regional Differences in Policing and Crime for 2019

	Jefferson County			St. Charles County			St. Louis City			Unincorporated St. Louis County		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	22.5	9.2	9	24.8	18.2	8	73.9	.	1	17.2	.	1
Violent Crime	3.9	3.4	9	2.0	1.3	8	19.5	.	1	4.0	.	1
Property Crime	18.6	9.0	9	22.8	17.3	8	54.3	.	1	13.3	.	1
Murder	.8	2.1	9	.1	.1	8	7.0	.	1	1.0	.	1
LEOKA	.2	.2	9	.2	.1	8	.3	.	1	.2	.	1
Criminal Arrests	609.7	512.2	9	788.4	630.6	8	16600.0	.	1	11954.0	.	1
Traffic Stops	4328.7	6327.1	9	9382.4	8720.3	8	57948.0	.	1	52121.0	.	1
Citation Rate	52.9	10.9	9	39.2	13.5	8	43.8	.	1	55.5	.	1
Search Rate	15.7	10.4	9	24.4	6.8	8	14.1	.	1	10.5	.	1
Contraband Hit Rate	33.4	14.7	9	36.5	5.6	8	23.7	.	1	29.0	.	1
Traffic Arrest Rate	5.5	2.6	9	6.2	3.6	8	2.8	.	1	4.0	.	1

	East-Central Corridor			North St. Louis County			South St. Louis County			West St. Louis County			Total		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Total Crime	29.7	23.5	13	128.0	282.1	29	45.3	63.2	2	24.1	17.8	8	68.7	17.8	71
Violent Crime	1.3	1.0	13	14.9	28.5	29	4.4	6.0	2	1.0	.6	8	7.6	19.2	71
Property Crime	28.4	22.6	13	113.2	254.7	29	409.	57.2	2	23.1	17.5	8	61.0	167.6	71
Murder	.3	.7	13	4.2	10.9	29	.0	.0	2	.1	.4	8	2.0	7.2	71
LEOKA	.1	.1	13	.2	.2	29	.0	.0	2	.0	.1	8	.1	.2	71
Criminal Arrests	305.9	322.4	13	510.5	671.6	29	111.5	143.5	2	490.3	421.6	8	891.2	2393.8	71
Traffic Stops	3204.5	2358.9	13	3471.4	4082.9	29	1653.5	2137.6	2	5234.0	4612.2	8	5797.1	9862.3	71
Citation Rate	55.5	16.3	13	65.8	26.3	29	67.8	18.7	2	54.0	23.5	8	57.6	22.2	71
Search Rate	4.3	3.2	13	12.5	14.9	29	4.2	2.2	2	8.3	6.7	8	12.0	12.1	71
Contraband Hit Rate	26.8	15.8	13	32.3	20.8	29	10.1	14.3	2	36.3	10.4	8	31.6	16.8	71
Traffic Arrest Rate	1.9	1.4	13	3.9	3.6	29	2.3	3.2	2	3.2	1.5	8	3.9	3.1	71

Property Crime. The main effect for property crime per 1,000 residents was not statistically significant, where $F(7, 63) = 0.67$, $p = .70$, $\eta^2 = .07$. Therefore, there were no observable differences in property crime rates between regions. Similar to total crime, the mean rate for property crime in North St. Louis County (*M* = 113.2) far exceeded the independent city of St. Louis (*M* = 54.3) and the region (*M* = 61.0). The lowest mean rates for property crime were found in unincorporated St. Louis County (*M* = 13.3) and Jefferson County (*M* = 18.6).

Murder. The main effect for murders per 10,000 residents was not statistically significant, where $F(7, 63) = 0.74$, $p = .64$, $\eta^2 = .08$. Therefore, there were no observable differences in murder rates between regions. While not all regions demonstrated an increase in the number or mean rate of murder per 10,000 residents, the entire region showed an increase over previous years. Only St. Charles County (*M* = 0.1) and South St. Louis County (*M* = 0.0) logged fewer murders than the previous year. Both North St. Louis County (*M* = 4.2) and the independent city of St. Louis (*M* = 7.0) far exceeded the regional mean rate (*M* = 2.0) of murders. Unincorporated St. Louis County (*M* = 1.0) more than doubled its rate over the previous year, reaching a 10-year high. In addition, the region experienced 312 total homicides, with 210 occurring within the city of St. Louis.

LEOKA. The main effect for LEOKA per total number of officers employed at a given department was not statistically significant, where $F(7, 63) = 1.52$, $p = .18$, $\eta^2 = .14$. Therefore, there were no observable differences in LEOKA between regions. Similar to other years, LEOKA remained relatively stable and ranged from means near zero in South (*M* = 0.0) and West (*M* = 0.1) St. Louis County and the East-Central Corridor (*M* = 0.1) when compared to the rest of the region (*M* = 0.2). St. Louis City (*M* = 0.3), unincorporated St. Louis County (*M* = 0.2), Jefferson (*M* = 0.2) and St. Charles County (*M* = 0.0), and North St. Louis County (*M* = 0.2) all experienced elevated levels of LEOKA when compared to the rest of the region. In addition to a slight increase in the number of LEOKA in the region, two law enforcement officers were killed in the line of duty.

Criminal Arrests. The main effect for criminal arrests was statistically significant, where $F(7, 63) = 171.30$, $p < .001$, $\eta^2 = .95$. There was a statistically significant difference in criminal arrests in St. Louis City and unincorporated St. Louis County, respectively, when compared to the Jefferson County (*MD* = 15990.33, $p < .001$; *MD* = 11344.33, $p < .001$), St. Charles County (*MD* = 15811.63, $p < .001$; *MD* = 11165.63, $p < .001$), the East-Central Corridor (*MD* = 16294.08 $p < .001$; *MD* = 11648.08, $p < .001$), North St. Louis County (*MD* = 16089.52, $p < .001$; *MD* = 11443.52, $p < .001$), South St. Louis County (*MD* = 16488.50, $p < .001$; *MD* = 11842.50, $p < .001$), and West St. Louis County (*MD* = 16109.75, $p < .001$; *MD* = 11463.75, $p < .001$). Consistent with previous years and due to the agency size and single agency within the region, St. Louis City (*M* = 16600.0) and unincorporated St. Louis County (*M* = 11954.0) had the highest number and mean rates of criminal arrests in the region. South St. Louis County (*M* = 111.5) effected a lower mean number of criminal arrests when compared to the entire region (*M* = 891.2), including Jefferson (*M* = 609.7) and St. Charles County (*M* = 788.4).

Traffic Stops. The main effect for traffic stops was statistically significant, where $F(7, 63) = 146.0030.80$, $p < .001$, $\eta^2 = .77$. There was a statistically significant difference in traffic stops in St. Louis City and unincorporated St. Louis County, respectively, when compared to Jefferson County (*MD* = 53619.33, $p < .001$; *MD* = 47792.33, $p < .001$), St. Charles County (*MD* = 48565.63, $p < .001$; *MD* = 42738.63 $p < .001$), the East-Central Corridor (*MD* = 54743.46, $p < .001$; *MD* = 48916.46, $p < .001$), North St. Louis County (*MD* = 54476.59, $p < .001$; *MD* = 48649.59, $p < .001$), South St. Louis County (*MD* = 56294.50, $p < .001$; *MD* = 50467.50, $p < .001$), and West St. Louis County (*MD* = 52714.00, $p < .001$; *MD* = 46887.00, $p < .001$). Consistent with previous years and due to the agency size and single agency within the region, St. Louis City (*M* = 57948.00) and unincorporated St. Louis County (*M* = 52121.0) had the highest number and mean rates of traffic stops in the region. South St. Louis County (*M* = 1653.5) conducted a lower mean number of traffic stops when compared to the entire region (*M* = 5797.1) and St. Charles County (*M* = 9382.4).

Citation Rates. The main effect for citations issued per traffic stop was not statistically significant, where $F(7, 63) = 1.68$, $p = .13$, $\eta^2 = .16$. Therefore, there were no observable differences in citation rates between regions. Citation issuance rates varied across the region, with St. Charles County (*M* = 39.2) issuing the fewest citations per traffic stop and South (*M* = 67.8) and North (*M* = 65.8) St. Louis County issuing the most.

Search Rates. The main effect for searches conducted per traffic stop was statistically significant, where $F(7, 63) = 2.72$, $p = .02$, $\eta^2 = .23$. There was a statistically significant difference in traffic stops between St. Charles County and the East-Central Corridor (*MD* = 20.12, $p = .01$). Search rates were the lowest in South St. Louis County (*M* = 4.2) and the East-Central Corridor (*M* = 4.3) when compared to the region (*M* = 12.0), while St. Charles County (*M* = 24.4) conducted the highest mean number of searches per traffic stop.

Contraband Hit Rates. The main effect for contraband hits per traffic stop was not statistically significant, where $F(7, 63) = 0.85$, $p = .55$, $\eta^2 = .09$. Therefore, there were no observable differences in contraband hit rates between regions. Contraband hit rates were relatively stable across the region (*M* = 31.6); however, South St. Louis County (*M* = 10.1) law enforcement agencies were less successful and locating contraband when compared to the rest of the region, including St. Charles County (*M* = 36.5) and West St. Louis County (*M* = 36.3).

Traffic Arrest Rates. The main effect for arrests per traffic stop was statistically significant, where $F(7, 63) = 1.99$, $p = .07$, $\eta^2 = .18$. However, when reviewing the regional pairwise comparison of regions, one set of the interactions was significant when adjusting the *p*-value upward to .10—the mean difference in the East-Central Corridor (*MD* = 4.27, $p = .07$), when compared to St. Charles County. Moreover, traffic stop arrest rates varied across the region (*M* = 3.9) where agencies in the East-Central Corridor (*M* = 1.9) arrested fewer individuals on traffic stops when compared to Jefferson (*M* = 5.5) and St. Charles (*M* = 6.2) Counties.

Conclusion. Crime rates in North St. Louis County were far greater than the rest of the region, especially when compared to previous years, though rates in the independent city of St. Louis were also well above the mean for the metropolitan area. The number of criminal arrests and traffic stops in North St. Louis County were also at lower levels compared to previous years and other parts of the metropolitan region; however, the number of citations issued, rate of vehicles searched on traffic stops, contraband identified, and the number of arrests made on traffic stops were at or above the mean rate for the region, while St. Louis City demonstrated sub-mean levels for the same variables. St. Charles County further demonstrated some of the highest traffic stops, criminal and traffic arrests, searches, and contraband identification rates. Moreover, the data for 2019 does establish a relationship between levels of crime and policing.

Conclusion of the Analysis

When analyzing the data pertaining to crime (i.e., total crime, violent crime, property crime, murder, LEOKA), trends remained consistent across time and regions. The independent city of St. Louis and North St. Louis County possessed the highest mean levels of crime per capita when compared to all other regions. Until 2019, St. Louis City had the highest mean for all measures of crime. However, in 2019, mean levels of total crime and property crime were higher in North St. Louis County than in any other region, including the city of St. Louis. Levels of violent crime and homicide also rose significantly in North St. Louis County. Conversely, the lowest means levels of crime generally occurred in St. Charles County and West St. Louis County, with moderate to low mean levels of crime were recorded in unincorporated St. Louis County and the East-Central Corridor.

Levels of policing (i.e., criminal and traffic arrests, traffic stops, citation rates, search rates, and contraband hit rates) across the region were more varied than trends in crime across regions and time. Before 2014, the highest levels of policing were found in Jefferson County, North St. Louis County, and to some extent, St. Charles County. However, after 2014, the highest mean levels of policing were consistently seen in St. Charles County. Moderate levels of policing were recorded in North St. Louis County and Jefferson County. The lowest mean levels of policing varied little across time where St. Louis City, the East-Central Corridor, and West St. Louis County had the lowest mean levels of policing for the region.

When looking specifically at levels of policing in 2014, 2015, 2017, and 2019 when there were significant increases in crime rates accompanied by measurable decreases in policing across the region, the independent city of St. Louis and North St. Louis County both recorded increases in all types of crime, most significantly in the number of homicides. Interestingly, the city of St. Louis has experienced a general decrease in total, violent, and property crimes while logging record or near-record numbers of homicides. However, North St. Louis County experienced general increases in all types of crime following 2014, except during 2017 when all types of crime, except for homicide, decreased before dramatically increasing in 2018 and 2019.

Measures of policing in St. Louis City and North St. Louis County also altered their course over the 10-year analysis yielding distinct trends. Through 2014, levels of policing remained relatively constant in the city of St. Louis, with a distinct decrease in criminal arrests, traffic stops, search rates, contraband hit rates, and traffic arrest rates in 2014. In 2015, most measures of policing increased before gradually decreasing through 2017. In 2018 and 2019, the city logged more traffic stops, increased the number of citations issued, and contraband identified during searches. Since 2015, the city has experienced a yearly decrease in criminal arrests, searches conducted, and arrests made during traffic stops. Given the data for the city of St. Louis, it is difficult to establish a connection between crime and policing as levels of policing and crime have decreased over time.

When evaluating data related to North St. Louis County, levels of crime decreased between 2010 and 2014 before increasing in 2015, 2018, and 2019. Through the year 2014, criminal arrests, traffic stops, citation issuance rates, search rates, and traffic arrest rates decreased. In 2015, 2018, and 2019, the region experienced significant decreases in criminal arrests, traffic stops, the number of citations issued, searches conducted, and arrests made during traffic stops when compared to the previous year resulting in a general decrease in policing over time, despite possessing mean levels of policing at or above the regional mean for measures of policing. It is plausible, then, that decreases in policing over time may be related to increases in crime across time.

An evaluation of policing and crime in St. Charles County and West St. Louis County, which recorded the lowest mean and total levels of all crime for the region, indicate a general decrease in criminal arrests and citations issued across time, with notable increases in 2018 and 2019. In St. Charles County in 2019, there were significantly higher levels of total crime and property crime, while West St. Louis County experienced a moderate decrease in total and property crime. During that time, St. Charles County effected a significantly lower number of criminal and traffic arrest rates while also issuing fewer citations per traffic stop and fewer instances of contraband identification during searches. In comparison, West St. Louis County made more criminal and traffic arrests, traffic stops, searches, and contraband hits. Both regions decreased their rates for issuing traffic citations during traffic stops in 2019. Given the data, it is plausible that levels of policing may be related to trends in crime across time.

To better explore the relationship between crime and policing across time and geographical regions, research question three evaluated the effects of mediating variables on crime and policing. By building upon the results attained from the first two research questions, this final analysis will yield additional insight into how policing and crime have changed over the past 10 years in the St. Louis, MO metropolitan area and the emergence of the Ferguson Effect following 2014. Moreover, the final analysis results will prove useful for redesigning policy and policing practices to reduce crime and improve officer safety moving forward effectively.

RQ3

RQ3 addressed how policing practices and crime different between regions for a given year while evaluating the effects of three independent variables (i.e., race/ethnic make-up, socioeconomic index, and the number of officers per 1,000 citizens). The research question builds upon the first two research questions by comparing regions at a specific point in time to identify regional differences in policing and crime while also evaluating the intervening factors. To evaluate whether the differences in crime and policing existed within a given year, a multiple regression was performed to assess the 11 continuous dependent variables (i.e., total crime, violent crime, property crime, murder, LEOKA, criminal and traffic arrests, traffic stops, citation rates, search rates, and contraband hit rates) across three continuous variables relating to race/ethnic make-up, socioeconomic index, and the number of officers employed per 1,000 citizens using SPSS with data derived from the MSHP UCR database, the MOAG VSR, and the U.S. Census Bureau.

For the third research question, the multiple regression analysis allowed me to analyze the influence of the three new variables on the outcome or dependent variables (Warner, 2013). The dependent variables of total crime, violent crime, property crime, murder were continuous measures of rates calculated based on population (i.e., rate per 1,000 residents), while LEOKA was a function of the number of LEOs for a given department. Criminal arrests and traffic stops comprised total outcomes measured. The dependent variables of citation rates, search rates, contraband hit rates, and vehicle stop arrests were a function of the total number of traffic stops (i.e., citations, searches, contraband hit rates, and vehicle stop arrests divided by the total number of traffic stops, respectively). Each of the 11 variables were analyzed separately for each of the ten years evaluated. The analysis will help determine whether the covariates mediate the relationship between crime and policing (i.e., dependent variables) over time. Similar to research question 2, the analyses were conducted on a year-by-year basis, creating ten individual analyses to assist me in determining the relationship between crime and de-policing in the St. Louis, MO metropolitan area while examining the effects of the three new independent variables.

The research question for the final analysis is *what effect do differences in race, socioeconomic index, and the number of officers per 1,000 citizens have on the annual differences in quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries to law enforcement officers in the St. Louis, MO metropolitan area across time to determine the extent of de-policing occurring within the region?* The null hypothesis states that *there are no differences in quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries to law enforcement officers in the St. Louis, MO metropolitan area across time when accounting for race, socioeconomic index, and the number of officers per 1,000 citizens*, thereby indicating that de-policing is not occurring in the region. The alternative hypothesis states that *there are differences in quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries to law enforcement officers in the St. Louis, MO metropolitan area across time when accounting for race, socioeconomic index, and the number of officers per 1,000 citizens,* thereby indicating that de-policing is not occurring within the region.

Crime and policing rates were individually predicted for race (i.e., percentage of the population that identifies as non-White), socioeconomic index (i.e., the average calculated value of the percentage of unemployed persons, persons who live below the poverty level, and persons over 25 who have attained less than a high school education), and number of LEOs per 1,000 citizens. Each outcome variable was evaluated separately, thereby leading to differences in sample size for each year. Preliminary data screening included the examination of histograms for all three predictor variables. Univariate distributions were reasonably normal with no extreme outliers, and all slopes had the expected signs unless specifically denoted in the analysis. Standard multiple regression was performed in that all predictor variables were entered in one step. Zero-order, part, and partial correlations of each predictor with the outcome variable were requested in addition to the default statistics.

2010

The mean value for race was M = 34.2, where 34.2% of the total population identified as non-White, while the mean socioeconomic index was M = 12.1 and the number of LEOs per 1,000 citizens was M = 4.1, for the entire St. Louis, MO metropolitan region. Preliminary data screening suggested that there were no serious violations of assumptions of normality or linearity. All coefficients reported here are unstandardized unless otherwise noted; α = .05 two-tailed is the criterion for statistical significance. Tables 17 and 18 display descriptive statistics and correlations, respectively.

Table 17

Descriptive Statistics, 2010

	Descriptive Statistics		
	Mean	Std. Deviation	N
Race	34.2	25.3	78
Socioeconomic Index	12.1	4.4	78
LEOs	4.1	3.3	78
Total Crime	39.4	26. 3	78
Violent Crime	5.44	7.4	78
Property Crime	34.0	20.7	78
Murder	1.0	4.0	78
LEOKA	.2	.2	78
Criminal Arrests	1552.9	3807.0	78
Traffic Stops	6159.2	12815.7	78
Citation Rate	71.5	23.0	78
Search Rate	9.8	7.2	78
CB Hit Rate	17.9	10.2	78
Traffic Arrest Rate	5.6	4.0	78

Table 18

Correlations and Coefficients, 2010

	Correlation			Unstandardized Coefficient			*t*			Sig.		
	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO
Total Crime	.48	.51	.30	-7.17	-.58	13.79	-3.16	-1.45	5.46	.02	.20	.00
Violent Crime	.51	.53	.34	.05	.56	.38	.89	1.85	1.62	.38	.07	.11
Property Crime	.42	.46	.26	.05	1.71	.75	.33	1.90	1.08	.75	.06	.28
Murder	.21	.20	.35	.01	.07	.38	.11	.40	2.67	.92	.69	.01
LEOKA	.19	.25	-.07	.0.0	.02	-.01	-.11	1.61	-1.37	.91	.11	.18
Criminal Arrests	.08	.15	-.14	-11.50	246.21	-242.80	-.37	1.41	-1.73	.71	.16	.09
Traffic Stops	.20	.12	-.07	14.93	237.09	-822.00	.14	.40	-1.71	.89	.69	.09
Citation Rate	.20	.12	-.07	.36	-.86	-1.17	1.93	-.82	-1.38	.06	.42	.17
Search Rate	.04	.12	-.20	-.03	.49	-.56	-.54	1.50	-2.13	.59	.14	.04
CB Hit Rate	-.10	-.09	-.22	-.01	-.05	-.64	-.03	-.11	-1.69	.98	.91	.10
Traffic Arrest Rate	.22	.25	-.01	.02	.18	-.14	.50	.97	-.93	.62	.34	.36

Total Crime. The mean value for total crime per 1,000 persons was M = 39.4. The overall regression, including all three predictors, was statistically significant, R = .53, R^2 = .29, adjusted R^2 = .26, $F(3, 74) = 9.82$, $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. Only one of the three predictors was significantly predictive of total crime: the number of law enforcement officers, $t(74) = 2.07$, $p = .04$. Therefore, in 2010, total crime could be predicted from this set of three variables.

The nature of the positive predictive relationship of the number of LEOs on total crime was also not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .02$ for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of LEOs was both the only and the strongest predictor of total crime.

The other two predictor variables (i.e., race and socioeconomic index) were not significantly related to total crime when other predictors were statistically controlled; their partial slopes were not significant. Neither race nor socioeconomic index was predictive of total crime in this regression, even though these two variables had significant zero-order correlations with total crime; apparently, the information that they contributed to the regression was redundant with other predictors.

Violent Crime. The mean value for total crime per 1,000 persons was $M = 5.4$. The overall regression, including all three predictors, was not statistically significant, $R = .56$, $R^2 = .32$, adjusted $R^2 = .29$, $F(3, 74) = 11.42$, $p < .001$. To assess the contributions of the individual predictors, the t ratios for the individual regression slopes were examined. However, none of the predictors were statistically significant; therefore, violent crime could not be predicted from this set of three variables.

Property Crime. The mean value for property crime per 1,000 persons was M = 34.0. The overall regression, including all three predictors, was statistically significant, R = .48, R^2 = .23, adjusted R^2 = .20, $F(3, 74) = 7.20$, $p < .001$. To assess the contributions of the individual predictors, the t ratios for the individual regression slopes were examined. However, none of the predictors were statistically significant; therefore, property crime could not be predicted from this set of three variables.

Murder. The mean value for murder per 10,000 persons was M = 1.0. The overall regression, including all three predictors, was statistically significant, R = .36, R^2 = .13, adjusted R^2 = .01, $F(3, 74) = 3.68$, p = .02. To assess the contributions of the individual predictors, the t ratios for the individual regression slopes were examined. Only one of the three predictors was significantly predictive of murder: the number of law enforcement officers, $t(74) = 2.67$, p = .01. Therefore, in 2010, murder could be predicted from this set of three variables.

The nature of the positive predictive relationship of the number of LEOs on murder was also not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: sr^2 = .08 for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of LEOs was both the only and the strongest predictor of murder.

The other two predictor variables (i.e., race and socioeconomic index) were not significantly related to murder when other predictors were statistically controlled; their partial slopes were not significant. Neither race nor socioeconomic index was predictive of murder in this regression, even though these two variables had significant zero-order correlations with murder; apparently, the information that they contributed to the regression was redundant with other predictors.

LEOKA. The mean value for LEOKA per 1,000 persons was M = 0.2. The overall regression, including all three predictors, was not statistically significant, R = .36, R^2 = .13, adjusted R^2 = .01, F(3, 75) = 2.42, p = .01.

Criminal Arrests. The mean value for criminal arrests was M = 1552.1. The overall regression, including all three predictors, was not statistically significant, R = .26, R^2 = .07, adjusted R^2 = .03, F(3, 76) = 1.83, p = .15.

Traffic Stops. The mean value for traffic stops was M = 6159.2. The overall regression, including all three predictors, was not statistically significant, R = .20, R^2 = .04, adjusted R^2 = .01, F(3, 76) = 1.04, p = .38.

Citation Rates. The mean value for citation rates was M = 71.5. The overall regression, including all three predictors, was not statistically significant, R = .27, R^2 = .07, adjusted R^2 = .03, F(3, 76) = 1.92, p = .13.

Search Rates. The mean value for search rates was M = 9.8. The overall regression, including all three predictors, was not statistically significant, R = .29, R^2 = .08, adjusted R^2 = .05, F(3, 76) = 2.30, p = .08.

Contraband Hit Rates. The mean value for contraband hit rates was M = 17.9. The overall regression, including all three predictors, was not statistically significant, R = .21, R^2 = .05, adjusted R^2 = .01, F(3, 76) = 1.25, p = .30.

Traffic Arrest Rates. The mean value for traffic arrests was M = 5.3. The overall regression, including all three predictors, was not statistically significant, R = .27, R^2 = .07, adjusted R^2 = .04, F(3, 76) = 1.97, p = .13.

Conclusion. When evaluating the effects of race, socioeconomic index, and the number of law enforcement officers on crime and policing rates across regions in 2010, only the number of law enforcement officers had an effect on total crime and murder rates. None of the other predictor variables effectively predicted levels of crime and policing across regions in 2010.

2011

The mean value for race was M = 36.7, where 36.7% of the total population identified as non-White, while the mean socioeconomic index was M = 12.0 and the number of LEOs per 1,000 citizens was M = 3.9, for the entire St. Louis, MO metropolitan region. Preliminary data screening suggested that there were no serious violations of assumptions of normality or linearity. All coefficients reported here are unstandardized unless otherwise noted; α = .05 two-tailed is the criterion for statistical significance. Tables 19 and 20 display descriptive statistics and correlations, respectively.

Table 19

Descriptive Statistics, 2011

	Descriptive Statistics		
	Mean	Std. Deviation	N
Race	36.7	25.7	80
Socioeconomic Index	12.0	3.9	80
LEOs	3.9	2.9	80
Total Crime	39.4	24.3	80
Property Crime	34.4	20.7	80
Violent Crime	4.95	5.88	80
Murder	.7	1.9	80
LEOKA	.20	.30	80
Criminal Arrests	1676.7	4171.6	80
Traffic Stops	6237.3	12773.8	80
Citation Rate	69.9	24.6	80
Search Rate	8.9	8.1	80
CB Hit Rate	14.5	10.5	80
Traffic Arrest Rate	4.7	4.2	80

Table 20

Correlations and Coefficients, 2011

	Correlation			Unstandardized Coefficient			*t*			Sig.		
	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO
Total Crime	.43	.47	.49	-.15	3.02	3.30	-.68	2.21	4.02	.50	.03	.001
Violent Crime	.54	.58	.47	-.02	.81	.65	-.33	2.58	3.47	.74	.01	.001
Property Crime	.36	.40	.45	-.127	2.20	2.65	-.67	1.80	3.62	.50	.08	.001
Murder	.29	.29	.24	.01	.09	.10	.24	.71	1.34	.81	.48	.19
LEOKA	.16	.20	.05	-.00	.03	.00	-.47	1.20	-.03	.64	.24	.98
Criminal Arrests	.06	.13	-.13	-45.41	462.97	-240.99	-1.03	1.63	-1.41	.31	.11	.16
Traffic Stops	-.02	.02	-.16	-70.99	660.30	-761.09	-.52	.75	-1.43	.61	.46	.16
Citation Rate	.09	.09	.03	.06	.23	-.07	.22	.13	-.07	.83	.90	.94
Search Rate	-.08	.01	-.16	-.15	1.02	-.41	-.175	1.84	-.124	.08	.07	.22
CB Hit Rate	-.18	-.22	-.20	.06	-.80	-.57	.51	-1.10	-1.31	.61	.28	.19
Traffic Arrest Rate	.13	.17	.20	-.03	.33	.25	-.78	1.15	1.49	.44	.25	.14

Total Crime. The mean value for total crime per 1,000 persons was M = 39.4. The overall regression, including all three predictors, was statistically significant, R = .60, R^2 = .36, adjusted R^2 = .34, $F(3, 76) = 14.25$, $p < .001$. To assess the contributions of the individual predictors, the t ratios for the individual regression slopes were examined. Two of the three predictors were significantly predictive of total crime: socioeconomic index and the number of law enforcement officers, where $t(76) = 2.21$, $p = .03$ and $t(76) = 4.02$,

$p < .001$, respectively. Therefore, in 2011, total crime could be predicted from the socioeconomic index and the number of law enforcement officers.

The nature of the socioeconomic index's positive predictive relationship was as predicted, where higher socioeconomic indices (i.e., increased economic disparity) resulted in higher crime rates. The number of LEOs on total crime was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .04$ for socioeconomic index and $sr^2 = .14$ for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of LEOs was the strongest predictor of total crime.

The other predictor variable (i.e., race) was not significantly related to total crime when other predictors were statistically controlled; their partial slopes were not significant. Moreover, race was predictive of total crime in this regression, even though this variable had a significant zero-order correlation with total crime; apparently, the information that they contributed to the regression was redundant with other predictors.

Violent Crime. The mean value for violent crime per 1,000 persons was $M = 5.0$. The overall regression, including all three predictors, was statistically significant, $R = .65$, $R^2 = .43$, adjusted $R^2 = .40$, $F(3, 76) = 18.77$, $p < .001$. To assess the contributions of the individual predictors, the t ratios for the individual regression slopes were examined. Two of the three predictors were significantly predictive of violent crime: socioeconomic index and the number of law enforcement officers, where $t(76) = 2.58$, $p = .01$ and $t(76) =$

3.47, $p < .001$, respectively. Therefore, in 2011, violent crime could be predicted from the socioeconomic index and the number of law enforcement officers.

The nature of the socioeconomic index's positive predictive relationship was as predicted, where higher socioeconomic indices (i.e., increased economic disparity) resulted in higher crime rates. The number of LEOs on violent crime was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .05$ for socioeconomic index and $sr^2 = .09$ for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of LEOs was the strongest predictor of violent crime.

The other predictor variable (i.e., race) was not significantly related to violent crime when other predictors were statistically controlled; the partial slope was not significant. Moreover, race was predictive of violent crime in this regression, even though this variable had a significant zero-order correlation with violent crime; apparently, the information that they contributed to the regression was redundant with other predictors.

Property Crime. The mean value for property crime per 1,000 persons was M = 34.4. The overall regression, including all three predictors, was statistically significant, $R = .53$, $R^2 = .28$, adjusted $R^2 = .25$, $F(3, 76) = 9.91$, $p < .001$. To assess the contributions of the individual predictors, the t ratios for the individual regression slopes were examined. One of the three predictors was significantly predictive of property crime: the number of

LEOs, where $t(76) = 3.62$, $p = .01$. When adjusting the *p*-value to .10, the socioeconomic index became a significant predictor of property crime, where $t(76) = 1.80$, $p = .08$. Therefore, in 2011, property crime could be predicted from both the number of LEOs and socioeconomic index.

The nature of the socioeconomic index's positive predictive relationship was as predicted, where higher socioeconomic indices (i.e., increased economic disparity) resulted in higher crime rates. The number of LEOs on property crime was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .03$ for socioeconomic index and $sr^2 = .13$ for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of LEOs was the strongest predictor of property crime. The other predictor variable (i.e., race) was not significantly related to property crime when other predictors were statistically controlled; the partial slope was not significant, despite having a high zero-order correlation.

Murder. The mean value for murder per 10,000 persons was $M = 0.7$. The overall regression, including all three predictors, was statistically significant, $R = .33$, $R^2 = .11$, adjusted $R^2 = .07$, $F(3, 76) = 3.12$, $p = .03$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. However, none of the predictors were statistically significant; therefore, murder could not be predicted from this set of three variables.

LEOKA. The mean value for LEOKA per 1,000 persons was *M* = 0.2. The overall regression, including all three predictors, was not statistically significant, *R* = .21, R^2 = .05, adjusted R^2 = .01, *F*(3, 76) = 1.18, *p* = .32.

Criminal Arrests. The mean value for criminal arrests was *M* = 1676.7. The overall regression, including all three predictors, was not statistically significant, *R* = .25, R^2 = .06, adjusted R^2 = .03, *F*(3, 76) = 1.66, *p* = .18.

Traffic Stops. The mean value for traffic stops was *M* = 6237.3. The overall regression, including all three predictors, was not statistically significant, *R* = .18, R^2 = .03, adjusted R^2 = -.04, *F*(3, 76) = 0.90, *p* = .48.

Citation Rates. The mean value for citation rates was *M* = 69.9. The overall regression, including all three predictors, was not statistically significant, *R* = .09, R^2 = .01, adjusted R^2 = -.03, *F*(3, 76) = 0.22, *p* = .88.

Search Rates. The mean value for search rates was *M* = 8.9. The overall regression, including all three predictors, was not statistically significant, *R* = .26, R^2 = .07, adjusted R^2 = .03, *F*(3, 76) = 1.85, *p* = .15.

Contraband Hit Rates. The mean value for contraband hit rates was *M* = 17.5. The overall regression, including all three predictors, was not statistically significant, *R* = .26, R^2 = .07, adjusted R^2 = .03, *F*(3, 76) = 1.88, *p* = .14.

Traffic Arrest Rates. The mean value for traffic arrests was *M* = 4.7. The overall regression, including all three predictors, was not statistically significant, *R* = .25, R^2 = .06, adjusted R^2 = .02, *F*(3, 76) = 1.62, *p* = .19.

Conclusion. When evaluating the effects of race, socioeconomic index, and the number of law enforcement officers on crime and policing rates across regions in 2011, both socioeconomic index and the number of law enforcement officers had an effect on total, violent, and property crime and murder rates. None of the other predictor variables effectively predicted levels of crime and policing across regions in 2011. While the number of LEOs was most predictive of rates for total and property crime and murder, the relationship between the socioeconomic index and total and violent crime should not be ignored, especially as the socioeconomic index was the sole predictor of violent crime.

2012

The mean value for race was $M = 36.0$, where 36.0% of the total population identified as non-White, while the mean socioeconomic index was $M = 11.8$ and the number of LEOs per 1,000 citizens was $M = 3.7$, for the entire St. Louis, MO metropolitan region. Preliminary data screening suggested that there were no serious violations of assumptions of normality or linearity. All coefficients reported here are unstandardized unless otherwise noted; $\alpha = .05$ two-tailed is the criterion for statistical significance. Tables 21 and 22 display descriptive statistics and correlations, respectively.

Table 21

Descriptive Statistics, 2012

	Descriptive Statistics		
	Mean	Std. Deviation	N
Race	36.0	26.3	80
Socioeconomic Index	11.8	4.9	80
LEOs	3.7	2.7	80
Total Crime	37.6	27.6	80
Violent Crime	5.5	9.0	80
Property Crime	32.1	21.9	80
Murder	1.1	4.0	80
LEOKA	.2	.32	80
Criminal Arrests	1656.5	4037.0	80
Traffic Stops	6099.0	12276.4	80
Citation Rate	66.7	26.9	80
Search Rate	9.2	10.0	80
CB Hit Rate	18.0	11.2	80
Traffic Arrest Rate	4.6	4.5	80

Table 22

Correlations and Coefficients, 2012

	Correlation			Unstandardized Coefficient			*t*			Sig.		
	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO
Total Crime	.39	.43	.32	.01	2.00	2.14	.03	1.68	1.97	.98	.10	.05
Violent Crime	.43	.44	.28	.05	.51	.51	.61	1.32	1.44	.55	.19	.16
Property Crime	.32	.36	.29	-.04	1.49	1.63	-.20	1.52	1.83	.84	.13	.07
Murder	.22	.21	.43	.00	.06	.58	.07	.37	3.62	.95	.72	.001
LEOKA	.13	.17	-.08	-.00	.02	-.02	-.20	1.09	-1.16	.84	.28	.25
Criminal Arrests	.07	.09	-.14	.91	114.07	-265.28	.03	.59	-1.50	.98	.56	.14
Traffic Stops	-.02	-.04	-.17	64.94	-271.04	-811.01	.58	-.46	-1.51	.57	.65	.14
Citation Rate	.01	-.01	.00	..06	-.34	-.01	.25	-.26	-.01	.80	.80	.99
Search Rate	-.08	-.01	-.11	-.12	.59	-.35	-1.27	1.23	-.79	.21	.22	.43
CB Hit Rate	-.26	-.26	-.14	-.04	-.36	-.25	-.41	-.69	-.53	.69	.49	.60
Traffic Arrest Rate	.05	.09	.04	-.02	.18	.05	-.13	.20	.03	.60	.42	.82

Total Crime. The mean value for total crime per 1,000 persons was $M = 37.6$. The overall regression, including all three predictors, was statistically significant, $R = .47$, $R^2 = .22$, adjusted $R^2 = .19$, $F(3, 76) = 7.28$, $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. One of the three predictors was significantly predictive of total crime: the number of law

enforcement officers, where $t(76) = 1.97$, $p = .05$. Therefore, in 2012, total crime could be predicted from the number of law enforcement officers.

The number of LEOs on total crime was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .04$ for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of LEOs was the strongest predictor of total crime.

The other predictor variables (i.e., race and socioeconomic index) were not significantly related to total crime when other predictors were statistically controlled; their partial slopes were not significant, though the slope of the socioeconomic index was significant when adjusting the *p*-value upwards to .10, especially when considering the zero-order correlation was higher for the socioeconomic index when compared to the number of LEOs. Race also had a high zero-order correlation, though neither the socioeconomic index nor race were individually predictive of rates of total crime across the region.

Violent Crime. The mean value for total crime per 1,000 persons was $M = 5.5$. The overall regression, including all three predictors, was statistically significant, $R = .47$, $R^2 = .22$, adjusted $R^2 = .19$, $F(3, 76) = 7.28$, $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. However, none of the three predictors were significantly predictive of violent crime, even when adjusting the *p*-value to .10, despite high zero-order correlations.

Property Crime. The mean value for property crime per 1,000 persons was M = 32.1. The overall regression, including all three predictors, was statistically significant, R = .41, R^2 = .16, adjusted R^2 = .13, F(3, 76) = 4.98, p = .01. To assess the contributions of the individual predictors, the t ratios for the individual regression slopes were examined. When adjusting the p-value to .10, the number of LEOs became a significant predictor of property crime, where t(76) = 2.92, p = .01. Therefore, in 2012, property crime could be predicted from the number of LEOs.

The number of LEOs on property crime was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: sr^2 = .04 for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of LEOs was the strongest predictor of property crime. The other predictor variables (i.e., race and socioeconomic index) were not significantly related to property crime when other predictors were statistically controlled; their partial slopes were not significant.

Murder. The mean value for murder per 10,000 persons was M = 1.1. The overall regression, including all three predictors, was statistically significant, R = .43, R^2 = .19, adjusted R^2 = .16, F(3, 76) = 5.89, p = .01. To assess the contributions of the individual predictors, the t ratios for the individual regression slopes were examined. Only one of the three predictors was significantly predictive of murder: the number of law enforcement officers, $t(76) = 3.62$, $p = .01$. Therefore, in 2012, murder could be predicted from this set of three variables.

The nature of the positive predictive relationship of the number of LEOs on murder was also not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .14$ for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of LEOs was both the only and the strongest predictor of murder.

The other two predictor variables (i.e., race and socioeconomic index) were not significantly related to murder when other predictors were statistically controlled; their partial slopes were not significant. Neither race nor socioeconomic index was predictive of murder in this regression, even though these two variables had moderate zero-order correlations with murder; apparently, the information that they contributed to the regression was redundant with other predictors.

LEOKA. The mean value for LEOKA per 1,000 persons was $M = 0.2$. The overall regression, including all three predictors, was not statistically significant, $R = .22$, $R^2 = .05$, adjusted $R^2 = .01$, $F(3, 76) = 1.29$ $p = .28$.

Criminal Arrests. The mean value for criminal arrests was $M = 1656.5$. The overall regression, including all three predictors, was not statistically significant, $R = .19$, $R^2 = .04$, adjusted $R^2 = -.01$, $F(3, 76) = 0.98$, $p = .41$.

Traffic Stops. The mean value for traffic stops was *M* = 6099.0. The overall regression, including all three predictors, was not statistically significant, *R* = .18, R^2 = .03, adjusted R^2 = -.01, *F*(3, 76) = 0.84, *p* = .48.

Citation Rates. The mean value for citation rates was *M* = 66.7. The overall regression, including all three predictors, was not statistically significant, *R* = .03, R^2 = .01, adjusted R^2 = -.04, *F*(3, 76) = 0.02, *p* = 1.00.

Search Rates. The mean value for search rates was *M* = 9.2. The overall regression, including all three predictors, was not statistically significant, *R* = .18, R^2 = .03, adjusted R^2 = -.01, *F*(3, 76) = 0.87, *p* = .46.

Contraband Hit Rates. The mean value for contraband hit rates was *M* = 18.0. The overall regression, including all three predictors, was not statistically significant, *R* = .28, R^2 = .08, adjusted R^2 = .04, *F*(3, 76) = 2.08, *p* = .11.

Traffic Arrest Rates. The mean value for traffic arrests was *M* = 4.6. The overall regression, including all three predictors, was not statistically significant, *R* = .11, R^2 = .01, adjusted R^2 = -.03, *F*(3, 76) = 0.31, *p* = .82.

Conclusion. When evaluating the effects of race, socioeconomic index, and the number of law enforcement officers on crime and policing rates across regions in 2012, only the number of LEOs had an effect on total crime, property crime, and murder rates. None of the other predictor variables effectively predicted levels of crime and policing across regions in 2012.

2013

The mean value for race was M = 36.0, where 36.0% of the total population identified as non-White, while the mean socioeconomic index was M = 10.5 and the number of LEOs per 1,000 citizens was M = 4.0, for the entire St. Louis, MO metropolitan region. Preliminary data screening suggested that there were no serious violations of assumptions of normality or linearity. All coefficients reported here are unstandardized unless otherwise noted; α = .05 two-tailed is the criterion for statistical significance. Tables 23 and 24 display descriptive statistics and correlations, respectively.

Table 23

Descriptive Statistics, 2013

	Descriptive Statistics		
	Mean	Std. Deviation	N
Race	36.0	26.4	79
Socioeconomic Index	10.5	4.3	79
LEOs	4.0	4.0	79
Total Crime	35.2	22.7	79
Violent Crime	4.8	7.6	79
Property Crime	30.4	18.7	79
Murder	1.2	7.6	79
LEOKA	.1	.2	79
Criminal Arrests	1544.8	3711.7	79
Traffic Stops	6193.4	12180.7	79
Citation Rate	67.1	26.6	79
Search Rate	8.5	8.4	79
CB Hit Rate	19.6	12.3	79
Traffic Arrest Rate	4.7	4.8	79

Table 24

Correlations and Coefficients, 2013

	Correlation			Unstandardized Coefficient			*t*			Sig.		
	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO
Total Crime	.46	.52	.49	-.05	2.47	2.21	-.30	2.62	4.13	.76	.01	.000
Violent Crime	.46	.48	.67	.01	.54	1.13	.16	1.99	7.30	.88	.05	.000
Property Crime	.37	.43	.32	-.05	1.93	1.09	-.37	2.20	2.18	.71	.03	.03
Murder	.15	.14	.75	-.03	.08	1.48	-.75	.28	9.73	.45	.78	.000
LEOKA	.26	.28	.121	.00	.01	.00	.22	1.06	.42	.83	.30	.68
Criminal Arrests	.06	.12	-.12	-15.73	217.79	-140.12	-.49	1.11	-1.26	.62	.27	.21
Traffic Stops	-.01	-.00	-.14	-.39	107.52	-470.62	-.00	.17	-1.28	1.00	.87	.20
Citation Rate	.04	.02	-.17	.13	-.24	-1.33	.55	-.17	-1.68	.58	.87	.10
Search Rate	-.07	.04	-.11	-.12	.75	-.20	-1.63	1.70	-.83	.11	.09	.41
CB Hit Rate	-.14	-.11	-.20	-.05	.08	-.50	-.49	.12	-1.50	.63	.90	.14
Traffic Arrest Rate	.12	.19	.03	-.03	.37	-.01	-.70	1.44	-.09	.49	.15	.93

Total Crime. The mean value for total crime per 1,000 persons was *M* = 35.2. The overall regression, including all three predictors, was statistically significant, *R* = .63, R^2 = .40, adjusted R^2 = .38, *F*(3, 75) = 16.83, *p* < .001. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. Two of the three predictors were significantly predictive of total crime: the socioeconomic index and the number of law enforcement officers, where *t*(75) = 2.62, *p* = .01 and *t*(75) =

4.13, $p < .001$, respectively. Therefore, total crime could be predicted from both the socioeconomic index and the number of law enforcement officers.

The socioeconomic index was as predicted, where a higher socioeconomic index (i.e., more economic disparity) resulted in higher levels of crime. The number of LEOs on total crime was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .05$ for the socioeconomic index and $sr^2 = .14$ for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of LEOs was the strongest predictor of total crime.

The other predictor variable (i.e., race) was not significantly related to total crime when other predictors were statistically controlled; their partial slopes were not significant. Race also had a high zero-order correlation, though neither the socioeconomic index nor race were individually predictive of rates of total crime across the region.

Violent Crime. The mean value for total crime per 1,000 persons was $M = 4.8$. The overall regression, including all three predictors, was statistically significant, $R = .74$, $R^2 = .55$, adjusted $R^2 = .54$, $F(3, 75) = 30.92$, $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. Two of the three predictors were significantly predictive of violent crime: the socioeconomic index and the number of law enforcement officers, where $t(75) = 1.99$, $p = .05$ and $t(75) =$

7.30, $p < .001$, respectively. Therefore, violent crime could be predicted from both the socioeconomic index and the number of law enforcement officers.

The socioeconomic index was as predicted, where a higher socioeconomic index (i.e., more economic disparity) resulted in higher levels of crime. The number of LEOs on violent crime was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .02$ for the socioeconomic index and $sr^2 = .31$ for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of LEOs was the strongest predictor of violent crime.

Property Crime. The mean value for property crime per 1,000 persons was $M = 30.4$. The overall regression, including all three predictors, was statistically significant, $R = .49$, $R^2 = .24$, adjusted $R^2 = .21$, $F(3, 75) = 7.74$, $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. Two of the three predictors were significantly predictive of property crime: the socioeconomic index and the number of law enforcement officers, where $t(75) = 2.20$, $p = .03$ and $t(75) = 2.18$, $p = .03$, respectively. Therefore, property crime could be predicted from both the socioeconomic index and the number of law enforcement officers.

The socioeconomic index was as predicted, where a higher socioeconomic index (i.e., more economic disparity) resulted in higher levels of crime. The number of LEOs on property crime was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: sr^2 = .05 for the socioeconomic index and sr^2 = .05 for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the socioeconomic index was the strongest predictor of property crime because of its higher zero-order value.

Murder. The mean value for murder per 10,000 persons was M = 1.2. The overall regression, including all three predictors, was statistically significant, R = .75, R^2 = .57, adjusted R^2 = .55, $F(3, 75) = 32.85$, $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. Only one of the three predictors was significantly predictive of murder: the number of law enforcement officers, $t(75) = 9.73$, $p < .001$. Therefore, in 2013, murder could be predicted from this set of three variables.

The nature of the positive predictive relationship of the number of LEOs on murder was also not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: sr^2 = .55 for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of LEOs was both the only and the strongest predictor of murder.

The other two predictor variables (i.e., race and socioeconomic index) were not significantly related to murder when other predictors were statistically controlled; their partial slopes were not significant.

LEOKA. The mean value for LEOKA per 1,000 persons was *M* = 0.1. The overall regression, including all three predictors, was not statistically significant, *R* = .29, R^2 = .08, adjusted R^2 = .05, *F*(3, 75) = 2.30 *p* = .08.

Criminal Arrests. The mean value for criminal arrests was *M* = 1544.8. The overall regression, including all three predictors, was not statistically significant, *R* = .20, R^2 = .04, adjusted R^2 = .01, *F*(3, 75) = 1.04, *p* = .38.

Traffic Stops. The mean value for traffic stops was *M* = 6193.4. The overall regression, including all three predictors, was not statistically significant, *R* = .15, R^2 = .02, adjusted R^2 = -.02, *F*(3, 75) = 0.56, *p* = .64.

Citation Rates. The mean value for citation rates was *M* = 67.1. The overall regression, including all three predictors, was not statistically significant, *R* = .19, R^2 = .04, adjusted R^2 = -.01, *F*(3, 75) = 0.98, *p* = 0.41.

Search Rates. The mean value for search rates was *M* = 8.5. The overall regression, including all three predictors, was not statistically significant, *R* = .22, R^2 = .05, adjusted R^2 = .01, *F*(3, 75) = 1.31, *p* = .28.

Contraband Hit Rates. The mean value for contraband hit rates was *M* = 19.6. The overall regression, including all three predictors, was not statistically significant, *R* = .22, R^2 = .05, adjusted R^2 = .01, *F*(3, 75) = 1.26, *p* = .30.

Traffic Arrest Rates. The mean value for traffic arrests was *M* = 4.7. The overall regression, including all three predictors, was not statistically significant, *R* = .20, R^2 = .04, adjusted R^2 = .01, *F*(3, 75) = 1.06, *p* = .37.

Conclusion. When evaluating the effects of race, socioeconomic index, and the number of law enforcement officers on crime and policing rates across regions in 2013, both socioeconomic index and the number of law enforcement officers had an effect on total, violent, and property crime and murder rates. None of the other predictor variables effectively predicted levels of crime and policing across regions in 2013. While the number of LEOs was most predictive of rates for total and violent crime and murder, the relationship between the socioeconomic index and total and violent crime should not be ignored, especially as the socioeconomic index was the sole predictor of property crime.

2014

The mean value for race was $M = 35.3$, where 35.3% of the total population identified as non-White, while the mean socioeconomic index was $M = 9.2$ and the number of LEOs per 1,000 citizens was $M = 4.2$, for the entire St. Louis, MO metropolitan region. Preliminary data screening suggested that there were no serious violations of assumptions of normality or linearity. All coefficients reported here are unstandardized unless otherwise noted; $\alpha = .05$ two-tailed is the criterion for statistical significance. Tables 25 and 26 display descriptive statistics and correlations, respectively.

Table 25

Descriptive Statistics, 2014

	Descriptive Statistics		
	Mean	Std. Deviation	N
Race	35.2	25.6	78
Socioeconomic Index	9.24	3.3	78
LEOs	4.2	5.2	78
Total Crime	35.8	21.2	78
Violent Crime	4.4	5.8	78
Property Crime	28.4	17.5	78
Murder	1.1	3.9	78
LEOKA	.15	.21	78
Criminal Arrests	1373.3	3151.9	78
Traffic Stops	5821.1	9613.0	78
Citation Rate	67.3	23.8	78
Search Rate	8.7	7.8	78
CB Hit Rate	20.8	12.2	78
Traffic Arrest Rate	4.8	5.0	78

Table 26

Correlations and Coefficients, 2014

	Correlation			Unstandardized Coefficient			*t*			Sig.		
	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO
Total Crime	.47	.52	.41	.04	2.62	1.19	.30	2.53	3.00	.77	.01	.01
Violent Crime	.48	.52	.32	.02	.69	.22	.58	2.35	1.95	.57	.02	.06
Property Crime	.41	.46	.39	.02	1.93	.97	.15	2.14	2.82	.88	.04	.01
Murder	.29	.28	.11	.03	.16	.02	.89	.70	.24	.38	.49	.81
LEOKA	.21	.28	-.09	-.00	.02	-.01	-.04	1.74	-1.48	.97	.09	.14
Criminal Arrests	.07	.18	-.09	-26.13	362.60	-71.09	-1.08	1.96	-1.01	.29	.05	.32
Traffic Stops	-.02	.05	-15	-49.85	558.31	-295.12	-.66	.97	-1.35	.51	.33	.18
Citation Rate	.08	.04	-.38	.24	-.45	-1.98	1.39	-.35	-3.96	.17	.73	.000
Search Rate	.04	.19	-.16	-.09	1.10	-.28	-1.46	2.44	-1.62	.15	.02	.11
CB Hit Rate	-.08	-.11	-.27	.04	-.43	-.65	.47	-.60	-2.33	.34	.55	.02
Traffic Arrest Rate	.21	.26	-.07	.00	.43	-.14	.01	.29	-.14	.95	.14	.22

Total Crime. The mean value for total crime per 1,000 persons was $M = 35.8$. The overall regression, including all three predictors, was statistically significant, $R = .60$, $R^2 = .35$, adjusted $R^2 = .33$, $F(3, 74) = 13.54$, $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. Two of the three predictors were significantly predictive of total crime: the socioeconomic index and the number of law enforcement officers, where $t(74) = 2.53$, $p = .01$ and $t(74) =$

3.00, p = .01, respectively. Therefore, total crime could be predicted from both the socioeconomic index and the number of law enforcement officers.

The socioeconomic index was as predicted, where a higher socioeconomic index (i.e., more economic disparity) resulted in higher levels of crime. The number of LEOs on total crime was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: sr^2 = .06 for the socioeconomic index and sr^2 = .08 for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of LEOs was the strongest predictor of total crime.

The other predictor variable (i.e., race) was not significantly related to total crime when other predictors were statistically controlled; their partial slopes were not significant. Race also had a high zero-order correlation, though neither the socioeconomic index nor race were individually predictive of rates of total crime across the region.

Violent Crime. The mean value for total crime per 1,000 persons was M = 4.4. The overall regression, including all three predictors, was statistically significant, R = .56, R^2 = .31, adjusted R^2 = .29, F(3, 74) = 11.25, p < .001. To assess the contributions of the individual predictors, the t ratios for the individual regression slopes were examined. However, when increasing the p-value to .10, two of the three predictors were significantly predictive of violent crime: the socioeconomic index and the number of law enforcement officers, where t(74) = 2.35, p = .02 and t(74) = 1.95, p = .06, respectively.

Therefore, violent crime could be predicted from both the socioeconomic index and the number of law enforcement officers.

The socioeconomic index was as predicted, where a higher socioeconomic index (i.e., more economic disparity) resulted in higher levels of crime. The number of LEOs on violent crime was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .05$ for the socioeconomic index and $sr^2 = .04$ for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the socioeconomic index was the strongest predictor of violent crime.

The other predictor variable (i.e., race) was not significantly related to total crime when other predictors were statistically controlled; their partial slopes were not significant. Race also had a high zero-order correlation, though neither the socioeconomic index nor race were individually predictive of rates of total crime across the region.

Property Crime. The mean value for property crime per 1,000 persons was M = 28.4. The overall regression, including all three predictors, was statistically significant, $R = .54$, $R^2 = .29$, adjusted $R^2 = .26$, $F(3, 74) = 9.99$, $p < .001$. To assess the contributions of the individual predictors, the t ratios for the individual regression slopes were examined. Two of the three predictors were significantly predictive of property crime: the socioeconomic index and the number of law enforcement officers, where $t(74) = 2.14$, p

= .04 and $t(74) = 2.82$, $p = .01$, respectively. Therefore, property crime could be predicted from both the socioeconomic index and the number of law enforcement officers.

The socioeconomic index was as predicted, where a higher socioeconomic index (i.e., more economic disparity) resulted in higher levels of crime. The number of LEOs on property crime was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .04$ for the socioeconomic index and $sr^2 = .08$ for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the socioeconomic index was the strongest predictor of property crime because of its higher zero-order value.

Murder. The mean value for murder per 10,000 persons was $M = 1.1$. The overall regression, including all three predictors, was not statistically significant, $R = .30$, $R^2 = .09$, adjusted $R^2 = .05$, $F(3, 74) = 2.48$, $p = .07$.

LEOKA. The mean value for LEOKA per 1,000 persons was $M = 0.2$. The overall regression, including all three predictors, was statistically significant, $R = .33$, $R^2 = .11$, adjusted $R^2 = .07$, $F(3, 74) = 2.99$ $p = .04$. However, none of the predictors were statistically significant; therefore, LEOKA could not be predicted from this set of three variables.

Criminal Arrests. The mean value for criminal arrests was $M = 1373.3$. The overall regression, including all three predictors, was not statistically significant, $R = .25$, $R^2 = .07$, adjusted $R^2 = .03$, $F(3, 74) = 1.71$, $p = .38$.

Traffic Stops. The mean value for traffic stops was *M* = 5821.1. The overall regression, including all three predictors, was not statistically significant, *R* = .19, R^2 = .04, adjusted R^2 = -.01, *F*(3, 74) = 0.93, *p* = .43.

Citation Rates. The mean value for citation rates was *M* = 67.3. The overall regression, including all three predictors, was statistically significant, *R* = .43, R^2 = .18, adjusted R^2 = .15, *F*(3, 74) = 5.45, *p* = 0.01. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. One of the three predictors was significantly predictive of property crime: the number of law enforcement officers, where *t*(74) =- 3.96, *p* < .001. Therefore, citation rates could be predicted from the number of law enforcement officers.

The effect of the number of LEOs on citations issued during traffic stops was as predicted, where more officers translated to more citations issued. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: sr^2 = .18 for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of law enforcement officers was the strongest predictor of citations issued.

Search Rates. The mean value for search rates was *M* = 8.7. The overall regression, including all three predictors, was statistically significant, *R* = .32, R^2 = .11, adjusted R^2 = .07, *F*(3, 74) = 2.88, *p* = .04. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. One of the three predictors was significantly predictive of search rates: the socioeconomic index, where $t(74) = 2.44$, $p = .02$. Therefore, search rates could be predicted from the socioeconomic index.

The socioeconomic index was as predicted, where a higher socioeconomic index (i.e., more economic disparity) resulted in higher search rates. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .07$ for the socioeconomic index. Thus, in this sample and in the context of this set of predictors, the socioeconomic index was the strongest predictor of search rates.

Contraband Hit Rates. The mean value for contraband hit rates was $M = 20.8$. The overall regression, including all three predictors, was not statistically significant, $R = .28$, $R^2 = .08$, adjusted $R^2 = .04$, $F(3, 74) = 2.12$, $p = .11$.

Traffic Arrest Rates. The mean value for traffic arrests was $M = 4.8$. The overall regression, including all three predictors, was not statistically significant, $R = .30$, $R^2 = .09$, adjusted $R^2 = .05$, $F(3, 74) = 2.40$, $p = .08$.

Conclusion. When evaluating the effects of race, socioeconomic index, and the number of law enforcement officers on crime and policing rates across regions in 2014, both the socioeconomic index and the number of law enforcement officers had an effect on total, violent, and property crime as well as citation and search rates. None of the other predictor variables effectively predicted levels of crime and policing across regions in 2014. While the number of LEOs was most predictive of crime and property crime rates, the socioeconomic index was more predictive of violent crime, citation issuance rates, and search rates. Moreover, the relationship between the socioeconomic index and total and property crime should not be ignored, especially as the socioeconomic index was more predictive of violent crime.

2015

The mean value for race was M = 36.3, where 36.3% of the total population identified as non-White, while the mean socioeconomic index was M = 9.4 and the number of LEOs per 1,000 citizens was M = 3.6, for the entire St. Louis, MO metropolitan region. Preliminary data screening suggested that there were no serious violations of assumptions of normality or linearity. All coefficients reported here are unstandardized unless otherwise noted; α = .05 two-tailed is the criterion for statistical significance. Tables 27 and 28 display descriptive statistics and correlations, respectively.

Table 27

Descriptive Statistics, 2015

	Descriptive Statistics		
	Mean	Std. Deviation	N
Race	36.2	26.7	78
Socioeconomic Index	9.4	3.8	78
LEOs	3.6	3.6	78
Total Crime	36.3	25.6	78
Violent Crime	5.7	9.6	78
Property Crime	30.6	18.9	78
Murder	.8	2.2	78
LEOKA	.1	.2	78
Criminal Arrests	1183.0	3047.3	78
Traffic Stops	5143.4	9063.3	78
Citation Rate	61.1	24.2	78
Search Rate	9.5	8.1	78
CB Hit Rate	24.0	14.4	78
Traffic Arrest Rate	4.3	3.1	78

Table 28

Correlations and Coefficients, 2015

	Correlation			Unstandardized Coefficient			*t*			Sig.		
	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO
Total Crime	.48	.49	.58	.12	1.79	3.46	.81	1.71	5.49	.42	.09	.000
Violent Crime	.42	.41	.74	.03	.50	1.81	.54	1.49	9.04	.60	.14	.000
Property Crime	.44	.45	.41	.10	1.29	1.64	.75	1.46	3.07	.46	.15	.01
Murder	.29	.31	.11	.01	.12	.02	.49	1.05	.30	.63	.30	.76
LEOKA	.22	.22	.34	.00	.01	.02	.22	.55	2.72	.83	.58	.01
Criminal Arrests	.04	.11	-.10	-16.50	202.67	-101.06	-.68	1.20	-1.00	.50	.23	.32
Traffic Stops	-.05	-.04	-.15	-15.08	82.63	-369.07	-.21	.16	-1.22	.84	.87	.23
Citation Rate	.09	.08	-.12	.10	.18	-1.02	.51	.13	-1.26	.61	.90	.21
Search Rate	-.01	.12	-.14	-.10	.94	-.35	-1.63	2.16	-1.33	.11	.03	.19
CB Hit Rate	-.05	-.04	-.20	-.01	.08	-.83	-.09	.10	-1.73	.93	.92	.09
Traffic Arrest Rate	.16	.30	-.09	-.03	.47	-.13	-1.42	2.89	-1.29	.16	.01	.20

Total Crime. The mean value for total crime per 1,000 persons was $M = 36.3$. The overall regression, including all three predictors, was statistically significant, $R = .68$, $R^2 = .47$, adjusted $R^2 = .44$, $F(3, 74) = 21.73$, $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. One of the three predictors was significantly predictive of total crime: the number of law

enforcement officers, where $t(74) = 5.49$, $p < .001$. Therefore, total crime could be predicted from the number of law enforcement officers.

The number of LEOs on total crime was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .22$ for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of LEOs was the strongest predictor of total crime.

The other predictor variables (i.e., race and socioeconomic status) were not significantly related to total crime when other predictors were statistically controlled; their partial slopes were not significant. Race also had a high zero-order correlation, though neither the socioeconomic index nor race were individually predictive of rates of total crime across the region.

Violent Crime. The mean value for violent crime per 1,000 persons was $M = 5.7$. The overall regression, including all three predictors, was statistically significant, $R = .78$, $R^2 = .61$, adjusted $R^2 = .60$, $F(3, 74) = 39.17$, $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. One of the three predictors was significantly predictive of violent crime: the number of law enforcement officers, where $t(74) = 9.04$, $p < .001$. Therefore, violent crime could be predicted from the number of law enforcement officers.

The number of LEOs on violent crime was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: sr^2 = .42 for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of LEOs was the strongest predictor of violent crime.

Property Crime. The mean value for property crime per 1,000 persons was *M* = 30.6. The overall regression, including all three predictors, was statistically significant, $R = .55$, $R^2 = .30$, adjusted $R^2 = .27$, $F(3, 74) = 10.58$, $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. One of the three predictors was significantly predictive of property crime: the number of law enforcement officers, where $t(74) = 3.07$, $p = .01$. Therefore, property crime could be predicted from the number of law enforcement officers.

The number of LEOs on property crime was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: sr^2 = .09 for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of law enforcement officers per capita was the strongest predictor of property crime.

Murder. The mean value for murder per 10,000 persons was *M* = 0.8. The overall regression, including all three predictors, was statistically significant, $R = .31$, $R^2 = .10$, adjusted $R^2 = .06$, $F(3, 74) = 2.67$, $p = .05$. However, none of the predictors were statistically significant; therefore, murder could not be predicted from this set of three variables.

LEOKA. The mean value for LEOKA per 1,000 persons was $M = 0.2$. The overall regression, including all three predictors, was statistically significant, $R = .37$, $R^2 = .14$, adjusted $R^2 = .10$, $F(3, 74) = 3.92$ $p = .01$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. One of the three predictors was significantly predictive of LEOKA: the number of law enforcement officers, where $t(74) = 2.72$, $p = .01$. Therefore, LEOKA could be predicted from the number of law enforcement officers.

The number of LEOs on LEOKA was as predicted, where more officers translated to more assaults on officers. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .08$ for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of law enforcement officers per capita was the strongest predictor.

Criminal Arrests. The mean value for criminal arrests was $M = 1183.0$. The overall regression, including all three predictors, was not statistically significant, $R = .18$, $R^2 = .03$, adjusted $R^2 = -.01$, $F(3, 74) = 0.83$, $p = .48$.

Traffic Stops. The mean value for traffic stops was $M = 5143.4$. The overall regression, including all three predictors, was not statistically significant, $R = .15$, $R^2 = .02$, adjusted $R^2 = -.02$, $F(3, 74) = 0.58$, $p = .63$.

Citation Rates. The mean value for citation rates was $M = 61.1$. The overall regression, including all three predictors, was not statistically significant, $R = .17$, $R^2 = .03$, adjusted $R^2 = -.01$, $F(3, 74) = 0.75$, $p = 0.53$.

Search Rates. The mean value for search rates was *M* = 9.5. The overall regression, including all three predictors, was not statistically significant, $R = .28$, $R^2 = .08$, adjusted $R^2 = .04$, $F(3, 74) = 2.10$, $p = .11$.

Contraband Hit Rates. The mean value for contraband hit rates was *M* = 24.0. The overall regression, including all three predictors, was not statistically significant, $R = .20$, $R^2 = .04$, adjusted $R^2 = .01$, $F(3, 74) = 1.08$, $p = .36$.

Traffic Arrest Rates. The mean value for traffic arrests was *M* = 4.3. The overall regression, including all three predictors, was statistically significant, $R = .37$, $R^2 = .14$, adjusted $R^2 = .11$, $F(3, 74) = 4.02$, $p = .01$. One of the three predictors was significantly predictive of traffic arrest rates: the socioeconomic index, where $t(74) = 2.89$, $p = .01$. Therefore, traffic arrest rates could be predicted from the socioeconomic index.

The socioeconomic index was as predicted, where a higher socioeconomic index (i.e., more economic disparity) resulted in higher traffic arrest rates. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .10$ for the socioeconomic index. Thus, in this sample and in the context of this set of predictors, the socioeconomic index was the strongest predictor of traffic arrest rates.

Conclusion. When evaluating the effects of race, socioeconomic index, and number of LEOs on crime and policing rates across regions in 2015, the number of law enforcement officers affected total, violent, and property crime and LEOKAs. Additionally, the socioeconomic index appeared to be the most predictive of traffic arrest rates across the region. While the relationship between the number of LEOs per capita and LEOKAs appears logical, where more LEOs result in higher rates of assault or injury, the positive relationship between the number of LEOs and crime rates seems less intuitive. Moreover, in 2015, the socioeconomic index was predictive of the total number of traffic arrests with no relationship to crime, indicating a potential underlying disparity.

2016

The mean value for race was *M* = 34.7, where 34.7% of the total population identified as non-White, while the mean socioeconomic index was *M* = 8.7 and the number of LEOs per 1,000 citizens was *M* = 3.5, for the entire St. Louis, MO metropolitan region. Preliminary data screening suggested that there were no serious violations of assumptions of normality or linearity. All coefficients reported here are unstandardized unless otherwise noted; $\alpha = .05$ two-tailed is the criterion for statistical significance. Tables 29 and 30 display descriptive statistics and correlations, respectively.

Table 29

Descriptive Statistics, 2016

	Descriptive Statistics		
	Mean	Std. Deviation	N
Race	34.7	26.1	74
Socioeconomic Index	8.7	3.5	74
LEOs	3.5	3.4	74
Total Crime	35.7	22.8	74
Violent Crime	4.9	6.1	74
Property Crime	29.5	18.4	74
Murder	2.0	8.3	74
LEOKA	.2	.2	74
Criminal Arrests	1184.2	3280.1	74
Traffic Stops	5184.6	9253.3	74
Citation Rate	59.7	22.6	74
Search Rate	9.4	8.6	74
CB Hit Rate	29.8	19.4	74
Traffic Arrest Rate	3.8	2.6	74

Table 30

Correlations and Coefficients, 2016

	Correlation			Unstandardized Coefficient			*t*			Sig.		
	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO
Total Crime	.43	.40	.23	.23	1.17	.85	1.61	1.12	1.15	.11	.27	.25
Violent Crime	.58	.55	.12	.09	.47	-.05	2.60	.189	-.31	.01	.06	.76
Property Crime	.35	.33	.21	.15	.79	.73	1.23	.90	1.18	.22	.37	.24
Murder	.25	.22	.28	.04	.20	.57	.71	.50	1.99	.48	.62	.05
LEOKA	.26	.24	.18	.00	.01	.01	.84	.64	1.04	.41	.52	.30
Criminal Arrests	.05	.07	-.09	1.40	79.27	-100.80	.06	.47	-.85	.95	.64	.40
Traffic Stops	.01	-.00	-.03	14.97	-76.89	-87.90	.23	-.16	-.26	.82	.87	.80
Citation Rate	.17	.19	.08	.05	.89	.27	.34	.78	.34	.74	.44	.74
Search Rate	-.06	.08	-.04	-.09	.69	-.06	-1.45	1.57	-.19	.15	.12	.85
CB Hit Rate	-.10	-.15	-.02	.03	-1.01	.01	.22	-1.02	.01	.83	.31	.99
Traffic Arrest Rate	.03	.21	.01	-.03	.32	.00	-1.61	2.42	.04	.11	.02	.97

Total Crime. The mean value for total crime per 1,000 persons was M = 34.7. The overall regression, including all three predictors, was statistically significant, R = .46, R^2 = .21, adjusted R^2 = .18, $F(3, 70)$ = 6.29, p = .01. However, none of the predictors were statistically significant; therefore, total crime could not be predicted from this set of three variables, despite moderate zero-order correlations between total crime and race and socioeconomic index.

Violent Crime. The mean value for violent crime per 1,000 persons was $M = 4.9$. The overall regression, including all three predictors, was statistically significant, $R = .61$, $R^2 = .37$, adjusted $R^2 = .34$, $F(3, 70) = 13.48$ $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. One of the three predictors was significantly predictive of violent crime: race, where $t(70) = 2.60$, $p = .01$. However, when increasing the *p*-value to .10, the socioeconomic index also becomes significant, where $t(70) = 1.89$, $p = .06$. Therefore, violent crime could be predicted from race and the socioeconomic index.

Race was as predicted, where a higher rate of non-Whites translated to more crime. The socioeconomic index was also as predicted, where a higher index resulted from greater economic disparity, translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .06$ for race and $sr^2 = .03$ for socioeconomic index. Thus, in this sample and in the context of this set of predictors, race was the strongest predictor of violent crime.

Property Crime. The mean value for property crime per 1,000 persons was $M = 29.5$. The overall regression, including all three predictors, was statistically significant, $R = .39$, $R^2 = .15$, adjusted $R^2 = .12$, $F(3, 70) = 4.16$, $p = .01$. However, none of the predictors were statistically significant; therefore, property crime could not be predicted from this set of three variables, despite moderate zero-order correlations between property crime and race and socioeconomic index.

Murder. The mean value for murder per 10,000 persons was M = 2.0. The overall regression, including all three predictors, was statistically significant, R = .34, R^2 = .11, adjusted R^2 = .06, $F(3, 70) = 2.98$, p = .04. One of the three predictors was significantly predictive of murder: the number of law enforcement officers, where $t(70) = 1.99$, p = .05. Therefore, murder could be predicted from the number of law enforcement officers.

The number of LEOs on murder was not as predicted, where more officers translated to more homicides. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: sr^2 = .05 for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of law enforcement officers per capita was the strongest predictor.

LEOKA. The mean value for LEOKA per 1,000 persons was M = 0.2. The overall regression, including all three predictors, was not statistically significant, R = .30, R^2 = .09, adjusted R^2 = .05, $F(3, 70) = 2.24$, p = .09.

Criminal Arrests. The mean value for criminal arrests was M = 1184.2. The overall regression, including all three predictors, was not statistically significant, R = .13, R^2 = .02, adjusted R^2 = -.03, $F(3, 70) = 0.37$, p = .77.

Traffic Stops. The mean value for traffic stops was M = 5184.6. The overall regression, including all three predictors, was not statistically significant, R = .04, R^2 = .01, adjusted R^2 = -.04, $F(3, 70) = 0.04$, p = .99.

Citation Rates. The mean value for citation rates was *M* = 59.7. The overall regression, including all three predictors, was not statistically significant, *R* = .20, R^2 = .04, adjusted R^2 = -.01, *F*(3, 70) = 0.98, *p* = 0.41.

Search Rates. The mean value for search rates was *M* = 9.4. The overall regression, including all three predictors, was not statistically significant, *R* = .19, R^2 = .04, adjusted R^2 = -.01, *F*(3, 70) = 0.92, *p* = .44.

Contraband Hit Rates. The mean value for contraband hit rates was *M* = 29.8. The overall regression, including all three predictors, was not statistically significant, *R* = .15, R^2 = .02, adjusted R^2 = -.02, *F*(3, 70) = 0.56, *p* = .64.

Traffic Arrest Rates. The mean value for traffic arrests was *M* = 3.8. The overall regression, including all three predictors, was not statistically significant, *R* = .28, R^2 = .08, adjusted R^2 = .04, *F*(3, 70) = 1.98, *p* = .13.

Conclusion. When evaluating the effects of race, socioeconomic index, and number of LEOs on crime and policing rates across regions in 2016, race, and to a lesser degree, the socioeconomic index, had an effect on violent crime while the number of law enforcement officers had an effect on murder rates. The alterations in relationships between race, socioeconomic index, and number of LEOs varied more in 2016 when compared to previous years.

2017

The mean value for race was *M* = 35.5, where 35.5% of the total population identified as non-White, while the mean socioeconomic index was *M* = 8.5 and the number of LEOs per 1,000 citizens was *M* = 3.6, for the entire St. Louis, MO metropolitan region. Preliminary data screening suggested that there were no serious violations of assumptions of normality or linearity. All coefficients reported here are unstandardized unless otherwise noted; α = .05 two-tailed is the criterion for statistical significance. Tables 31 and 32 display descriptive statistics and correlations, respectively.

Table 31

Descriptive Statistics, 2017

	Descriptive Statistics		
	Mean	Std. Deviation	N
Race	35.5	27.6	72
Socioeconomic Index	8.5	3.7	72
LEOs	3.6	3.0	72
Total Crime	34.3	33.7	72
Violent Crime	4.9	8.5	72
Property Crime	29.4	26.4	72
Murder	1.6	5.6	72
LEOKA	.2	.2	72
Criminal Arrests	1160.4	3142.1	72
Traffic Stops	5244.9	8490.0	72
Citation Rate	57.5	21.9	72
Search Rate	10.6	10.1	72
CB Hit Rate	33.2	17.9	72
Traffic Arrest Rate	3.7	2.8	72

Table 32

Correlations and Coefficients, 2017

	Correlation			Unstandardized Coefficient			*t*			Sig.		
	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO
Total Crime	.36	.37	.76	-.07	1.82	8.04	-.35	1.24	8.84	.73	.22	.000
Violent Crime	.42	.43	.69	-.01	.58	1.74	-.10	1.46	7.04	.92	.15	.000
Property Crime	.33	.33	.75	-.07	1.26	6.30	-.41	1.07	8.59	.68	.29	.000
Murder	.28	.27	.65	-.00	.15	1.15	-.08	.52	6.34	.94	.61	.000
LEOKA	.27	.29	-.00	.00	.01	-.01	.37	.99	-.85	.71	.32	.40
Criminal Arrests	.07	.07	-.09	5.18	61.10	-177.37	.18	.29	-.99	.86	.78	.33
Traffic Stops	.03	-.00	-.01	39.70	-249.07	-58.83	.50	-.43	-.16	.62	.67	.87
Citation Rate	.28	.24	.33	.18	-.20	1.92	.93	-.15	2.22	.36	.89	.03
Search Rate	-.08	-.03	-.10	-.09	.55	-.24	-.91	.80	-.57	.37	.43	.57
CB Hit Rate	.05	-.01	.08	.13	-1.02	.45	.81	-.83	.60	.42	.41	.55
Traffic Arrest Rate	.01	.07	.01	-.02	.19	.00	-.81	.98	.02	.42	.33	.99

Total Crime. The mean value for total crime per 1,000 persons was $M = 34.3$. The overall regression, including all three predictors, was statistically significant, $R = .77$, $R^2 = .60$, adjusted $R^2 = .58$, $F(3, 68) = 34.09$, $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. One of the three predictors was significantly predictive of total crime: the number of law

enforcement officers, where $t(68) = 8.84$, $p < .001$. Therefore, total crime could be predicted from the number of law enforcement officers.

The number of LEOs on total crime was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .46$ for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of LEOs was the strongest predictor of total crime.

The other predictor variables (i.e., race and socioeconomic status) were not significantly related to total crime when other predictors were statistically controlled; their partial slopes were not significant. Race also had a high zero-order correlation, though neither the socioeconomic index nor race were individually predictive of rates of total crime across the region.

Violent Crime. The mean value for violent crime per 1,000 persons was $M = 4.94$ The overall regression, including all three predictors, was statistically significant, $R = .73$, $R^2 = .53$, adjusted $R^2 = .51$, $F(3, 68) = 25.66$, $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. One of the three predictors was significantly predictive of violent crime: the number of law enforcement officers, where $t(68) = 7.04$, $p < .001$. Therefore, violent crime could be predicted from the number of law enforcement officers.

The number of LEOs on violent crime was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: sr^2 = .35 for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of LEOs was the strongest predictor of violent crime.

Property Crime. The mean value for property crime per 1,000 persons was M = 29.4. The overall regression, including all three predictors, was statistically significant, R = .76, R^2 = .58, adjusted R^2 = .56, $F(3, 68) = 30.87$, $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. One of the three predictors was significantly predictive of property crime: the number of law enforcement officers, where $t(68) = 8.59$, $p < .001$. Therefore, property crime could be predicted from the number of law enforcement officers.

The number of LEOs on property crime was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: sr^2 = .46 for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of law enforcement officers per capita was the strongest predictor of property crime.

Murder. The mean value for murder per 10,000 persons was M = 1.6. The overall regression, including all three predictors, was statistically significant, R = .65, R^2 = .42, adjusted R^2 = .40, $F(3, 68) = 16.63$, $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. One of the three predictors was significantly predictive of murder: the number of law enforcement officers, where $t(68) = 6.34$, $p < .001$. Therefore, murder could be predicted from the number of law enforcement officers.

The number of LEOs on murder was not as predicted, where more officers translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .34$ for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of law enforcement officers per capita was the strongest predictor of murder.

LEOKA. The mean value for LEOKA per 1,000 persons was $M = 0.2$. The overall regression, including all three predictors, was not statistically significant, $R = .31$, $R^2 = .09$, adjusted $R^2 = .05$, $F(3, 68) = 2.352$ $p = .08$.

Criminal Arrests. The mean value for criminal arrests was $M = 1160.4$. The overall regression, including all three predictors, was not statistically significant, $R = .14$, $R^2 = .02$, adjusted $R^2 = -.02$, $F(3, 68) = 0.45$, $p = .72$.

Traffic Stops. The mean value for traffic stops was $M = 5244.9$. The overall regression, including all three predictors, was not statistically significant, $R = .06$, $R^2 = .01$, adjusted $R^2 = -.04$, $F(3, 68) = 0.09$, $p = .97$.

Citation Rates. The mean value for citation rates was $M = 57.5$. The overall regression, including all three predictors, was statistically significant, $R = .38$, $R^2 = .14$, adjusted $R^2 =.10$, $F(3, 68) = 3.75$, $p = 0.02$. To assess the contributions of the individual predictors, the t ratios for the individual regression slopes were examined. One of the three predictors was significantly predictive of citation rates: the number of law enforcement officers, where $t(68) = 2.22$, p = .03. Therefore, citation rates could be predicted from the number of law enforcement officers.

The number of LEOs on citation rates was as predicted, where more officers translated to more traffic citations. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .06$ for the number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of law enforcement officers per capita was the strongest predictor of citation rates.

Search Rates. The mean value for search rates was $M = 10.7$. The overall regression, including all three predictors, was not statistically significant, $R = .14$, $R^2 = .02$, adjusted $R^2 = -.02$, $F(3, 68) = 0.47$, $p = .71$.

Contraband Hit Rates. The mean value for contraband hit rates was $M = 33.2$. The overall regression, including all three predictors, was not statistically significant, $R = .13$, $R^2 = .02$, adjusted $R^2 = -.03$, $F(3, 68) = 0.40$, $p = .75$.

Traffic Arrest Rates. The mean value for traffic arrests was $M = 3.7$. The overall regression, including all three predictors, was not statistically significant, $R = .12$, $R^2 = .01$, adjusted $R^2 = -.03$, $F(3, 68) = 0.32$, $p = .81$.

Conclusion. When evaluating the effects of race, socioeconomic index, and number of LEOs on crime and policing rates across regions in 2017, the number of law enforcement officers affected total, violent, and property crime and murder and citation rates. None of the other variables were correlated with measures of crime. Moreover, only the number of LEOs per capita was predictive of only one measure of policing. While the number of LEOs had been positively correlated to measures of crime in past years, the strong correlation in 2017 indicates a potential shift in trends over previous years.

2018

The mean value for race was M = 35.4, where 35.4% of the total population identified as non-White, while the mean socioeconomic index was M = 8.3 and the number of LEOs per 1,000 citizens was M = 3.7, for the entire St. Louis, MO metropolitan region. Preliminary data screening suggested that there were no serious violations of assumptions of normality or linearity. All coefficients reported here are unstandardized unless otherwise noted; $\alpha = .05$ two-tailed is the criterion for statistical significance. Tables 33 and 34 display descriptive statistics and correlations, respectively.

Table 33

Descriptive Statistics, 2018

	Descriptive Statistics		
	Mean	Std. Deviation	N
Race	35.4	27.5	72
Socioeconomic Index	8.3	3.8	72
LEOs	3.7	3.8	72
Total Crime	34.7	22.8	72
Violent Crime	4.6	6.3	72
Property Crime	30.1	18.7	72
Murder	.9	4.2	72
LEOKA	.2	.2	72
Criminal Arrests	1041.2	2746.6	72
Traffic Stops	5589.4	9675.6	72
Citation Rate	58.4	22.8	72
Search Rate	10.8	9.4	72
CB Hit Rate	32.0	15.9	72
Traffic Arrest Rate	3.8	3.0	72

Table 34

Correlations and Coefficients, 2018

	Correlation			Unstandardized Coefficient			*t*			Sig.		
	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO
Total Crime	.54	.54	.22	.19	.189	.35	.90	1.20	.54	.37	.23	.59
Violent Crime	.51	.55	.12	.01	.89	-.07	.13	2.06	-.40	.90	.04	.69
Property Crime	.48	.48	.23	.19	1.00	.42	1.01	.75	.76	.32	.46	.45
Murder	.20	.21	-.09	.01	.20	-.19	.30	.59	-1.40	.77	.56	.17
LEOKA	.14	.24	.39	.00	.03	.02	-2.41	2.72	3.47	.02	.01	.000
Criminal Arrests	.08	.10	-.06	-6.22	136.54	-71.7	-.20	.61	-.78	.84	.54	.44
Traffic Stops	.02	.02	-.05	11.17	12.99	-161.34	.10	.02	-.49	.92	.99	.62
Citation Rate	.21	.21	.26	.03	.67	1.32	.12	.37	.180	.91	.71	.08
Search Rate	-.04	.09	-.08	-.27	2.10	-.19	-2.69	2.86	-.61	.01	.01	.54
CB Hit Rate	-.00	.03	.09	-.11	.74	.41	-.62	.57	.76	.54	.57	.45
Traffic Arrest Rate	.01	.12	.07	-.07	.58	.06	-2.26	2.44	.59	.03	.02	.56

Total Crime. The mean value for total crime per 1,000 persons was *M* = 34.7. The overall regression, including all three predictors, was statistically significant, *R* = .55, R^2 = .31, adjusted R^2 = .28, *F*(3, 68) = 9.99, *p* < .001. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. However, none of the predictors were statistically significant; therefore, total crime could not be predicted from this set of three variables, despite moderate zero-order correlations between total crime and race and socioeconomic index.

Violent Crime. The mean value for violent crime per 1,000 persons was *M* = 4.6. The overall regression, including all three predictors, was statistically significant, $R = .55$, $R^2 = .30$, adjusted $R^2 = .27$, $F(3, 68) = 9.90$, $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. One of the three predictors was significantly predictive of violent crime: the socioeconomic index, where $t(68) = 2.06$, $p = .04$. Therefore, violent crime could be predicted from the socioeconomic index.

The socioeconomic index's effect on violent crime was as predicted, where more a higher socioeconomic index, or more economic disparity, translated to more crime. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .04$ for socioeconomic index. Thus, in this sample and in the context of this set of predictors, the socioeconomic index was the strongest predictor of violent crime.

Property Crime. The mean value for property crime per 1,000 persons was *M* = 30.1. The overall regression, including all three predictors, was statistically significant, $R = .50$, $R^2 = .25$, adjusted $R^2 = .21$, $F(3, 68) = 7.43$, $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. However, none of the predictors were statistically significant; therefore, property crime could not be predicted from this set of three variables, despite moderate zero-order correlations between property crime and race and socioeconomic index.

Murder. The mean value for murder per 10,000 persons was *M* = 1.0. The overall regression, including all three predictors, was not statistically significant, $R = .27$, $R^2 = .07$, adjusted $R^2 = .03$, $F(3, 68) = 1.72$, $p = .17$.

LEOKA. The mean value for LEOKA per 1,000 persons was *M* = 0.2. The overall regression, including all three predictors, was statistically significant, $R = .49$, $R^2 = .24$, adjusted $R^2 = .21$, $F(3, 68) = 7.11$ $p < .001$. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. All three of the three predictors were significantly predictive of LEOKA, where $t(68) = -2.41$, $p = .02$ for race, $t(68) = 2.72$, $p = .01$ for the socioeconomic index, and $t(68) = 3.47$, $p < .001$ for the number of law enforcement officers. Therefore, LEOKA could be predicted from all three variables.

Race was not as predicted, as there was an inverse relationship on LEOKA, where a lower percentage of non-Whites led to higher numbers of assaults on LEOs. The socioeconomic index was as predicted, where higher index rates (i.e., more economic disparity) resulted in higher rates of assaults on LEOs. The number of LEOs on LEOKA was as predicted, where more officers translated to more assaults on officers. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) was follows: $sr^2 = .07$ for race, $sr^2 = .08$ for socioeconomic index, and $sr^2 = .14$ for number of LEOs. Thus, in this sample and in the context of this set of predictors, the number of law enforcement officers per capita was the strongest predictor of LEOKA.

Criminal Arrests. The mean value for criminal arrests was *M* = 1041.2. The overall regression, including all three predictors, was not statistically significant, *R* = .14, R^2 = .02, adjusted R^2 = -.02, *F*(3, 68) = 0.47, *p* = .74.

Traffic Stops. The mean value for traffic stops was *M* = 5589.4. The overall regression, including all three predictors, was not statistically significant, *R* = .06, R^2 = .00, adjusted R^2 = -.04, *F*(3, 68) = 0.09, *p* = .97.

Citation Rates. The mean value for citation rates was *M* = 58.4. The overall regression, including all three predictors, was not statistically significant, *R* = .30, R^2 = .09, adjusted R^2 = .05, *F*(3, 68) = 2.17, *p* = 0.10.

Search Rates. The mean value for search rates was *M* = 10.8. The overall regression, including all three predictors, was statistically significant, *R* = .34, R^2 = .11, adjusted R^2 = .07, *F*(3, 68) = 2.90, *p* = .04. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. Two of the three predictors were significantly predictive of search rate: race and socioeconomic index, where *t*(68) = -2.69, *p* = .01 and *t*(68) = 2.86, *p* = .01, respectively. Therefore, search rates could be predicted from race and the socioeconomic index.

Race was as predicted, as there was an inverse relationship on search rate, where a lower percentage of non-Whites led to higher rates of searches. The socioeconomic index was as predicted, where higher index rates (i.e., more economic disparity) resulted in higher citation issuance rates. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: sr^2 = .09 for race and sr^2 = .11 for the socioeconomic index. Thus, in this sample and in the context of this set of predictors, the socioeconomic index was the strongest predictor of search rate.

Contraband Hit Rates. The mean value for contraband hit rates was M = 32.0. The overall regression, including all three predictors, was not statistically significant, R = .12, R^2 = .01, adjusted R^2 = -.03, F(3, 68) = 0.30, p = .82.

Traffic Arrest Rates. The mean value for traffic arrests was M = 3.8. The overall regression, including all three predictors, was not statistically significant, R = .29, R^2 = .09, adjusted R^2 = .05, F(3, 68) = 2.11, p = .10. However, when adjusting the p-value to .10, two of the three predictors were significantly predictive of traffic arrest rates: race and the socioeconomic index, where t(68) = -2.26, p = .03 and t(68) = 2.44, p = .02, respectively. Therefore, traffic arrest rates could be predicted from race and socioeconomic index.

Race was not as predicted, as there was an inverse relationship on traffic arrest rate, where a lower percentage of non-Whites led to higher rates of traffic arrests. The socioeconomic index was as predicted, where a positive relationship was representative of a higher socioeconomic index (i.e., more economic disparity) resulted in higher traffic arrest rates. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: sr^2 = .07 for race and sr^2 = .01 for the socioeconomic index. Thus, in this sample and in the context of this set of predictors, race was the strongest predictor of traffic arrest rates.

Conclusion. When evaluating the effects of race, socioeconomic index, and number of LEOs on crime and policing rates across regions in 2018, there was far more variance among indicators. The socioeconomic index was more predictive of violent crime and search rates, while the number of LEOs was most indicative of LEOKAs, and race was most associated with traffic arrest rates. Moreover, in 2018, race and socioeconomic index became more predictive of measures of policing when compared to the previous years.

2019

The mean value for race was M = 34.3, where 34.3% of the total population identified as non-White, while the mean socioeconomic index was M = 7.3 and the number of LEOs per 1,000 citizens was M = 3.5, for the entire St. Louis, MO metropolitan region. Preliminary data screening suggested that there were no serious violations of assumptions of normality or linearity. All coefficients reported here are unstandardized unless otherwise noted; α = .05 two-tailed is the criterion for statistical significance. Tables 35 and 36 display descriptive statistics and correlations, respectively.

Total Crime. The mean value for total crime per 1,000 persons was M = 68.7. The overall regression, including all three predictors, was not statistically significant, R = .30, R^2 = .09, adjusted R^2 = .05, $F(3, 67)$ = 2.14, p = .10.

Violent Crime. The mean value for violent crime per 1,000 persons was *M* = 7.6. The overall regression, including all three predictors, was statistically significant, *R* = .36, R^2 = .13, adjusted R^2 = .01, *F*(3, 67) = 3.31, *p* = .03. However, none of the predictors were statistically significant; therefore, violent crime could not be predicted from this set of three variables, despite moderate zero-order correlations between violent crime and race and socioeconomic index.

Table 35

Descriptive Statistics, 2019

	Descriptive Statistics		
	Mean	Std. Deviation	N
Race	34.3	26.4	71
Socioeconomic Index	7.3	2.7	71
LEOs	3.5	1.7	71
Total Crime	68.7	185.9	71
Violent Crime	7.6	19.2	71
Property Crime	61.0	167.6	71
Murder	2.0	7.2	71
LEOKA	.1	.2	71
Criminal Arrests	891.2	2393.8	71
Traffic Stops	5797.1	9862.3	71
Citation Rate	57.6	22.2	71
Search Rate	12.0	12.1	71
CB Hit Rate	31.6	16.8	71
Traffic Arrest Rate	3.9	3.1	71

Table 36

Correlations and Coefficients, 2019

	Correlation			Unstandardized Coefficient			*t*			Sig.		
	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO	Race	SI	LEO
Total Crime	.26	.23	-.03	1.83	4.60	-10.08	1.31	.34	-1.15	.20	.73	.25
Violent Crime	.32	.32	-.01	.16	1.30	-1.02	1.15	.95	-1.15	.25	.34	.25
Property Crime	.25	.22	-.04	1.66	3.30	-9.07	1.32	.27	-1.15	.19	.79	.26
Murder	.26	.26	.01	.05	.40	-.26	.88	.75	-.77	.38	.46	.44
LEOKA	.16	.27	-.00	-.00	.03	-.01	-.73	2.11	-.64	.47	.04	.52
Criminal Arrests	.09	.19	-.06	-11.97	293.25	-107.33	-.66	1.66	-.94	.52	.10	.35
Traffic Stops	.00	.06	-.11	-29.36	578.32	-474.78	-.38	.78	-.99	.70	.44	.33
Citation Rate	.30	.26	.18	.20	.35	.72	1.19	.22	.70	.24	.83	.49
Search Rate	.00	.08	.02	-.08	.96	.08	-.85	1.05	.14	.40	.30	.89
CB Hit Rate	.03	.00	-.02	.06	-.36	.18	.09	-.29	-.22	.67	.78	.83
Traffic Arrest Rate	-.02	.08	.04	-.03	.30	.06	-1.21	1.29	.38	.23	.20	.70

Property Crime. The mean value for property crime per 1,000 persons was M = 61.0. The overall regression, including all three predictors, was not statistically significant, $R = .29$, $R^2 = .08$, adjusted $R^2 = .04$, $F(3, 67) = 2.02$, $p = .12$.

Murder. The mean value for murder per 10,000 persons was *M* = 2.0. The overall regression, including all three predictors, was not statistically significant, $R = .29$, $R^2 = .08$, adjusted $R^2 = .04$, $F(3, 67) = 2.00$, $p = .12$.

LEOKA. The mean value for LEOKA per 1,000 persons was *M* = 0.2. The overall regression, including all three predictors, was statistically significant, $R = .30$, $R^2 = .09$, adjusted $R^2 = .05$, $F(3, 67) = 2.17$ $p = .10$, when increasing the *p*-value to .10. To assess the contributions of the individual predictors, the *t* ratios for the individual regression slopes were examined. One of the three predictors was significantly predictive of LEOKA: the socioeconomic index, where $t(67) = 2.11$, $p = .04$. Therefore, LEOKA could be predicted from the socioeconomic index.

The socioeconomic index was as predicted, where a higher socioeconomic index (i.e., more economic disparity) translated to more assaults on officers. The proportions of variance uniquely explained by this predictor (obtained by squaring the part correlation) were as follows: $sr^2 = .06$ for the socioeconomic index. Thus, in this sample and in the context of this set of predictors, the socioeconomic index was the strongest predictor.

Criminal Arrests. The mean value for criminal arrests was *M* = 891.2. The overall regression, including all three predictors, was not statistically significant, $R = .24$, $R^2 = .06$, adjusted $R^2 = .02$, $F(3, 67) = 1.35$, $p = .27$.

Traffic Stops. The mean value for traffic stops was *M* = 5797.1. The overall regression, including all three predictors, was not statistically significant, $R = .15$, $R^2 = .02$, adjusted $R^2 = -.02$, $F(3, 67) = 0.50$, $p = .68$.

Citation Rates. The mean value for citation rates was $M = 57.6$. The overall regression, including all three predictors, was not statistically significant, $R = .31$, $R^2 = .10$, adjusted $R^2 = .06$, $F(3, 67) = 2.38$, $p =.08$.

Search Rates. The mean value for search rates was $M = 12.0$. The overall regression, including all three predictors, was not statistically significant, $R = .13$, $R^2 = .02$, adjusted $R^2 = -.03$, $F(3, 67) = 0.38$, $p = .77$.

Contraband Hit Rates. The mean value for contraband hit rates was $M = 31.6$. The overall regression, including all three predictors, was not statistically significant, $R = .06$, $R^2 = .01$, adjusted $R^2 = -.04$, $F(3, 67) = 0.7$, $p = .98$.

Traffic Arrest Rates. The mean value for traffic arrests was $M = 3.9$. The overall regression, including all three predictors, was not statistically significant, $R = .17$, $R^2 = .03$, adjusted $R^2 = -.02$, $F(3, 67) = 0.63$, $p = .60$.

Conclusion. When evaluating the effects of race, socioeconomic index, and number of LEOs on crime and policing rates across regions in 2019, the number of LEOs had an effect on the number of LEOKAs. No other indicators had a significant relationship with the variables related to crime or policing. Moreover, the variances in crime and policing statistics in 2019 when compared to previous years indicated that there might be other factors driving the change.

Conclusion of the Analysis

Within this analysis, two distinct trends in crime rates emerged. First, measures of crime (i.e., total, violent, and property crime, murder, and LEOKA) were driven by the total number of law enforcement officers between 2010 and 2015 and again in 2017 where, despite the increased number of law enforcement officers, crime rates had a positive relationship with the number of LEOs per capita. In 2015, 2018, and 2019, there was also a positive relationship between the number of LEOKAs and the number of LEOs per capita. The third trend in crime rates emerged between 2011 and 2014, 2016, and 2018 when crime rates were positively correlated with the socioeconomic index indicating the higher scores on the socioeconomic index (i.e., more economic disparity) were related to higher levels of crime, more specifically total, violent, and property crimes.

Based on this analysis, few trends in policing (i.e., criminal and traffic arrests, citation rates, search rates, and contraband hit rates) emerged. In 2014, the citation and search rates were driven by the socioeconomic index where more citations were issued and searches conducted in regions with more economic disparity. In 2015, the number of traffic arrests was positively correlated with the socioeconomic index. In 2017, the number of citations issued per traffic stop was correlated with the number of LEOs. However, in 2018, search rates and traffic arrest rates were associated with race and socioeconomic index.

Moreover, race was not widely associated with crime or policing rates. The variable was statistically significant only four times during the entire 10-year evaluation of the 11 variables of crime and policing. Race was strongly associated with violent crime in 2016 and, in 2018, race was correlated with the number of LEOKAs, searches, and traffic arrests. In other words, for the entire St. Louis, MO metropolitan region, race was not strongly associated with crime or policing between 2010 and 2019. The strongest predictor of crime is the number of LEOs per capita, while the socioeconomic index is most associated with measures of policing, with fewer relationships with factors related to crime. Therefore, based on the analysis of research question 3, the variables of race, socioeconomic index, and number of LEOs per capita are most associated with crime, not levels of policing between 2010 and 2019 for the entire metropolitan region.

Summary

RQ1

RQ1 was evaluated using repeated measures of ANOVA to compare mean levels of crime and policing across the entire St. Louis, MO metropolitan region. While the analysis revealed fluctuations in crime rates, they were not statistically significant. Levels of policing, however, did change over time. Moreover, there were distinct decreases in the number of criminal arrests, traffic stops, citation rates, contraband hit rates, and traffic arrest rates across the region between 2010 and 2019, indicating some degree of de-policing. Despite evidence supporting de-policing across the region, the lack of statistical significance in crime rates indicated that there might not be a significant relationship between crime and policing. Nonetheless, data conclusions support rejecting the first null hypothesis of no difference in levels of crime or policing across the entire metropolitan region between 2010 and 2019.

RQ2

The analyses related to RQ2 evaluated regional differences in crime and policing practices on a year-by-year basis. A one-way MANOVA was utilized to assess geographical differences in crime and policing within the St. Louis, MO metropolitan region by analyzing the 11 continuous dependent variables (i.e., total crime, violent crime, property crime, murder, LEOKA, criminal and traffic arrests, traffic stops, citation rates, search rates, and contraband hit rates) across an eight-level factor of region using SPSS general linear model (GLM) with data derived from the MSHP UCR database and the MOAG VSR.

The analysis results indicated that crime rates were declining prior to 2014; however, after 2014, violent crime and homicide rates began to increase across the region. The most significant increases in crime were found in the independent city of St. Louis and North St. Louis County. Crime trends in Jefferson and St. Charles Counties, the East-Central Corridor, West St. Louis County generally remained the same. Alterations in policing practices were also noted in St. Louis City, North St. Louis County, and St. Charles County. In St. Louis city, levels of policing remained low when compared to other regions. Policing levels were at or above the regional mean in North St. Louis County before declining after 2016. Conversely, St. Charles County became more aggressive in its policing, leading to lower overall levels of crime. Therefore, given the results of the analysis related to the second research question, the second null hypothesis stating that there is no difference in levels of policing between regions should be rejected as there is ample evidence of disparities related to crime and policing across the region, despite year-over-year differences.

RQ3

An analysis of RQ3 was conducted using multiple regression to determine the effects of race/ethnic make-up, the socioeconomic index, and the number of LEOs on crime and policing across the St. Louis, MO metropolitan region between 2010 and 2019. Trends related to crime were predicted more by the number of LEOs than race or the socioeconomic index, while levels of policing were weakly predicted by socioeconomic index. While there were clear trends in crime rates across the region, given the independent variables (i.e., race, socioeconomic index, number of LEOs), no real pattern emerged for levels of policing, indicating policing is influenced by factors not assessed in this study. Nonetheless, the null hypothesis for the third research may be rejected because there is proof that there are differences in crime rates and levels of policing when considering the effects of race, the socioeconomic index, and the number of LEOs on crime and policing across the St. Louis, MO metropolitan area between 2010 and 2019, though some of those differences are minute.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this quantitative study is to understand the impact of the Ferguson Effect on crime trends in the St. Louis, MO metropolitan area. The intent of the study was to understand the extent of de-policing in the St. Louis area by analyzing crime data five years before and after the Michael Brown shooting (2010 to 2019). This study will use statistics from the MSHP UCR database and the MOAG's VSR. Statistical analyses relating to offense type and frequency, arrests, and searches for contraband were also conducted to determine if there is a correlation between de-policing and crime rates in the region.

This chapter includes a discussion of significant findings as they relate to the literature on the Ferguson Effect, de-policing, and crime, as well as implications that may alter the course of policing through policy and practice. This chapter also includes a discussion of study findings as they relate to Bandura's theory of reciprocal determinism in an attempt to explain alterations in crime and policing across the region. The chapter concludes with a discussion of this study's limitations and analysis, areas for additional and future research, and a brief synopsis. The analysis and discussion found in this chapter are related to the following research questions:

RQ1: Are there annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between years in the St. Louis, MO metropolitan area?

RQ2: Are there annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs between geographical regions in the St. Louis, MO metropolitan area across time to determine the extent of de-policing occurring in the area?

RQ3: Are there differences in race, socioeconomic index, and the number of officers per 1,000 citizens on annual differences in terms of quantities of traffic stops, search rates, contraband hit rates, crime and arrest rates, and assaults and fatal injuries for LEOs in the St. Louis, MO metropolitan area across time to determine the extent of de-policing occurring within the region?

This study was based upon Bandura's theory of reciprocal determinism, which is an extension of his social learning theory. The acquisition of new behaviors results from observing and imitating others as well as from vicarious reinforcement (i.e., observing the effects of rewards and punishment by those performing the new behavior; Bandura, 1977). However, to better understand how LEOs alter their behavior in response to public and media scrutiny, fear of civil and criminal litigation, decreased organizational support, Bandura's theory of reciprocal determinism was used to provide a plausible explanation for these changes in behavior.

The theory of reciprocal determinism involves three interrelated factors that influence behavior: the environment, individual, and behavior (Bandura, 1978; Bernston & Cacioppo, 2005). The theory is based on the continual influence of these three behavioral determinants. While the environment or social forces exerts an influence on one's behavior, individual actions influence the environment while also altering their response to the environment (Bandura, 1978). The behavioral component is reinforced or shaped through environmental or social responses, while the environmental component contains reinforcing or punishing stimuli that influence the intensity and frequency of a behavior. The individual component is comprised of personality and cognitive factors that underlie behavior, such as expectations, motivations, beliefs, unique personality characteristics (Bandura, 1978).

Behavioral change, then, in the context of the theory of reciprocal determinism, can be viewed as a contagion, wherein the changes in behavior are infectious. When officers in one agency or location are observed performing various behaviors in reaction to positive and negative stimuli and reinforcement from society or the environment, those officers evaluate their current behaviors and environment to modify their behaviors to match those officers they observed. For example, Ferguson police officers' actions and reactions in 2014 may have resulted in changes in officer behavior and policing practices across the department and region due to internal forces and environmental shifts. As more officers begin altering their behaviors in response to observed behavioral changes and vicarious reinforcement, the phenomenon spreads, resulting in widespread changes in behavior resulting in generalized de-policing.

Similarly, though not the focus of this study, criminals may also alter their behaviors in response to changes in LEOs' behaviors. When offenders observe that fewer arrests are being effected and fewer individuals are being prosecuted, their perceived risk for committing a crime decreases, while the potential benefits of committing more profitable crimes increase. Lack of punishment or diminished risk for being apprehended is reinforced through new societal norms, policy, and de-policing, leading to the acceptance of criminal behavior via a lack of deterrence. Given this theoretical framework, not only is de-policing a consequence of increased public and media scrutiny, policy changes, and fears of civil and criminal liability, but increased crime rates. Increases in crime and the propensity for criminal to engage unlawful behavior due to decreases in deterrents are also consequences of the Ferguson Effect, even if the phenomena are not the direct result of de-policing efforts.

Interpretation of the Findings

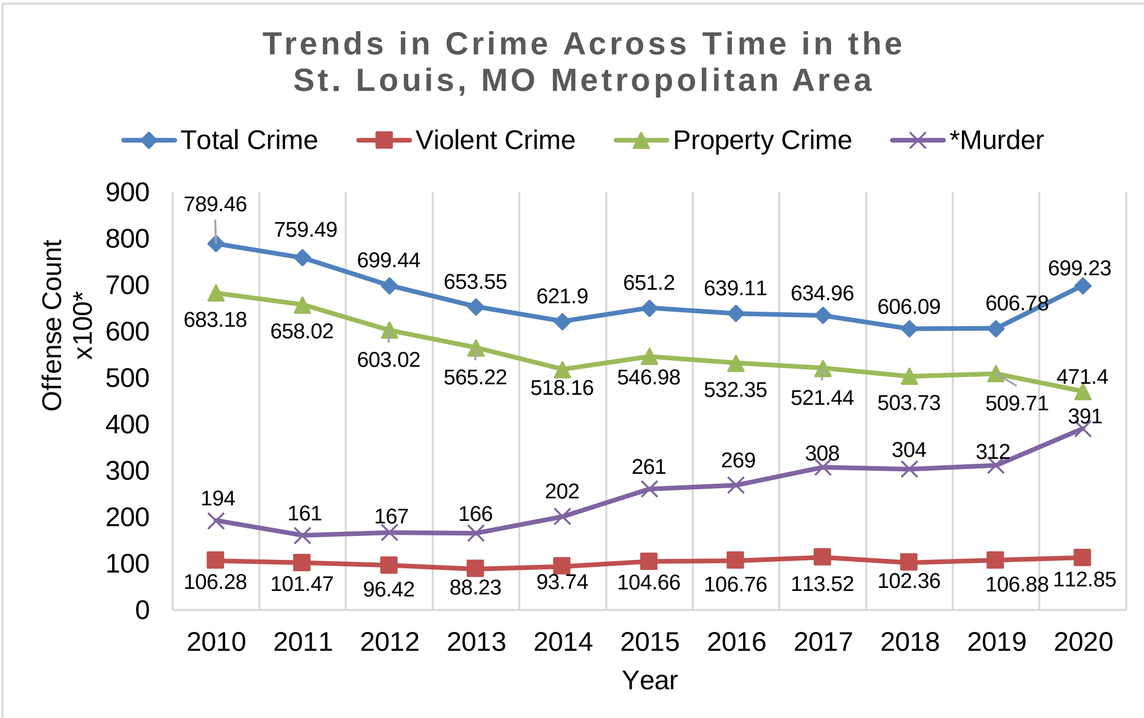
Law enforcement has evolved in response to challenges and policy changes following the Michael Brown shooting in Ferguson in August 2014. Since the events in Ferguson, many agencies have altered their policies in response to public and media scrutiny, increased civil liability, and civil unrest, which has resulted in the Ferguson Effect (Adams, 2019; Capellan et al., 2020; Deuchar et al., 2019; Gaston et al., 2019; Marier & Moule, 2019; Oliver, 2017). The phenomenon has reportedly led to widespread de-policing by LEOs, resulting in increased levels of crime (Capellan et al., 2020; Hosko, 2018; MacDonald, 2019; Maguire et al., 2017; Nix & Wolfe, 2018; Oliver, 2017; Rosenfeld & Wallman, 2019). While there is some disagreement regarding the prevalence of de-policing and its relationship with crime, crime rates have been increasing since 2014 in the St. Louis, MO metropolitan region. To better appreciate the research findings associated with this study, findings were organized by research question.

RQ1

RQ1 involved evaluating 11 measures of crime and policing (i.e., total crime, violent crime, property crime, homicide, LEOKA, criminal arrests, traffic stops, citation rates, search rates, contraband hit rates, and traffic stop arrests) over a 10-year period. Data were derived from Jefferson, St. Charles, and St. Louis Counties and the independent city of St. Louis. Each year was assessed individually to identify trends across the metropolitan area better, thereby leading to 10 separate analyses. In general, crime decreased over time, especially total and property crime. However, violent crime and murder rates rose steadily. All measures of crime increased in 2015 and 2019. Figure 7 displays these trends in crime.

Figure 7

Trends in Crime Across Time in the St. Louis, MO Metropolitan Area, 2010-2020



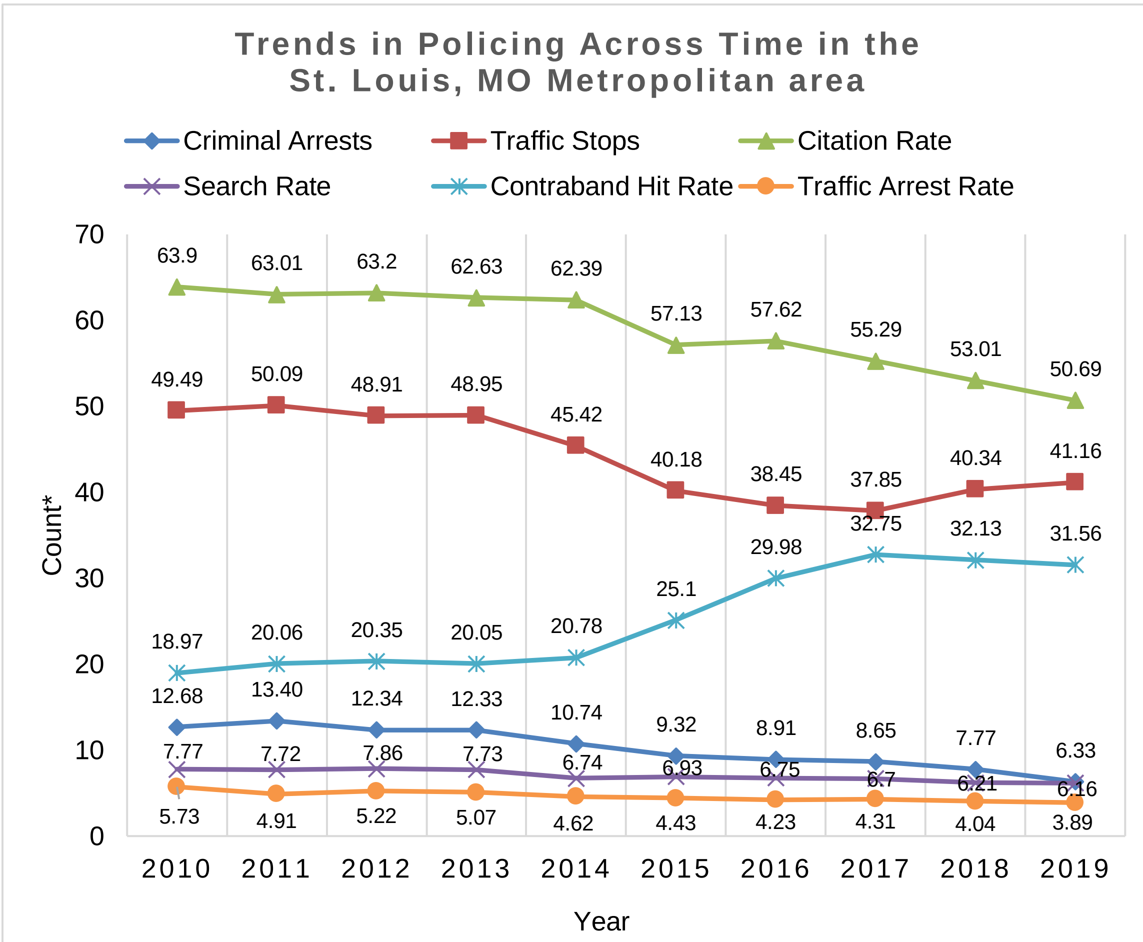
Note. Murder rates are actual counts.

In evaluating crime, there was a notable increase in crime in 2015, which may have resulted from the Ferguson Effect. When assessing measures of policing, levels of policing decreased dramatically between 2014 and 2015 in all areas except search rates and contraband hit rates (see Figure 8). While the general rise in search rates and contraband hit rates across time runs counter to decreased levels of policing across time, this should be interpreted not as more policing taking place. Instead, officers were searching more vehicles relative to the number of vehicles stopped and becoming more effective in their search techniques by identifying more contraband during those searches. Searches and contraband identification are generally products of a traffic stop and cannot serve as a sole reason for stopping a vehicle, with some exceptions. Legally, LEOs cannot stop a vehicle because they believe there is contraband inside the vehicle; instead, officers must have probable cause to stop the vehicle because the vehicle committed a traffic violation or there is a reasonable suspicion that an occupant of the vehicle is involved in criminal activity. Additionally, LEOs must also have a legal justification to search a vehicle, although obtaining consent from the vehicle owner or driver negates the need for a legal reason to search the vehicle despite protections under the Fourth Amendment. Nonetheless, traffic stops and subsequent searches of vehicles and persons inside the vehicle are legally justified under the Fourth Amendment and U.S. Supreme Court rulings (*Kansas* v. *Glover*, 2020; *Prado Navarette* v. *California*, 2014; *Terry* v. *Ohio*, 1968; *U.S.* v. *Cortez*, 1981; *U.S. v. Sokolow*, 1989).

Moreover, based on the analysis, the general decrease in levels of policing between 2010 and 2019 indicates that de-policing may be occurring in the region. The number of criminal arrests in 2019 is less than half of what they were in 2010 and a third less than 2014 arrests. Additionally, the decrease in traffic arrest rates also indicated that fewer offenders were being arrested. Regarding traffic arrests, individuals arrested during traffic stops are generally not arrested for a traffic violation (with the exception of DWI/DUI); rather, they are arrested due to outstanding criminal arrest warrants or officers identifying contraband in the vehicle during the traffic stop. MacDonald (2019) said that arrest rates do not equate to de-policing; instead, they are a function of officer discretion and an outcome of crime. It is then plausible that officers are exercising more discretion as they are arresting a lower percentage of drivers. Policy changes may also be responsible for the decrease in arrest rates.

Figure 8

Trends in Policing Across Time in the St. Louis, MO Metropolitan Area, 2010-2019



Note. Criminal arrests and traffic stops are fractional counts (actual count/1,000)

When examining the analysis results, it becomes clear that there are differences in crime and policing between 2010 and 2019 in the St. Louis, MO metropolitan area. Therefore, the null hypothesis of RQ1 is rejected. The results of this first analysis support the presumption that de-policing is occurring. However, changes in policing have been trending downward since 2010, not since the events in Ferguson in 2014.

Additionally, the decrease in traffic stops and related measures of policing may have resulted from Missouri Senate Bill 765, which placed a ban on ticket quotas effective in August 2016. The bill was part of municipal reform as many law enforcement agencies within the state, especially those in North St. Louis County, relied on the revenue from traffic tickets and ordinance violations to fund the city government (Aton, 2016; Curtis, 2016). While the bill eliminated ticket quotas, it did not limit officers' ability to write tickets. Though not a factor in this analysis, Missouri legislators were pushing for significant changes to Missouri Senate Bill 5, restricting municipalities in St. Louis County from generating more than 12.5% of their general revenue from traffic fines and fees (Kohler, 2020; Rosenbaum, 2020). The revisions to Missouri Senate Bill 5 also called for sweeping police and court reform stemming from the events in Ferguson in 2014 (Kohler, 2020; Rosenbaum, 2020). It is unclear when the state will begin enforcement of Senate Bill 5 as the ruling occurred while the final drafts of this document were written.

RQ2

The goal of RQ2 was to analyze the effects of region on the 11 measures of crime and policing over a 10-year period. Similar to the analysis of RQ1, this analysis aimed to uncover regional variances and trends. For this analysis, the St. Louis, MO metropolitan area was subdivided into eight distinct regions: Jefferson County, St. Charles County, the independent city of St. Louis, unincorporated St. Louis County, the East-Central Corridor, North St. Louis County, South St. Louis County, and West St. Louis County. Each year was assessed individually to identify trends across the metropolitan area better, thereby creating 10 separate analyses.

Several regional trends in crime and policing were identified in this analysis. First, the independent city of St. Louis and North St. Louis County possessed the highest mean levels of crime per capita when compared to all other regions. The two regions also saw the largest annual increases in crime. In 2019, North St. Louis County possessed the largest mean levels for total and violent crime in the entire region. Violent crime and homicide levels also increased dramatically in the city and North St. Louis County after 2014. More alarming are the crime per capita rates. St. Louis City is home to 11.02% of persons in the region analyzed and was responsible for 36.00% of total crime, 54.88% of violent crime, 32.04% of property crime, and 67.31% of murders for the entire region in 2019.

Similarly, North St. Louis County is home to 273,038 persons or 10.00% of this study's total population. However, the region logged 17.81% of all total crime, 13.59% of all violent crime, 18.69% of all property crime, and 11.54% of all murders for the entire region in 2019. Also, of note, St. Charles County experienced a disproportionate amount of total and property crime in 2019 compared to previous years.

Levels of policing (i.e., criminal and traffic arrests, traffic stops, citation rates, search rates, and contraband hit rates) across the region were more varied than trends in crime across regions and time. Before 2014, the highest levels of policing were found in Jefferson County, North St. Louis County, and to some extent, St. Charles County. However, after 2014, the highest mean levels of policing were consistently seen in St. Charles County. The lowest levels of policing were found in the city of St. Louis. Low levels of policing were also reported in West St. Louis County, where crime rates were also low.

Moreover, when evaluating measures of policing in 2014, 2015, 2017, and 2019, which coincided with significant increases in crime across the region, levels of policing were lower when compared to previous years. Given the results, it is plausible that there is some connection between crime and policing in the region, especially when considering how crime and policing have changed in St. Louis City and North St. Louis County. Because of the mixed results and variance among regions, it is difficult to make a definite correlation between crime and policing in the region. Regional variances, then, may be the result of intervening or confounding factors. Therefore, given the second analysis results, there is enough evidence to dispute the null hypothesis of no regional differences in crime and policing across time.

This conclusion is substantiated by the claim made by Rosenfeld and Wallman (2019), who asserted that nationwide increases in homicide rates and general decreases in arrest rates were not indicative of de-policing as there was no correlation between arrest and homicide rates between 2010 and 2015. Instead, fewer arrests equate to lower levels of crime prevention. The scholars posit that increased crime results from other environmental factors and de-policing, which cannot be measured by arrest rates. The St. Louis, MO metropolitan area trends align with the research findings; however, one should use caution in concluding that fewer arrests equate to higher levels of crime, especially violent crime. Similarly, other scholars maintain that policing cannot be measured by traffic stops or arrests as increases in crime rates result from decreases in proactive policing efforts (i.e., Ferguson Effect; Capellan et al., 2020). Therefore, the results of this study are supported by the literature and are indicative of de-policing in the wake of increases in crime (i.e., Ferguson Effect; Capellan et al., 2020; Hosko, 2018; MacDonald, 2019; Rosenfeld & Wallman, 2019; Shjarback et al., 2017). Though there are differences in what factors constitute de-policing in literature, it is evident that decreases in the number of arrests and traffic stops demonstrate an inverse relationship with violent crime rates in the St. Louis, MO metropolitan region despite regional and annual variances.

RQ3

RQ3 was similar to RQ1 in that the research goal was to identify annual differences between measures of crime and policing across time for the entire region. However, the third research analysis introduced three new variables (i.e., race, socioeconomic index, number of LEOs per 1,000 persons) to determine their effects. Three distinct trends were identified.

First, there was a clear relationship between crime (i.e., total, violent, and property crime, murder, and LEOKA) and the number of LEOs per capita between 2010 and 2015. The same relationship was identified in 2017, where, despite an increase in the number of LEOs, crime rates also increased. A second trend was observed in 2015, 2018, and 2019 when an observed relationship between the number of LEOKAs and the number of LEOs per capita. This observation is intuitive as more officers could plausibly lead to more assaults and injuries. The third trend in crime rates emerged between 2011 and 2014, in 2016, and in 2018 where increased crime rates were associated with higher scores on the socioeconomic index, indicating that the higher levels of crime occur in regions with more economic disparity (i.e., levels of poverty, unemployment, educational attainment), especially when considering total, violent, and property crimes.

However, trends in policing were not as clear as none of the new variables correlated with measures of policing. In fact, during the 10-year analysis across six measures of policing, there were only six instances (out of a possible 60) where relationships between variables were identified. In 2014, the citation and search rates were driven by the socioeconomic index where more citations were issued and searches were conducted in regions with more economic disparity. In 2015, the number of traffic arrests was associated with the socioeconomic index. In 2017, the number of citations issued per traffic stop was correlated with the number of LEOs. However, in 2018, search rates and traffic arrest rates were associated with both race and socioeconomic index.

Interestingly, race was not widely associated with crime rates or measures of policing across the region. In fact, race was a factor in only four instances out of a potential 110. In 2016, race was strongly associated with violent crime, and in 2018, race was correlated with the number of LEOKAs, searches, and traffic arrests. Interestingly, in 2018, there was an overall decrease in crime and a decrease in measures of policing where only the number of traffic stops increased. Additionally, in 2018, the number of LEOKA dropped by more than 11%, search rates decreased by more than 7%, and traffic arrests decreased over 6% compared to 2017. The same measures decreased again in 2019, except for LEOKA, without any further association with race or socioeconomic index.

Given the data, one may conclude that crime, not policing, is affected by race, economic disparity, and the number of LEOs per capita. While these findings are promising, there is still evidence that racial disparity exists in both crime and policing. Moreover, these findings indicated that policing practices in the St. Louis, MO metropolitan region are not driven by race or socioeconomic indices; rather, they are a culmination of other factors. To further investigate and expand upon this conclusion, I suggest that additional research be conducted to identify both confounding variables and sources for racial disparity in both crime and policing. Nonetheless, the findings from this third analysis provide evidence that disputes the null hypothesis that race, the socioeconomic index, and the number of LEOs per capita have no effect on measures of crime and policing. Despite mixed and varied results, the null hypothesis should be rejected. However, given the weak evidence on the effects of race, socioeconomic index, and number of LEOs on measures of policing, additional analyses should be conducted in the future to disprove the claim of no difference further.

Bandura's Theory of Reciprocal Determinism

Learning new behaviors through observation and imitation while observing vicarious reinforcement provides a theoretical basis for behavioral change in response to internal loci and environmental factors. The findings of this research study support the premise that LEOs alter their behaviors in response to others' behavior and environmental influences. Moreover, the events in Ferguson in 2014 demarcate an apparent change in policing practices and crime rates across the entire St. Louis, MO metropolitan region, which was the primary focus of the second research question.

Not only did agencies in North St. Louis County demonstrate alterations in policing, but agencies across the region expressed similar trends in the measures of policing evaluated in this study. The literature is also congruent with this evidence. Alpert et al. (2005) determined that organizational characteristics, including the culture of police, influenced behavior in response to environmental factors. The similarity of behaviors exhibited by LEOs both across the region and the country in response to environmental influences (e.g., public and media scrutiny, lack of organizational support, fear of civil and criminal liability) also supported the presumption that behavioral modification is learned through observation and vicarious reinforcement (Adams, 2019; Capellan et al., 2020; Deuchar et al., 2019); Marier & Moule, 2019; Nix & Pickett, 2017; Nix & Wolfe, 2018). In other words, Bandura's theory of reciprocal determinism offers a plausible explanation for how and why LEOs modify their behavior in response to major events as a means of self-preservation. However, a negative consequence of this practice emanating from the events in Ferguson in 2014 and the continued push to defund the police following several high-profile incidents in 2020 is the creation of a self-reinforcing equilibrium whereby officers continue to alter their behaviors to the point they are only performing essential police functions or leaving police work altogether. The equilibrium may also have some positive benefits leading to increased policing and community engagement when policing behaviors are rewarded by organizations and supported by the public (Alpert et al., 2005; Bishopp et al., 2016; Bradford et al., 2017; Deuchar et al., 2019; Nix et al., 2019; Nix & Pickett, 2017; Nix & Wolfe, 2018). Similarly, societal and media distrust of police, new and more restrictive policing policies, and the increased prevalence of de-policing may also be a source for changes in offenders' behavior as there are fewer risks and deterrents for engaging in criminal activity.

Summary

This study was initially designed to replicate and expand upon Shjarback et al.'s 2017 study investigating de-policing and crime among Missouri law enforcement agencies in 2014 and 2015. In the original study, Shjarback et al. concluded that de-policing did not increase crime rates while also determining that regions with higher numbers of minority residents were more likely to experience de-policing. This study's findings were contrary to Shjarback et al.'s conclusions and similar to outcomes suggested by MacDonald (2016).

First, Shjarback et al. (2017) claimed that regions with higher minority populations experienced more avoidance behavior by officers while also being disproportionately overrepresented in terms of arrests, traffic stops, and searches. In this analysis, there was limited and inconclusive evidence that race or socioeconomic disparity was associated with policing practices across the region and even less evidence supporting a claim of de-policing in areas with a higher number of minority residents. Confirming evidence, however, was discovered that supports the premise that crime rates tend to be higher in regions with a higher percentage of minorities and socioeconomic index (e.g., St. Louis City and North St. Louis County). In 2019, North St. Louis County had the highest percentage of non-White residents (64.61%), followed by St. Louis City (51.88%), unincorporated St. Louis County (32.13%), and West St. Louis County (19.94%), while Jefferson County (1.02%) and South St. Louis County (7.50%) had the lowest percentage of non-Whites. The highest socioeconomic indices for the region, in 2019, were found in the city of St. Louis (12.83%), North St. Louis County (10.00%), and Jefferson County (8.03%), and the lowest socioeconomic indices were found in West St. Louis County (3.39%), St. Charles County (4.53%), South St. Louis County (4.93%), and the East-Central Corridor (5.08%). While race or socioeconomic index alone may not be indicators of increased crime or de-policing, the combined effects of the two variables in addition to other confounding variables may be the source of both increased crime and de-policing despite arguments citing race and socioeconomic indices as the root cause of crime (Hosko, 2018; MacDonald, 2019; Nix & Pickett, 2017; Shjarback et al., 2017; Rosenfeld & Wallman, 2019).

Additionally, evidence regarding measures of policing tend to be varied across the region. Although St. Louis City consistently had the lowest levels of policing across the region, North St. Louis County engaged in above-average levels of policing, indicating that race and socioeconomic indices may not be reliable indicators of policing, especially given low levels of crime in other regions expressing low levels of policing (e.g., South and West St. Louis County).

The limited temporal analysis conducted by Shjarback et al. (2017) further limited their findings as the researchers evaluated crime and policing eight months before and after the events in Ferguson in August 2014 while analyzing measures of policing between 2010 and 2015. Moreover, their analysis failed to identify any trends related to behavioral changes in policing post-Ferguson due to the limited comparison. The analysis conducted for this study revealed several trends in crime and policing with a potential correlation between crime rates and levels of policing.

This study confirms that some crime rates and policing levels have decreased over time both across and within the regions evaluated for this analysis. However, the differences are not congruent, indicating that some causation or correlation may exist between crime and policing. Similarly, rates of violent crime and homicide have increased since 2014 when they were at a 5-year low, indicating that the events in Ferguson may have had some impact on crime rates and policing, though one should be cautioned as correlation does not equal causation. Conversely, levels of policing have decreased dramatically since 2014. These changes may be associated with recent legislative changes associated with Missouri Senate Bills 5, 656, and 765. The data also revealed that policing practices are not reactionary; that is, levels of policing increase following increases in crime.

Though unrelated to de-policing, changes in gun laws may be responsible for increased crime rates, especially violent crime and murder. Under Missouri Senate Bill 656, Missourians are authorized to carry concealed firearms without a permit (i.e., permitless carry), with some restrictions as long as the person carrying the gun can legally own a firearm (Mo. Rev. Stat. §570.030). Additionally, Missouri is considered an open-carry state, whereby there are no restrictions on openly carrying a firearm as long as the firearm is not displayed in an angry or threatening manner. Moreover, there are no restrictions on the type of weapons that may be open carried, nor are there restrictions on the type of weapons that may be carried concealed, with a valid concealed carry permit. Missouri state statutes also do not impose an age limit on who may carry a firearm. Statutes only restrict who may legally purchase a firearm and which individuals are barred from owning or possessing a firearm. In other words, it is completely legal for a 12-year-old to openly carry a firearm in an unrestricted area, but it is not legal for that juvenile to purchase a firearm or conceal carry a firearm. The changes in gun laws, then, may be partly responsible for increases in crime rates across the region.

Changes in legislation that placed limits on the revenue municipalities within St. Louis County are permitted to receive from traffic fines and ordinance violations may have affected the number of traffic stops over time, though the percentage of citations issued remained relatively constant across time. Therefore, traffic stops may not be an effective method to measure levels of policing. Instead, search rates and contraband hit rates might be a better, though a less representative, method to evaluate levels of policing. Another more effective measure of policing levels may be derived from engagement in preventative patrol (e.g., business checks and visibility in patrol) and community engagement initiatives, though these are difficult to measure.

The decreases in measures of policing may also be a function of the total number of LEOs working in the region. Since 2015, the region has seen a steady decline in the number of LEOs, where there were 4,714 full-time officers to a low of 4,464 full-time officers in 2016. In 2019, agencies in the St. Louis, MO metropolitan region employed 4,508 full-time officers. The Ferguson Effect may be responsible for more than de-policing; it may be a factor in increased crime rates and fewer LEOs. Oliver (2017) suggested that de-policing is a real phenomenon and may be more widespread now than prior to the events in Ferguson in 2014 due to fears of civil and criminal litigation, new and more restrictive laws and policies, and accusations of racial profiling. The decrease in the number of LEOs may be a result of the factors that lead to de-policing and agencies that fail to replace officers due to beliefs that officer presence fails to deter crime, despite increased calls for service (Oliver, 2017). The shortage in LEOs may also be a factor in de-policing as the officers may be less willing to engage in proactive activities due to fear of assault leading to death or injury (Maguire et al., 2017; Morin et al., 2017; Oliver, 2017; Parkin et al., 2020). The increased calls for service and limited staffing may also appear as de-policing as officers lack time to engage in proactive policing. To further address the issue of understaffing, there are reports that agencies are having difficulty in attracting and retaining interested and qualified individuals (Giblin & Nowacki, 2018; Hilal & Litsey, 2020; Sipes, 2021; Wilson, 2012). Therefore, one may conclude that replicating and expanding upon Shjarback et al.'s (2017) original study yielded additional insight into crime and policing across the St. Louis, MO metropolitan area, though there are still several questions left unanswered.

Limitations of the Study

No research study is without limitations. Because this research study employed secondary data, the study possessed its own unique set of limitations. The use of secondary data was a limiting factor in that it was collected for a primary purpose and did not necessarily align with the specific goal of a research project. For this analysis, data were collected by the State of Missouri for multiple statistical and analytical purposes to produce counts and measures. While the data were not collected for my research study, the data were somewhat limiting in that I was not able to obtain additional measures of crime and policing that may have assisted me in this analysis. Secondary data also limited my ability to identify confounding variables or alternative explanations for study findings.

An additional limitation is the time constraints imposed on this project as data collection and analysis are time-consuming. As a result, only three research questions were devised and analyzed. If I had unlimited time and resources, I would have been able to make additional inquiries into the meaning of the data while conducting additional analyses to understand the relationship between variables better.

The study was further limited by threats to validity, which were mitigated to the best of my ability. Validity is the veracity of an inference or the truthfulness of conclusions. The accuracy of causal claims from analytical findings constitute internal validity, while generalizability refers to external validity (Langbein, 2012; Price et al., 2017).

Internal Validity

Threats to internal validity were addressed by carefully selecting the dependent variables are ensuring consistency in how they were measured while also controlling for confounding variables that convoluted causal assumptions (Langbein, 2012; Price et al., 2017). Instrument calibration effectively ameliorated variable measurements and issues resulting from data collection. Because the state of Missouri has utilized the data instrument for this analysis for over 20 years, it can be assumed that the instrument itself did not create any threats to validity and is, therefore, reliable.

While three confounding variables (i.e., race, socioeconomic index, and number of LEOs) were part of the third analysis, the variables provided limited information regarding crime and policing. Introducing additional confounders would contribute to a better understanding of the Ferguson Effect. Therefore, additional statistical analyses that remove the effects of mediating variables should be conducted to ameliorate improper causal inferences and conclusions (Langbein, 2012; Price et al., 2017). An additional threat to internal validity may stem from the subdivision of regions based on regional traditions. Because some of the subdivisions were comprised of only one or two agencies, some statistical tests were not feasible due to the decreased degrees of freedom and inability to estimate Box's *M*. This was mainly an issue with the data analysis related to the second research question. Perhaps, conducting the analysis on the agency level rather than the regional level would have mitigated this issue.

External Validity

External validity allows researchers to apply their findings to a broader population through the application of descriptive and causal claims. Because the population of interest for this study was localized to a single geographical locale (i.e., the St. Louis, MO metropolitan area), the findings may be limited in their generalizability even though policing practices are generally similar across the country and responsive to events in jurisdictions that are far removed from the event. To improve generalizability, the study should be repeated across various geographical regions in the U.S. to improve understanding of the Ferguson Effect and how events hundreds or thousands of miles away may affect policy and practice.

Recommendations

Although this study did not investigate the causes of the increased crime rates across the region, it shed light on how policing practices have evolved pre- and post-Ferguson. The study results also revealed regional trends in crime and policing that may or may not reflect current policy and policing practices. Moreover, this study's analytical findings produced additional gaps in knowledge necessitating future and additional inquiry.

Because there is a discrepancy over what constitutes de-policing, additional measures of policing should be incorporated into future studies to determine whether de-policing is occurring and to what extent it may be occurring. Additional covariates and confounding variables should also be explored to identify additional sources for increased crime rates and decreased levels of policing across the region. Similarly, the research should be replicated using the three covariates identified in RQ3 while reducing the unit of measurement from the regional level to the agency or precinct/district level. Moreover, in comparing individual departments and their associated characteristics, differences in policing practices across agencies within regions may provide more insight into the Ferguson Effect and what agencies are doing to reduce its impact on crime and policing. A qualitative inquiry might also yield insight into the practice of de-policing and allow for improved methods for measuring levels of policing.

Future research should also focus on how high-profile events impact policing through repeated instances of the Ferguson Effect. In other words, given the evidence in this analysis, the Ferguson Effect is ongoing in the St. Louis, MO metropolitan region but had the most significant effect in 2015 and 2016. Recent events in 2020 in Minneapolis, MN; Louisville, TN; and Atlanta, GA may have produced similar local and national effects that have profound implications for the future of law enforcement given the nationwide push to defund the police.

Finally, additional research should further investigate and incorporate organizational characteristics (e.g., perceived organizational support, organization justice, procedural justice, job satisfaction, morale, public support) into the analysis to determine what and how organizational characteristics impact policing. Assessing organizational characteristics may also uncover proactive policing activities that deter crime and positively engage the public (e.g., public service events, specialized units). The research may also serve as a foundation for future inquiry using more geospatial specificity and more community, officer, and organizational characteristics to improve understanding of the Ferguson Effect within a community or jurisdiction. Future research may also focus on the role the community and media play on policing policy, strategies, and tactics to determine protective and risk factors that influence de-policing efforts. Moreover, identifying and measuring public levels of support may also prove useful in determining the factors that mediate crime and de-policing.

Implications

This research project has several implications for positive social change. The most significant implication is realizing and appreciating regional and department trends in crime and policing to help adapt policy and policing practices. The findings of this research study support the premise that the Ferguson Effect is still occurring within the St. Louis region, though additional factors may influence violent crime and homicide rates and decreases in policing measures. To address the issues, agencies need to develop individual plans to address the issue through policy revision and improved organizational justice, as well as the formation of cooperative multi-agency task forces and the development of procedural justice initiatives, community-oriented policing tactics, and specialized teams to address crime. Law enforcement agencies should also collect data and conduct research regarding the effectiveness of new legislation to determine if the legislation is improving the quality of service or contributing to de-policing and increased crime rates. Policymakers and administrators should also conduct policy evaluations to assess if policies are effectively reducing crime and improving the quality of police services.

Policymakers and administrative officials may use the research to monitor public perception and identify areas that may reduce officer morale. Department officials may also utilize the research to develop or refine policy to ensure officer safety is paramount, and the public is being protected from unjust police practices and unfair policies. Administrations should also create policies that support their officers' actions, despite public scrutiny, so police officers may engage in proactive policing without fear of retribution from the community. However, the larger implications of the study may be used to inform policy and improve officer morale as the researchers determined that morale is closely related to self-legitimacy. Policymakers may also use the findings to develop training and policy focused on mitigating the effects of negative publicity. The research findings also have additional implications for law enforcement officials, including improving training and community outreach programs to enhance community relations and mutual trust. Policy should also be reformed to increase organizational justice to enhance officer morale and motivation, despite the negative climate.

While training may provide an awareness of de-policing actions (or inactions), addressing decreased staffing in the wake of increased calls for service might more effectively reduce crime and improve measures of policing (i.e., decrease or eliminate de-policing). The improvements will stem from more officers available to respond to calls for service while also providing the time and opportunity to engage the public and perform proactive policing activities. Decreased calls for service per officer will also likely improve morale and job satisfaction, reduce burnout, and decrease the number of injuries and suicide.

Conclusion

The increase in violent crime and homicide rates across the St. Louis, MO metropolitan region is alarming. While there has generally been a steady decline in total crime and property crime across the region since 2010, the spike in violence that has occurred since 2014 signifies a change. Statistics from the calendar year 2020 are even more dismal as the independent city of St. Louis and Jefferson, St. Charles, and St. Louis Counties all logged increases in total crime, violent crime, and murder, something not seen since 2015. The entire metropolitan region also experienced a significant increase in murders, recording 391 in 2020 compared to 312 in 2019. Additionally, the city of St. Louis was two murders away from a record set in 1970; however, given the lower population in 2020 (300,171) compared to 1970 (622,236), the 2020 murder rate is significantly higher at 8.83 homicides per 10,000 inhabitants. The ongoing trends in crime across the region, as well as decreases in levels of policing, indicate that there may be some relationship between crime and policing, despite previous reports disputing the relationship (MacDonald, 2019; Rosenfeld & Wallman, 2019; Shjarback et al., 2017; Tiwari, 2016).

Aside from declines in measures of policing, the region has experienced improvements in the socioeconomic index, indicating lower levels of poverty and unemployment with increases educational attainment as well as racial diversification across the region. Even the independent city of St. Louis and North St. Louis County saw improvements in their socioeconomic indices over the 10-year period covered by this study. Percentages of non-White persons also remained stable in the city of St. Louis while increasing across Jefferson, St. Charles, and St. Louis Counties. Based on the analysis conducted for this study, race does not appear to be a factor in crime or policing; however, regions with higher percentages of non-Whites do experience higher crime levels. While there was evidence linking the socioeconomic index crime, the overall improvement in the socioeconomic index reveals that it is weakly associated with crime. This was evident when comparing crime between Jefferson County and St. Louis City and North St. Louis County, where the socioeconomic indexes (i.e., economic disparity) were the highest.

Additional research, then, should be conducted to identify the confounding variables responsible for increased crime, especially in 2015, 2019, and 2020 when crime rates increased significantly. Because there was a steady decline in measures of policing that do not correlate with increases in crime, perhaps there are other measures of policing that might produce better insight. This claim is further substantiated by scholars who laud policing should be measured by more than just traffic stops and arrest rates (MacDonald, 2019; Rosenfeld & Wallman, 2019; Shjarback et al., 2017).

Aside from the variables studied here, future research should also evaluate alterations and calls for service as a function of crime and policing. Moreover, identifying additional measures of policing will provide insight into the levels of policing occurring across and within the region to determine the continued presence of the Ferguson Effect. To further improve understanding of the consequences of the Ferguson Effect, the potential factors driving crime rates upward should also be identified to improve policing and reduce crime in the future.

Nonetheless, given the findings from this research study, one may conclude that there are both annual and regional differences in crime rates and levels of policing across time, thereby disproving the first and second null hypotheses of no difference. Evidence also supports the claim that race, the socioeconomic index, and the number of LEOs affect crime levels, though to varying levels and degrees. There is only weak evidence supporting the claim that race, the socioeconomic index, and the number of LEOs affect levels of policing across time. Therefore, the null hypothesis of no effect should be rejected. However, I believe it would be prudent to re-examine the data and conduct additional analyses before formally rejecting or failing to reject the third null hypothesis, even though I formally rejected it as there is a great deal of evidence indicating racial disparity in the application of policing practice.

The Ferguson Effect has become central to policing since 2014, shaping the way law enforcement officers in both the St. Louis, MO metropolitan area and across the county perform proactive policing and patrol activities. The events in Ferguson in 2014 have also led to vast reforms and policy changes that have further altered the course of policing as we know it today. Moreover, the recent civil unrest stemming from events in Minneapolis, MN; Louisville, KY; and Atlanta, GA, has also likely affected how LEOs perform their jobs. The phenomenon, then, may have far-reaching and continued effects that will influence the future of law enforcement and policing.

Therefore, if crime is to be reduced, it becomes necessary for policymakers, law enforcement administrators, and law enforcement officers to understand why violent crime and homicide rates are continuing to rise as well as how to improve and repair community relationships through proactive policing to reduce the incidence of crime. This study's findings shed light on alterations in crime and policing both before and after the events in Ferguson, indicating the events in 2014 had a significant impact on the region. Spikes in crime rates across the region further indicate that current legislation and agency policies and practices are insufficient to quell crime and may be contributing to increases in crime and decreases in policing.

Moreover, de-policing may stem more from public and media scrutiny, increased civil liability, and civil unrest. It may also be the result of staffing shortages, restrictive policy, perceived lack of organizational fairness, leading to increased cynicism, decreased morale, questionable self-legitimacy, and mental health issues (e.g., PTSD and suicide; Adams, 2019; Alpert et al., 2005; Capellan et al., 2020; Deuchar et al., 2019; MacDonald, 2019; Marier & Moule, 2019; Nix et al., 2019; Nix & Pickett, 2017; Nix & Wolfe, 2017; Oliver, 2017). While these potential causes may be the result of the events in Ferguson in 2014 and the current policing climate, they are beyond the scope of this research study and should be investigated as potential sources or confounders associated with de-policing and increased crimes rates. Nonetheless, policymakers and administrators should identify the potential sources of de-policing to address the issue effectively.

The increased number of calls for service and crime rates coupled with staffing shortfalls is creating a perfect storm that may be breeding higher crime rates. The St. Louis, MO metropolitan region and the U.S. have been experiencing similar trends in policing since 2014, creating a crisis that has had disastrous effects (Oliver, 2017). Aside from staffing shortages, area officers are also dealing with policies that limit their actions and a legal system that is prosecuting fewer cases, and it is not likely that these are regional issues.

Policymakers and administrators need to appreciate the effects of staffing shortages and restrictive policies and practices on policing and patrol activities and crime. A compromise, then, should be reached in developing new policies that align with government recommendations and public expectations while ensuring officer safety is a priority. Those developing new policies should focus on improving staffing and developing policy that reduces crime to ensure safe communities. Moreover, future studies and insight may also effect change beyond what was discovered by this study.

As a law enforcement officer and first responder in the St. Louis, MO metropolitan region, I have seen the Ferguson Effect evolve as well as the unintended consequences law enforcement officers have suffered in the wake of the events in 2014. Despite claims to the contrary, both the results of this study and my personal experiences as a law enforcement officer support the claim that the Ferguson Effect is real and is still affecting the St. Louis, MO metropolitan region. Perhaps, with additional inquiry, especially in light of the events and civil unrest in 2020, coupled with positive changes supporting law enforcement efforts, officers can begin engaging in more proactive policing practices to reduce crime.

References

Adams, J. L. (2019). “I almost quit”: Exploring the prevalence of the Ferguson Effect in two small sized law enforcement agencies in rural Southcentral Virginia. *The Qualitative Report, 24*(7), 1747-1764. https://nsuworks.nova.edu/tqr/vol24/iss7/15

Alpert, G. P., Macdonald, J. M., & Dunham, R. G. (2005). Police suspicion and discretionary decision making during citizen stops. *Criminology*, *43*(2), 407–434. https://doi.org/10.1111/j.0011-1348.2005.00012.x

Aton, A. (2016, February 4). Missouri Senate votes to ban traffic-ticket quota. *The Rolla Daily News*. https://www.therolladailynews.com/article/20160204/NEWS/160209439

Bandura, A. (1977). *Social learning theory*. Prentice-Hall.

Bandura, A. (1978). The self system in reciprocal determinism. *American Psychologist, 33*(4), 344-358. https://www.uky.edu/~eushe2/Bandura/Bandura1978AP.pdf

Bernston, G. & Cacioppo, J. (2005). Reciprocal determinism. In N. J. Salkind (ed.), *Encyclopedia of human development* (pp. 1067-1068). https://doi.org/10.4135/9781412952484.n516

Bishopp, S. A., Jorrall, J., & Piquero, N. P. (2016). General strain and police misconduct: The role of organizational influence. *Policing: An International Journal of Police Strategies and Management*, *39*(4), 635-651. http://www.emeraldinsight.com/1363-951X.htm

Bradford, B., Milani, J., & Jackson, J. (2017). Identity, legitimacy and "making sense" of police use of force. *Policing: An International Journal, 40*(3), 614-627. https://doi.org/10.1108/PIJPSM-06-2016-0085

Capellan, J. A., Lautenschlager, R., & Silva, J. R. (2019). Deconstructing the Ferguson Effect: A multilevel mediation analysis of public scrutiny, de-policing, and crime. *Journal of Crime and Justice*, *43*(2), 125-144. https://doi.org/10.1080/0735648X.2019.1652921

City of St. Louis. (2020). Citywide neighborhood map. https://www.stlouis-mo.gov/government/departments/planning/documents/citywide-neighborhood-map.cfm

Curtis, T. (2016, July 13). Legislation banning ticket quotas signed. *The Missouri Times*. https://themissouritimes.com/schmitts-ticket-quota-bill-signed/

Davis, A. C. (2015, October 8). "YouTube Effect" has left police officers under siege, law enforcement leaders say. *The Washington Post*. https://www.washingtonpost.com/news/post-nation/wp/2015/10/08/youtube-effect-has-left-police-officers-under-siege-law-enforcement-leaders-say/

Deuchar, R., Fallik, S. W., & Crichlow, V. J. (2018). Despondent officer narratives and the "post-Ferguson" Effect: Exploring law enforcement perspectives and strategies in a southern American state. *Policing and Society, 29*(9), 1042-1057. https://doi.org/10.1080/10439463.2018.1480020

Deuchar, R., Crichlow, V. J., & Fallik, S. W. (2020). Cops in crisis?: Ethnographic insights on a new era of politicization, activism, accountability, and change in transatlantic policing. *Policing and Society*, *30*(1), 47-64. https://doi.org/10.1080/10439463.2019.1584197

Frese, M., & Fay, D. (2001). Personal initiative: An active performance concept for work in the 21st century. *Research in organizational behavior*, *23*, 133-187. https://doi.org/10.1016/S0191-3085(01)23005-6

Frese, M., Garst, H., & Fay, D. (2007). Making things happen: Reciprocal relationships between work characteristics and personal initiative in a four-wave longitudinal structural equation model. *The Journal of Applied Psychology, 92*(4), 1084–1102. https://doi.org/10.1037/0021-9010.92.4.1084

Giblin, M. J., & Nowacki, J. S. (2018). Organizational decline and fiscal distress in municipal police agencies. *Police Quarterly 21*(2), 171-195. https://doi.org/10.1177/1098611117744523

Greater St. Charles County Convention & Visitors Bureau (2020). *St. Charles maps.* https://www.discoverstcharles.com/plan/maps/

Hilal, S., & Litsey, B. (2020). Reducing police turnover: Recommendations for the law enforcement agency. *International Journal of Police Science & Management*, *22*(1), 73–83. https://doi.org/10.1177/1461355719882443

Hosko, R. (2018). Through police eyes: The Ferguson Effect scare. *Berkeley Journal of Criminal Law*, *23*(1), 9–23. https://doi.org/10.15779/Z38F18SF4V

Jefferson County, Missouri. (2020). *GIS Data/Maps*. https://jeffcomo.maps.arcgis.com/apps/MapAndAppGallery/index.html?appid=3c3a394c65164966ba385ce30a383f08

Kansas v. Glover, 1589 U.S. (2020).

Kelling, G. L., Pate, T., Dieckman, D., & Brown, C. E. (1974). *The Kansas City Preventive Patrol experiment: A summary report*. Police Foundation. https://blueravenintelligence.com/wp-content/uploads/2017/03/PATROL.pdf

Kohler, J. (2020). Attorney general seeks to revive Ferguson-inspired police and court reforms that roiled St. Louis County. *St. Louis Post-Dispatch* (February 2). https://www.stltoday.com/news/local/govt-and-politics/attorney-general-seeks-to-revive-ferguson-inspired-police-and-court-reforms-that-roiled-st-louis/article_59777f9a-484e-575b-b92c-67643921e859.html

Langbein, L. (2012). *Public program evaluation: A statistical guide* (2nd ed.). ME Sharpe.

Loiaconi, S. (2015, October 26). FBI chief's "YouTube era" theory for violent crime worth considering, experts say. *Sinclair Broadcast Group*. https://wjla.com/news/nation-world/fbi-chiefs-youtube-effect-theory-for-violent-crime-worth-considering-experts-say

MacDonald, J. M. (2019). De-policing as a consequence of the so-called "Ferguson Effect." *Criminology and Public Policy*, *18*(1), 47–49. https://doi.org/10.1111/1745-9133.12430

Maguire, E. R., Nix, J., & Campbell, B. A. (2017). A war on cops? The effects of Ferguson on the number of U.S. police officers murdered in the line of duty. *JQ: Justice Quarterly*, *34*(5), 739–758. https://doi.org/10.1080/07418825.2016.1236205

Marier, C. J., & Moule, R. K. (2019). Feeling blue: Officer perceptions of public antipathy predict police occupational norms. *American Journal of Criminal Justice*, *44*, 836-857. https://doi.org/10.1007/s12103-018-9459-1

Maxfield, M. G., & Babbie E. R. (2016). *Basics of research methods for Criminal Justice* (4th ed.). Cengage Learning.

Mertler, C. A. & Reinhart, R. V. (2016). *Advanced and Multivariate Statistical Methods: Practical Application and Interpretation* (6th ed.). Routledge.

Miller, L. (2012). *Criminal psychology: Nature, nurture, culture*. Charles C. Thomas.

Missouri Department of Transportation. (2020). *St. Louis District*. https://www.modot.org/stlouis

Missouri State Highway Patrol (MSHP). (2020). *Uniform Crime Reporting (UCR)*. http://www.mshp.dps.missouri.gov/MSHPWeb/SAC/data_and_statistics_ucr.html

Mo. Rev. Stat. §304.125 (2016).

Mo. Rev. Stat. §556.061.32 (1977).

Mo. Rev. Stat. §570.030 (2017).

Mo. Rev. Stat. §610.010-200 (2004).

Morin, R., Parker, K., Stepler, R., & Mercer, A. (2017). *Behind the badge*. Pew Research Center. https://assets.pewresearch.org/wp-content/uploads/sites/3/2017/01/06171402/Police-Report_FINAL_web.pdf

Newman, B. M., & Newman, P. R. (2016). *Theories of human development* (2nd ed.) Psychology Press/Taylor & Francis.

Nix, J., & Pickett, J. T. (2017). Third-person perceptions, hostile media effects, and policing: Developing a theoretical framework for assessing the Ferguson Effect. *Journal of Criminal Justice*, *51*(2017), 24–33. https://doi.org/10.1016/j.jcrimjus.2017.05.016

Nix, J., Pickett, J. T., & Mitchell, R. J. (2019). Compliance, noncompliance, and the in-between: Causal effects of civilian demeanor on police officers' cognitions and emotions. *Journal of Experimental Criminology*, *15*(4), 611-639. https://doi.org/10.1007/s11292-019-09363-4

Nix, J., & Wolfe, S. E. (2016). Sensitivity to the Ferguson Effect: The role of managerial organizational justice. *Journal of Criminal Justice, 47,* 12–20. https://doi.org/10.1016/j.jcrimjus.2016.06.002

Nix, J., & Wolfe, S. E. (2017). The impact of negative publicity on police self-legitimacy. *JQ: Justice Quarterly*, *34*(1), 84–108. https://doi.org/10.1080/07418825.2015.1102954

Nix, J., Wolfe, S. E., Rojek, J., & Kaminski, R. J. (2015). Trust in the police: The influence of procedural justice and perceived collective efficacy. *Crime & Delinquency*, *61*(4), 610- 640. https://doi.org/10.1177/0011128714530548

Ochs, H. L. (2009). Public participation in policing: The impact of citizen oversight on the incidence of lethal force over time in the largest U.S. cities. *Justice Research and Policy, 11* (2009), 105-140. https://doi.org/10.3818/JRP.11.2009.105

Oliver, W. M. (2017). De-policing: rhetoric or reality? *Criminal Justice Policy Review, 28*(5), 437-461. https://doi.org/10.1177/0887403415586790

Parkin, W. S., Bejan, V., & Hickman, M. J. (2020). Police, public and community violence: Exploring the relationships between use of deadly force, law enforcement killed, and homicide rates in the United States. *Criminology, Criminal Justice, Law & Society*, *21*(2), 1-20. https://scholasticahq.com/criminology-criminal-justice-law-society/

Parnaby, P. F., & Leyden, M. (2011). Dirty Harry and the station queens: A Mertonian analysis of police deviance. *Policing and Society, 21*(3), 249–264. https://doi.org/10.1080/10439463.2011.556733.

Phillips, S. W. (2020). Exploring law enforcement's views of de-policing: A vignette research design. *Criminal Justice Studies*, *33*(2), 178-191. https://doi.org/10.1080/1478601X.2019.1699557

Police Executive Research Forum. (2019). *The workforce crisis, and what police agencies are doing about it*. https://www.policeforum.org/assets/WorkforceCrisis.pdf

Prado Navarette v. California, 572 U.S. 393 (2014).

Price, P. C., Jhangiani, R. S., Chiang, I. A., & Leighton, D. C. (2017). *Research methods in psychology* (2nd American ed.). Pressbooks.com.

Pyrooz, D., Decker, S., Wolfe, S., & Shjarback, J. A. (2016) Was there a Ferguson Effect on crime rates in large U.S. cities? *Journal of Criminal Justice, 46*, 1-8. https://doi.org/10.1016/j.jcrimjus.2016.01.001

Rosenbaum, J. (2020). Court ruling revives limits on fines and fees, police standards in St. Louis County. *St. Louis Public Radio* (December 2). https://news.stlpublicradio.org/government-politics-issues/2020-12-02/court-ruling-revives-limits-on-fines-and-fees-police-standards-in-st-louis-county

Rosenfeld, R. (2015). Ferguson and police use of deadly force. *Missouri Law Review*, *80*(4), 1077-1097. https://scholarship.law.missouri.edu/cgi/viewcontent.cgi?article=4167&context=mlr

Rosenfeld, R., & Wallman, J. (2019). Did de-policing cause the increase in homicide rates? *Criminology & Public Policy, 18*, 51-75. https://doi.org/10.1111/1745-9133.12414

Ross, S. (2014). A conceptual model for understanding the process of self-leadership development and action-steps to promote personal leadership development. *Journal of Management Development, 33*(4), 299-323. https://doi.org/10.1108/JMD-11-2012-0147

Rushin, S., & Michalski, R. (2020). Police funding. *Florida Law Review*, *72*, 277-330. http://www.floridalawreview.com/wp-content/uploads/3_Rushin_Michalski7098.pdf

St. Louis County, Missouri. (2020). *Municipalities St. Louis County*. https://data.stlouisco.com/app/parcel-display-map

Shjarback, J. A., Pyrooz, D. C., Wolfe, S. E., & Decker, S. H. (2017). De-policing and crime in the wake of Ferguson: Racialized changes in the quantity and quality of policing among Missouri police departments. *Journal of Criminal Justice*, *50*, 42–52. https://doi.org/10.1016/j.jcrimjus.2017.04.003

Silver, J. R. (2020). Moral motives, police legitimacy and acceptance of force. *Policing: An International Journal*. Advance online publication. https://doi.org/10.1108/PIJPSM-04-2020-0056

Sipes, L. (2021). Cops are leaving: What does this mean for public safety? *Law Officer* (January 20). https://www.lawofficer.com/cops-are-leaving-what-does-this-mean-for-public-safety/

Smith, P. (2008). Durkheim and criminology: Reconstructing the legacy. *Australian & New Zealand Journal of Criminology (Australian Academic Press)*, *41*(3), 333–344. https://journals.sagepub.com/doi/10.1375/acri.41.3.333

Swearer, S. M., Wang, C., Berry, B., & Myers, Z. R. (2014). Reducing bullying: Application of social cognitive theory. *Theory into Practice*, *53*(4), 271-277. https://doi.org/10.1080/00405841.2014.947221

Terry v. Ohio, 392 U.S. 1 (1968).

Tiwari, A. (2016). Protects, policing, and crime: An analysis of evidence regarding the Ferguson Effect. *Journal of Public & International Affairs*, (1), 115-131. https://jpia.princeton.edu/sites/jpia/files/2016.pdf#page=116

Torres, J., Reling, T., & Hawdon, J. (2018). Role conflict and the psychological impacts of the post-Ferguson period on law enforcement motivation, cynicism, and apprehensiveness. *Journal of Police and Criminal Psychology*, *33*(4), 358-374. https://doi.org/10.1007/s11896-018-9284-y

U.S. Census Bureau. (2020). *County population totals: 2010-2019.* https://www.census.gov/data/tables/time-series/demo/popest/2010s-counties-total.html

U.S. v. Cortez, 449 U.S. 411(1981).

U.S. v. Sokolow, 490 U.S. 1 (1989).

Warner, R. M. (2013). *Applied statistics: From bivariate through multivariate techniques* (2nd ed.). SAGE Publications.

Williams, T., & Williams, K. (2010). Self-efficacy and performance in mathematics: Reciprocal determinism in 33 nations. *Journal of Educational Psychology, 102*(2), 453–466. https://psycnet.apa.org/doi/10.1037/a0017271

Wilson, J. M. (2012). Articulating the dynamic police staffing challenge: An examination of supply and demand. *Policing: An International Journal of Police Strategies & Management, 35*(2), 327-355. http://doi.org/10.1108/13639511211230084

Wolfe, S. E., & Nix, J. (2016). The alleged "Ferguson Effect" and police willingness to engage in community partnership. *Law and Human Behavior, 40*(1), 1-10. https://doi.org/10.1037/lhb0000164