Policing and Middle School: An Evaluation of a Statewide School Resource Officer Policy

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Abstract

This study investigates the effectiveness of North Carolina *Senate Bill 402, Section 8.36 – Grants for School Resource Officers in Elementary and Middle Schools*, which provides matching state funds to districts for use in middle and elementary schools. Using generalized difference-in-difference and negative binomial hurdle regression designs, seven years of data – inclusive of 110 districts and 471 middle schools – were analyzed to assess the effectiveness of the state-funded SRO program. Results show that offering matched SRO funds to increase policing and training was not associated with reductions in reported acts (infractions) per school year, a key measure of school safety. Racial enrollment percentages, such as higher enrollments of Black and Hispanic students, were generally not associated with increased disciplinary acts. However, total enrollment was associated with increases in reported acts and increased grade level proficiency was associated with reductions in reported acts. Findings also show that public policy activity generally increases after school shootings occur. However, a multi-pronged school safety approach, beyond preventing mass acts of violence through increased policing, is recommended. Specifically, policies that focus on a broad range of issues, including those that improve academic achievement and address larger societal challenges have potential to enhance school safety.

INTRODUCTION

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Policing in the United States is a very contentious issue, yet, large-scale violence in schools has prompted advocates to expand policing in schools (Ecklund, Meyer, & Bosworth, 2013). Due to large-scale violent acts, increased advocacy for policing in schools is both reasonable and concerning. Advocacy efforts for increased policing in schools are reasonable in that sworn officers have specialized training to thwart mass acts of violence that school staff are generally unable to provide. Likewise, increased policing is a concern because relationships between citizens in the US and sworn law enforcement officers are often fractured. The term fractured is used here because violence against Black and underrepresented communities by sworn officers has fueled national movements. By increasing police presence in schools, additional opportunity for societal benefits as well as drawbacks caused by poor policing may occur.

In light of recent school shootings, increased policing has been a popular legislative approach to aid in preventing mass acts of violence. However, the issue of increased policing in schools and the associated outcomes has been understudied. Accordingly, the purpose of the paper is to inform policy and practice that may improve youth outcomes by empirically examining how pre- and young adolescent disciplinary outcomes may change based on the presence of school resource officers (SROs). Specifically, I examine the effects of a state-wide public policy that provides matched state funds to selected districts to increase policing and associated police training in schools.

Review of Literature

Many national media outlets have highlighted the noble acts of sworn officers in thwarting school shootings and preventing or minimizing casualties. Lesser known, but noteworthy efforts are often captured by regional media outlets that document how SROs have served as vital school partners. For example, a news outlet recently featured how the Sheriff's Department in a rural Edgecombe County, North Carolina community stepped in to coach the middle school basketball team, at the request of students, when no other coach was available (Mitchell, 2018). These acts are laudable, but are not likely collected or analyzed systematically. Thus, some of the benefits of SROs may go unnoticed or underreported.

Contrarily, there are also countless viral videos that have captured violence enacted by police officers and senseless murders of Black citizens by sworn officers. Viral videos of young adolescents, in schooling contexts, being body slammed or inappropriately engaged by SROs have led to lawsuits from parents and permeated the minds of youth and others in the US (Robertson, 2015). Police relations are tenuous because many of these same communities equally depend on and partner with sworn officers to provide support and protection in hyperviolent communities and situations. Policing is a tough job that requires judicious decision-making. Police actions, both positive and negative, have critical and sometimes lifelong consequences for impressionable youth, especially in a schooling context.

At the time of drafting this manuscript, great attention has shifted to policing in schools. Mass shootings in schools have led to unprecedented national coordination of youth-initiated protests against violence in schools and advocacy for gun policy reform. Youth-led protests against violence are certainly not new to the US, but national coordination of such protests has gained substantial media attention over the past year (Blakemore, 2018). Although the reduction of mass violence in schools is a current national priority, it is also important to think about overall school safety, which includes high-profile incidents, but also less prominent school safety issues.

SRO engagement can have far-reaching implications, especially for vulnerable populations. Youth engagement with SROs can lead to trust or mistrust of sworn officers throughout the lifespan. An especially vulnerable population, pre- and young adolescents roughly spanning the ages of 10-15, are highly impressionable due to their stages of their development. Pre- and young adolescents, hereafter referred to as middle schoolers, have unique biological, social, moral, and emotional traits. Thus, middle grades researchers have advocated for developmentally-appropriate schooling experiences (Cook, Howell, & Faulkner, 2016). Research has shown that culturally-responsive practices and supportive adults can play an especially important role in supporting middle childhood development (Mackay & Strickland, 2018; Oberle, Schonert-Reichl, Guhn, Zumbo, & Hertzman, 2014). Considering the vulnerabilities and opportunities to positively influence the development of middle schoolers, it is critically important to carefully consider the role of SROs in the middle grades.

School Vulnerability

Schools are often considered vulnerable organizations for mass acts of violence. Moreover, school safety concerns have been exacerbated by recent high-profile school shootings. These concerns have resulted in increased uses of SROs to enhance school security. SRO position statements are available through state and national organizations, yet, relatively little research literature has been conducted on SROs (Anfara & Theriot, 2011). Very few states have established specific training requirements and there are no national standards for SROs (Ryan, Katsiyannis, Counts, & Shelnut, 2018). Despite the limited scope of SRO research, new research is emerging.

SRO and School Safety Perceptions

Although some schools may be vulnerable to mass acts of violence, increases in SRO presence may also introduce additional vulnerabilities for students. Moreover, research has shown that students perceive SROs in different ways. Theriot and Orme (2016) found that among middle and high school students, some students feel safe in the presence of SROs, whereas others do not. Specifically, the authors analyzed survey data from approximately 2,000 students and used latent class analysis to classify students into two groups, safe and unsafe. The authors found that African American students and students who had been victimized in the past felt less safe around SROs. Moreover, the authors found that males and students who have higher senses of connectedness and more positive views about SROs felt safer. The authors concluded by recommending more longitudinal studies of SRO outcomes using multiple schools across multiple timepoints.

Theriot and Orme's (2016) findings are corroborated by Anderson's (2018) findings about school safety perceptions. In a national survey of 797 African American youth, Anderson found that only 43% of the respondents felt safe at school. These findings highlight the complexity of school safety and are especially important during middle childhood considering the impressionable nature of young adolescents. Anderson (2018) notes that the lived experiences and perceptions of youth must be included in

school reform efforts. Accordingly, her findings apply to school violence reform efforts as well.

SRO Outcomes

Using the *Civil Rights Data Collection*, a recent report indicated that North Carolina has some of the largest disparities in arrests between black and white students in the country (Hinchcliffe & Dukes, 2018). The authors found that only West Virginia, Iowa, and Rhode Island had larger disparities in school and school-related activity arrests than NC. Given that the North Carolina General Assembly passed legislation that provides financial resources for expanded SRO use approximately 5 years ago (General Assembly of North Carolina, 2013), this trend shows that relationships between school safety policy and long-term outcomes should be examined.

In 2018, Zhang (2018) published a quasi-experimental study that assessed the relationships between the presence of SROs and their influence on undesirable outcomes. Zhang analyzed 238 middle and high schools in West Virginia and found that the presence of SROs was associated with an increase in drug-related crimes and suspensions. In addition, the presence of SROs was associated with reduced violent crimes and disorderly conduct.

Researchers from other studies have found that the presence of SROs have been linked to increased exclusionary practices. Teske and Huff (2011) found an increase in misdemeanor offenses involving school fights, disorderly conduct, and disruptive behavior among juveniles when SROs were present. However, there were no increases in felony offenses during this same time. Thus, many juveniles may be unnecessarily accruing charges that may have lifelong implications. However, considering that no increases in felony charges occurred, the question remains, "Are schools safer in the presence of SROs?" These complexities further highlight the need for an expanded view of school safety and call for multiple measures of safety outcomes. Teske and Huff (2011) advocate for viewing prospective SRO activity in a systems context in that a primary role of SROs is to make arrests when there is probable cause. Accordingly, their perspective may imply that the other roles of SROs, such as counselors and community builders, can be overstated.

There is an emerging collection of SRO research that addresses perceptions and exclusionary discipline outcomes. However, understanding the overall disciplinary context, not just high-profile incidents, may provide additional insight for school safety in the presence of SROs. All disciplinary acts do not necessarily lead to exclusionary measures (i.e., suspensions). For example, a student who is found liable for possessing alcohol may not be suspended in the first incident. Instead a parent conference and counseling referral may serve as the first intervention step. Thus, it is useful to examine relationships between overall school incidents and safety in the presence of SROs. This study addresses this gap.

Conceptual Framework

As noted previously, schools are often deemed vulnerable due to their susceptibility to mass acts of violence. Accordingly, national and state policies have been introduced because of these violent acts. After a highly publicized school shooting in Newtown, Connecticut, James (2013) published a law update entitled *Policy Reform after Newtown: The SRO and the Student's Right to a Safe Campus*. In this law update, James described federal and state policy that addressed school safety topics such as school safety funding reform, student self-protection, educator self-protection, and expanding authority of SROs.

More recently, members of the 115th Congress (2017-2018) of the US introduced several bills related to school safety. Using the search terms "school safety" on the Congressional website Congress.gov, results showed that several recent school safety bills were introduced in 2018. These bills were likely spurred by major gun violence related tragedies associated with the February 2018 school shooting in Parkland, Florida. Some Congressional bills that were proposed in the month immediately following the Parkland shootings include *School Safety and Mental Health Services Improvement Act of 2018* (Alexander, 2018), *Student and Teacher Safety Act of 2018* (Grothman, 2018), *Supporting Teachers and Safe Students Act* (Ferguson, 2018), and *Protecting Communities and Preserving the Second Amendment Act of 2018* (Grassley, 2018). These bills were referred to a variety of Congressional Committees such as (a) *Education and the Workforce*, (b) *Health, Education, Labor, and Pensions*, and (c) *Judiciary*. The bills focused on reducing gun

violence through criminal background checks, addressing mental illness, revising firearms purchasing policies, upgrading school-based technology and infrastructural improvements, and identifying best practices for school safety.

The examples of increased policy activity associated with school safety after a major event is a "textbook" public policy response. The increased policy activity reflects Kingdon's (2011) notion of a policy window. A policy window is "an opportunity for advocates of proposals to push their pet solutions, or to push attention to their special problems" (p. 165). Kingdon (2011) also notes that policy windows open predictably and unpredictably, but do not remain open for long periods of time. He further argues that when three influential streams collide (i.e., problems, policies, and politics), substantial policy changes occur.

Problems are often described as "a change in the state of a system" (Kingdon, 2011, p. 92) as measured by some indicator, such as school safety being described primarily in the context of gun violence. Problems are often given more attention by the pervasiveness of the indicator or by focusing events, such as mass shootings. Problems also fade when other issues arise or if extreme consequences are less frequent. In the case of schools, safety is generally a constant concern, but in the absence of focusing events, it may not receive much attention.

Policy communities are often composed of specialists and policy entrepreneurs. Policy entrepreneurs exist across many groups including elected officials, members of special interest groups, and researchers. Policy entrepreneurs are thought to push policies, but also develop ideas in advance and wait for policy windows to open. Policy communities can sometimes be fragmented and there are consequences to fragmentation. One consequence is that specialists may submit uncoordinated policy proposals. Another consequence is that the development of multiple proposals that represent common features may strengthen integration (Kingdon, 2011). An example of fragmentation may be evident in the *Student and Teacher Safety Act of 2018* (Grothman, 2018) and the *Supporting Teachers and Safe Students Act* (Ferguson, 2018), both of which were introduced and referred to the *House Committee on Education and the Workforce* on the same day in March of 2018. As shown here, multiple simultaneous proposals may reflect one or more of Kingdon's (2011) notions of integration, competition for a place on the agenda, and the chaotic nature of the coupling of three streams during this policy window.

Lastly, the political stream can be influenced by the national mood, organized political forces, and government itself (e.g., changes in leadership). The title of the bill, *Protecting Communities and Preserving the Second Amendment Act of 2018* (Grassley, 2018), aptly reflects the how politics can influence policy and the framing of problems. The title and text of the legislation reflects an attempt to limit access to illegal gun trafficking and securing of guns to individuals with mental illness, but also provided assurances to constituents that their freedoms to obtain guns afforded by the *Second Amendment* are not compromised. Moreover, increases in proposed legislation reflect a political response to a national mood to curb school violence.

In this paper, I use two streams of Kingdon's (2011) framework to evaluate NC Senate Bill 402, *Section 8.36 – Grants for School Resource Officers in Elementary and Middle Schools*. Specifically, I investigate the effects of an SRO policy in improving school safety. Thus, the first stream, the problem, is measured by reported disciplinary acts per school (the indicator). Reported disciplinary acts are 16 predetermined infractions that must be reported by all public schools in North Carolina. The second stream, the policy, is represented by NC Bill 402*, Section 8.36* represents the policy that addresses the indicator. *Bill 402.8.36* was enacted in 2013, likely reflecting a policy window that appeared after the Sandy Hook Elementary School shooting in Newton, Connecticut which resulted in more than 25 fatalities. The third stream, politics, is not directly addressed in this paper, but politics is inherent in most every policy decision. Therefore, results from this study may be used to inform political activity.

Research Questions

Research questions in this study were developed to assess the effectiveness of SRO use within middle schools. North Carolina was chosen because, in 2013, the General Assembly of North Carolina (2013) passed Senate Bill 402*, Section 8.36 – Grants for School Resource Officers in Elementary and Middle Schools*. The section of the bill reads:

> SECTION 8.36. Grants to local school administrative units, regional schools, and charter schools for school resource officers in elementary and middle schools shall be matched on the basis of two dollars ($2.00) in State funds for every one dollar ($1.00) in local funds and shall be used to supplement and not to supplant State, local, and federal funds for school resource officers.
>
> The State Board of Education shall include need-based considerations in its criteria for awarding these grants to local school administrative units, regional schools, and charter schools.
>
> Local school administrative units, regional schools, and charter schools may use these funds to employ school resource officers in elementary and middle schools, to train them, or both. Any such training shall include instruction on research into the social and cognitive development of elementary school and middle school children.

In addition, General Statutes (G.S. 115C-12(27) and G.S. 115C-12(21) in North Carolina require the *State Board of Education* to report annually on school crime and violence (State Board of Education, 2018). Considering that *Bill 402.8.36* implies that only some districts would receive these funds, this legislation provided favorable conditions for a quasi-experimental design. Thus, the following research questions were examined:

1. Are there differences in reported disciplinary acts after *Bill 402, Section 8.36* (*Grants for School Resource Officers in Elementary and Middle Schools*) was implemented?
2. Are there differences in reported disciplinary acts, based on SRO treatment intensity (per pupil SRO expenditures), after *Bill 402, Section 8.36* was implemented?
3. How much variation in reported disciplinary acts can be explained by school years, schools, and districts?
4. What additional factors were related to reported disciplinary acts?

Method

Data Sources

Public use data of all public, non-charter middle schools were retrieved from various sub-sections of the North Carolina Public Schools website (Public Schools of North Carolina, 2018). Data were collected over a seven-year period between the academic years 2010-2011 to 2016-2017. In a given year, there were more than 80 grade bands (spans). Thus, a decision rule was created to identify middle schools[1]. Schools were coded as a middle school if the grade band included (a) any combination of grades five through eight, (b) any combination of a PreK-8 school that did not end in sixth grade, or (c) sixth grade only schools.

Sample

Depending on the school year, there were 462 to 471 schools over a seven-year period that met the decision rule for being classified as a middle school. Seven years were chosen for this study because the SRO policy of interest, state-provided matching funds for district use in elementary and middle schools, began during the 2013/14 school year. Thus, three prior years of data were collected to assess trend differences in middle schools before the policy began. There were also some data limitations that prevented analysis prior to the 2010/11 school year.

Since the policy's inception, 50 of the 110 districts received matching SRO funds at some point during the seven-year period. Districts were identified as a recipient of SRO funds based on Program Report Code 39 (PRC-39), a line item of the *Annual Expenditure Reports by LEA for North Carolina*. PRC-39 was a code designated for the state-provided middle and elementary SRO funds (see Financial and Business Services, 2018). Districts with dollar amounts greater than zero in PRC-39 were deemed a recipient of SRO funds (treatment), otherwise they were listed as a control school. Other cases were excluded because the school may not have been in existence for the full seven-year period or met the middle grades decision-rule for a given year in the 7 years of the study (see Table 1). Overall, there were 3,275 cases that met all criteria to be included in the study.

[1] The term middle grades and middle schools are used interchangeably in this study.

Table 1

Frequencies of Treatment and Control Groups

School Year	*Group*		*Total*
	Control	Treatment	
2010/11	279 8.5 %	183 5.6 %	462 14.1 %
2011/12	288 8.8 %	183 5.6 %	471 14.4 %
2012/13	281 8.6 %	183 5.6 %	464 14.2 %
2013/14	286 8.7 %	183 5.6 %	469 14.3 %
2014/15	287 8.8 %	183 5.6 %	470 14.4 %
2015/16	288 8.8 %	180 5.5 %	468 14.3 %
2016/17	288 8.8 %	183 5.6 %	471 14.4 %
Total	1997 61 %	1278 39 %	3275 100 %

Note. Broken line represents beginning of SRO Policy Period

Analysis

Since the outcome variable of interest, reported acts in a given school year was a count variable; count regression models were used to assess policy effectiveness. First, descriptive statistics and graphs were examined to assess similarities and differences between the schools within districts that received the SRO matching funds and those that did not. Second, a series of regression models were analyzed to examine the effectiveness of the SRO policy. A model comparison approach was used to compare results between Poisson, quasi-Poisson, zero-inflated negative binomial (ZINB), and hurdle models (see Zeileis, Kleiber, & Jackman, 2017 for a nice summary of count models). Third, Likelihood ratio tests for nested and non-nested models were used to assess the best model fit.

Given the potential high stakes of SRO policy in general, several models were analyzed and compared to allow readers to make informed decisions about the effectiveness of the policy. A model comparison approach was also chosen because there are several challenges of fitting count models. For example, basic Poisson models assume, equidispersion, or that the mean and variance are the same, but this assumption is rarely met. Thus, dispersion tests were used to assess the Poisson assumption (Kleiber & Zeileis, 2008). If overdispersion existed, additional models were examined. Notably, there were 535 cases in which schools reported zero (0) disciplinary acts during the seven-year period. Thus, zero-augmented models, inclusive of zero-inflated negative binomial and hurdle models were also examined to account the presence of zero (0) counts in the data.

The hurdle model for treatment was analyzed using two steps (e.g., hurdle). First the model used predicts whether a school would receive zero acts versus one or more acts. If the school received at least one act (i.e., clears the hurdle), then a second analysis occurs for schools that "clear the hurdle" to predict how many acts occurred based on the covariates. The predicted probabilities from both steps are combined to reduce bias and calculate a final prediction of reported acts. In other words, the hurdle model accounts for the schools that are unlikely to report any acts and those that are likely.
For questions one and two, the primary analysis technique used to assess the effectiveness of the SRO policy was a generalized difference-in-difference (DID) regression design with fixed effects for school year. DID is a popular evaluation method that is used to assess policy effectiveness between two or more groups over at least two time periods (Cameron & Trivedi, 2005; Rabe-Hesketh & Skrondal, 2012). These two time periods usually include at least one time period before policy implementation and a time period after policy implementation. Between the time periods, one of the groups (known as the treatment group) is provided some intervention. The generalized DID design can accommodate more than two time periods and has advantages over a traditional pre-post design.

DID measures the differences in changes between two groups as well as incorporates fixed effects that can account for unmeasured factors that may also influence outcomes. For example, SROs are often funded from many sources (e.g., local, federal grants, etc.). Thus, the generalized DID design is able to isolate the effects of the state-provided matching funds versus other funding and strategies that may be simultaneously implemented to improve disciplinary outcomes. The general idea of DID is to determine how the groups differ before the policy implementation and subsequently assess if the differences between the two groups change after policy implementation. An assumption of DID designs is that it assumes that there is a common trend between the treatment and control groups before the intervention. Thus, visual inspection of graphs was used to check for common trends. To account for clustering of schools and districts, variance was adjusted using the "sandwich" package in R (Zeileis, Lumley, Berger, & Graham, 2017) to correct standard errors, calculate t-statistics, and compute confidence intervals.

For question three, multilevel modeling (see Aguinis, Gottfredson, & Culpeper, 2013 for a nice summary of multilevel modeling) was assessed using the "lme4" package in R (Bates, Machler, Bolker, & Walker, 2015). Multilevel modeling was used to assess how much variation in reported acts can be explained by district, school, and school year differences. This technique was chosen so that an intraclass correlation coefficient could be calculated. These results could provide insight for future research and provide guidance for where to focus resources for school safety.

For question four, hurdle model techniques used for questions one and two were repeated. Since additional variables became publicly available during the 2013/14 school year, analyses for question four were limited to years 2013/14 – 2016/17. However, since pretreatment data were not available for question four, DID could not be used for question four. Instead, negative binomial hurdle models, excluding the DID component, were used to investigate question four.

[2] Albeit a close approximation, per pupil expenditures are not exact and possibly slightly lower than estimated. Although not exact, the profile of the models generated consistent conclusions.

Variables

The policy of interest, receipt of matching SRO funds, was measured and analyzed in two ways, treatment and treatment intensity. Treatment, an indicator variable for receiving matched grant funds was created (1 = yes, 0 = no) to distinguish treatment and control schools. Treatment intensity, a continuous variable, was created to approximate intensity of SRO usage (0 = no funds vs some dollar amount per pupil). Per pupil SRO expenditures[2] were adjusted for inflation for each year after the base year, using the *Consumer Price Index* (Bureau of Labor Statistics, 2018) from August to August to coincide with the school year and log-transformed. SRO labor costs vary per district; thus, intensity of usage is an approximation and not an exact measure. Fixed effects for year were included to account for other events or activities that may also influence disciplinary outcomes. Additional control variables included total enrollment (log-transformed) and percentage of racial enrollments that were provided in the dataset (Asian, Black, Hispanic, Indian, Pacific Islander, Two or More Races, and White). Socioeconomic status (SES) was a continuous variable from (-8 to 9), with "-8" representing less than 10% economically disadvantaged students (EDS) and "9" representing greater than 90% EDS. Otherwise, each one-unit increase represents a five-percentage point increase. SES was centered around "0" or the category that represents 45-50% EDS. This category was chosen because 45-50% was a high frequency EDS category in North Carolina, meaning that many schools had a similar amount of EDS. Additional variables that became available during the 2013/14 school year were percentages of students who were considered grade level proficient, percentage of students who were deemed college or career ready, and per pupil expenditures (log-transformed) per district. As previously noted, the additional variables were used to analyze question four.

Results

Visual inspection of the trends between the treatment and control groups suggests that there

is a general common trend before the policy period began (Figure 1). Figure 1 also shows that the disciplinary acts for students were lower for the treatment group in all three years before receiving the additional SRO funds. Figure 1 highlights two key observations. First, the treatment and control groups follow a common trend before the policy period. Second, in no instance did the treatment group have higher reported acts than the control group before receiving the matching SRO funds. Table 1 also shows that there were generally more control group schools in each year, but both groups had sufficient representation for analysis across the seven-year period.

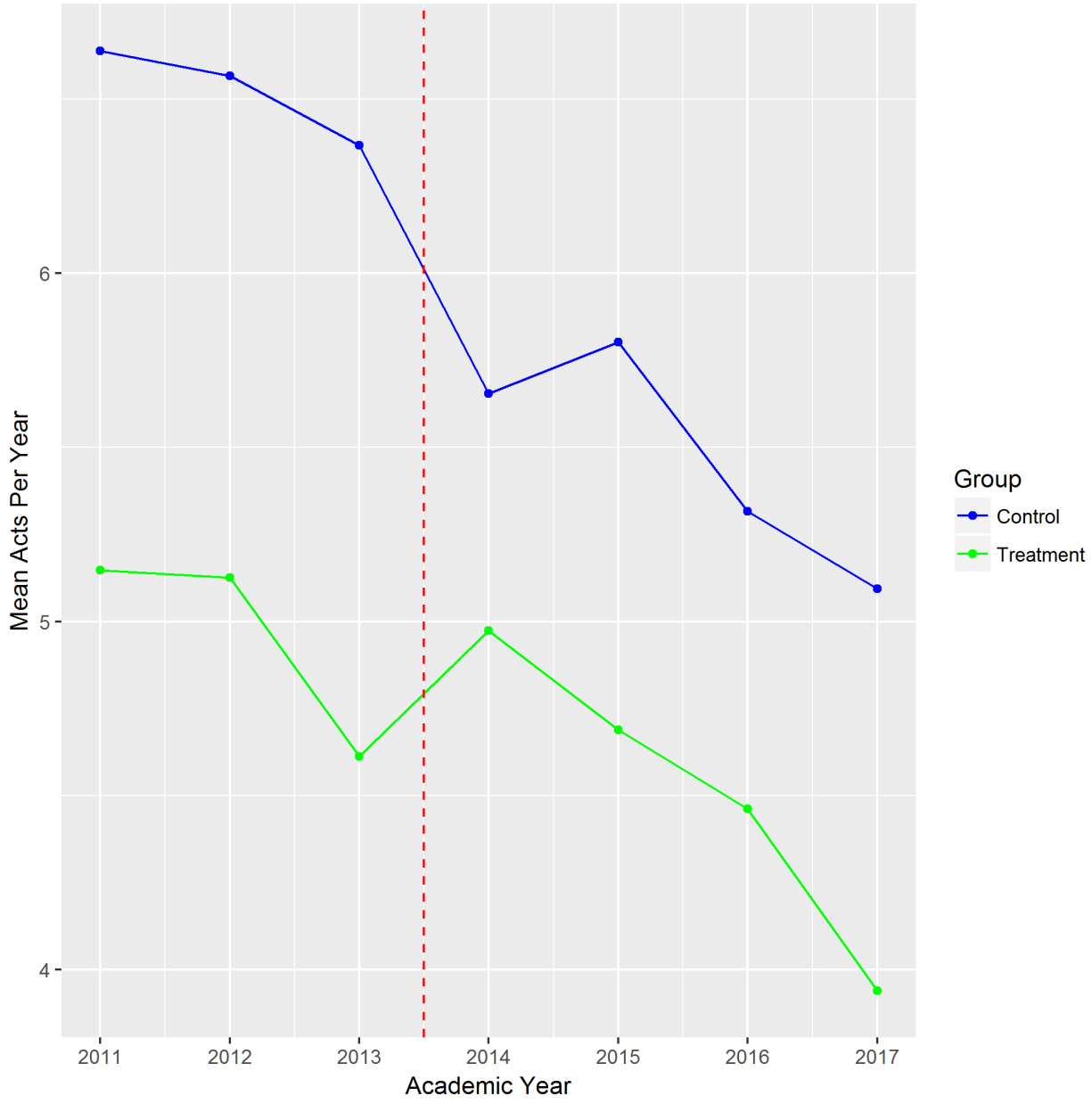

Figure 1. Seven-year Trend of Average Acts per Year.
Notes: Red line represents the beginning of the policy period.
(Academic Year represents end of a school year [e.g., 2011 = 2010/11]

Descriptive statistics reinforce some of the trends noted by visual inspection of Figure 1. It is particularly noteworthy to pay attention to the means, standard deviations, and ranges in both the pre- and post-policy periods. As shown in Table 2, mean reported acts decrease from pre- to post-intervention for the both treatment and control groups. Moreover, after receiving the funds, the treatment group range increased slightly, whereas the control group range decreased slightly. Median reported acts for the treatment group remained the same, but median reported acts for the control group decreased.

Table 2

Summary of Descriptive Statistics between Treatment and Control Groups (SY 2011/12 – 2016/17)

		Pre-SRO Policy					*Post-SRO Policy*				
Variable	**Group**	***N***	**Mean**	***SD***	**Median**	**Range**	***N***	**Mean**	***SD***	**Median**	**Range**
Acts	T	549	**4.96**	**4.90**	3.00	**0 - 29**	546	**4.36**	**4.73**	3.00	**0 - 34**
Acts	C	848	**6.52**	**6.75**	5.00	**0 - 53**	863	**5.40**	**6.32**	3.00	**0 - 50**
SRO Funds Per Pupil	T	NA	NA	NA	NA	NA	546	19.22	11.65	16.96	2.54 - 55.16
SRO Funds Per Pupil	C	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Enrollment	T	549	594.83	224.93	602	74 - 1538	546	554.12	212.09	567	74 - 1234
Enrollment	C	848	684.30	309.77	648.50	49 - 1577	863	670.10	326.69	621	60 - 1808

1. Are there differences in reported disciplinary acts after Bill 402, Section 8.36 (Grants for School Resource Officers in Elementary and Middle Schools) was implemented?

Visual inspection of Figures 2 and 3 suggests that there are excess zeroes in the data relative to the other counts. In addition, the dispersion test indicates that there is overdispersion in the data (dispersion = 3.95, z=16.62, $p < .01$), suggesting that basic Poisson model is not appropriate. The log-likelihood was larger for the zero-augmented models rather than the Poisson models indicating that the zero-augmented models were a better fit. The log-likelihoods for the zero-augmented models were very similar and the Vuong (1989) test shows that there were no significant differences between the zero-inflated negative binomial, the zero-inflated hurdle model with a dichotomous treatment (received SRO grant or not), and the zero-inflated hurdle model for treatment intensity (SRO per pupil expenditure) models (p >.05). Since there were no differences in the models, the hurdle model for treatment (received treatment or not) was retained. This model was retained due to its ease of interpretation.

Table 3 shows that when using clustered standard errors for school and districts, the DID estimates (SY * SRO) in the full hurdle model indicate that receiving matching SRO funds was not related to reported acts in any of the years in which the grant was awarded. Expectedly, as total enrollment increases, reported acts increase. Coefficients suggest that as total enrollment increases by 10%, the model expects reported acts to increase by 9.3%, holding all other variables constant. As demonstrated by the negative and significant coefficients, the racial composition variables suggest that increased percentages of Indian, Asian, Black, White, and Two or More Race students, when holding other factors constant, are associated with decreases in reported acts. Results also suggest that there is a negative, but not significant relationship between Hispanic student enrollment changes and reported acts. However, the model suggests that increased Pacific Islander enrollment is associated with increased reported acts. The fixed effects for school year were also significant, suggesting that there are other factors not measured in the model that are contributing to the reduction in reported acts. As SES increases

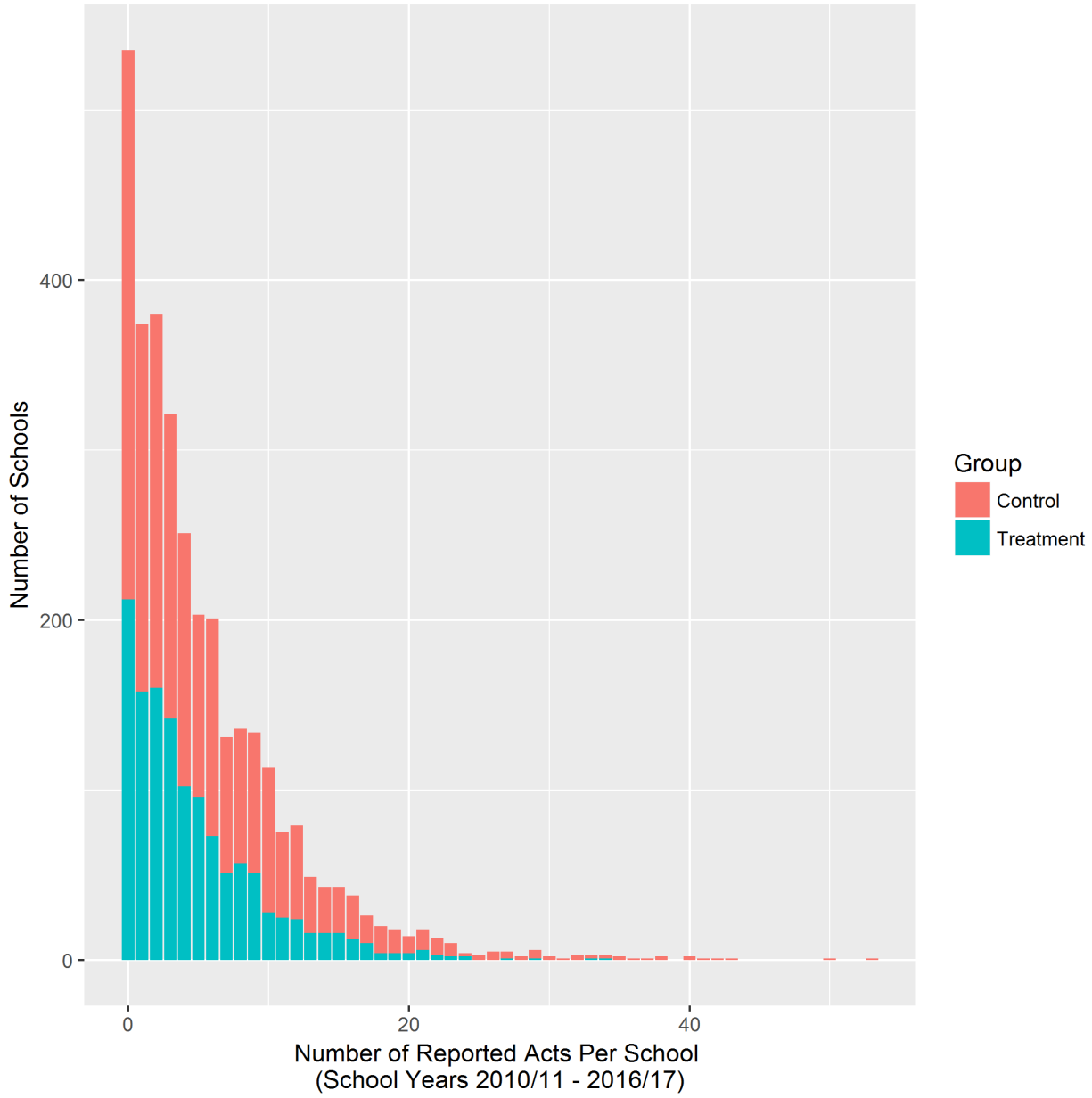

Figure 2. Reported Acts per School.
Notes: Height of bars represent the total number of schools. The tallest bars represent the number of schools that reported zero acts in each school year.

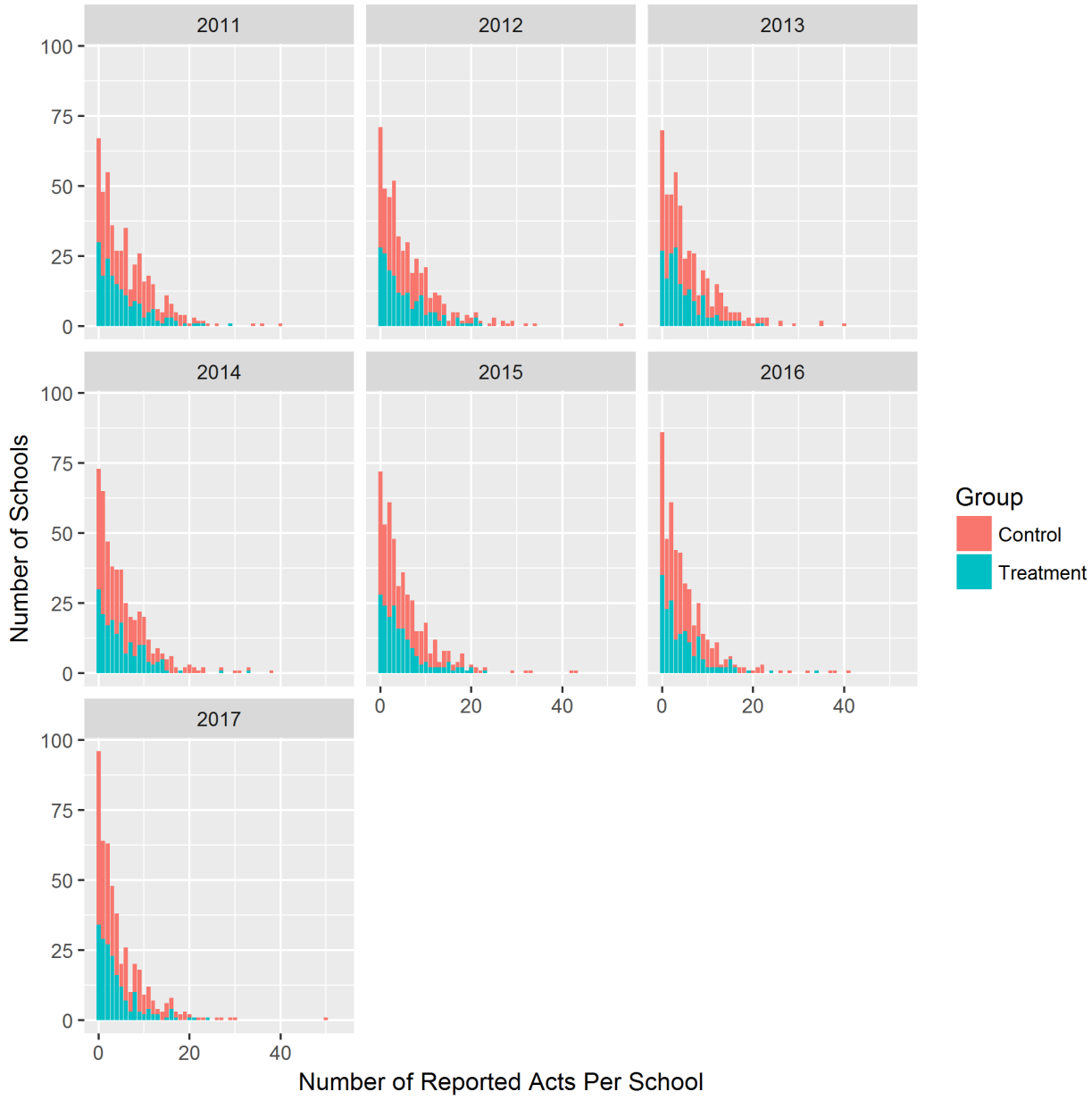

Figure 3. Reported Acts per School per Year.
Note: Height of bars represent the total number of schools. The tallest bars represent the number of schools that reported zero acts in each school year.

by 5%, the model predicts a 5% increase in reported acts. However, these findings should be interpreted with caution because as will be shown in Question three, relationships between race, SES, and fixed effects for year are no longer significant when including grade level proficiency and college and career readiness.

2. Are there differences in reported disciplinary acts, based on SRO treatment intensity (per pupil SRO expenditures), after Bill 402, Section 8.36 was implemented?

Table 3

Count Model Regression Coefficients for Middle Schools in North Carolina (School Years 2011/12 - 2016/17) (N = 3,275)

	Reported Acts Per School Year				
	Poisson	Quasi-	(ZINB)	(NB Hurdle1)	(NB Hurdle2)
SY2011/12	0.07*	0.07	0.07	0.04	0.04
SY2012/13	-0.12***	-0.12	-0.11	-0.09	-0.09
SY2013/14	-0.28***	-0.28***	-0.29***	-0.30***	-0.23**
SY2014/15	-0.18***	-0.18**	-0.20**	-0.19*	-0.18*
SY2015/16	-0.23***	-0.23***	-0.27***	-0.25**	-0.21**
SY2016/17	-0.34***	-0.34***	-0.36***	-0.31***	-0.29***
District Received SRO Grant	-0.06	-0.06	-0.04	-0.03	
SRO Per Pup Exp	-	-	-	-	-0.04
log(Enrollment)	1.13***	1.13***	0.94***	0.93***	0.92***
SES	0.03***	0.03***	0.03***	0.03***	0.03***
Cent(Ind. Pct)	-0.04***	-0.04***	-0.02***	-0.02***	-0.02***
Cent(Asian Pct)	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***
Cent(Hisp. Pct)	-0.01***	-0.01**	-0.01	-0.01	-0.01*
Cent(Black Pct)	-0.02***	-0.02***	-0.01***	-0.01***	-0.01***
Cent(White Pct)	-0.03***	-0.03***	-0.02***	-0.02***	-0.02***
Cent(Pac. Is. Pct)	0.19***	0.19*	0.16	0.20*	0.21*
Cent(Two or More Pct)	-0.01***	-0.01	-0.02	-0.02*	-0.02*
SY2011/12 * SRO	-0.05	-0.05	-0.03	-0.03	-
SY2012/13 * SRO	-0.02	-0.02	-0.06	-0.10	-
SY2013/14 * SRO	0.20***	0.20	0.19	0.18	-
SY2014/15 * SRO	0.10	0.10	0.08	0.05	-
SY2015/16 * SRO	0.14*	0.14	0.13	0.13	-
SY2016/17 * SRO	0.06	0.06	0.07	0.01	-
SY2011/12* SRO PPE	-	-	-	-	-0.03
SY2012/13 * SRO PPE	-	-	-	-	-0.10
SY2013/14 * SRO PPE	-	-	-	-	0.06
SY2014/15 * SRO PPE	-	-	-	-	0.07
SY2015/16 * SRO PPE	-	-	-	-	0.07
SY2016/17 * SRO PPE	-	-	-	-	0.06
Constant	-5.60***	-5.60***	-4.31***	-4.22***	-4.18***
N	3,275	3,275	3,275	3,275	3,275
Log Likelihood	-10,652		-8,401	-8,406	-8,405

*p < .05; **p < .01; ***p < .001

Notes: “Middle school” is used interchangeably with the term middle grades. Schools were coded as a middle school if the grade span included (a) any combination of grades five through eight, (b) any

combination of a PreK-8 school that did not end in sixth grade, or (c) sixth grade only schools. SY = School Year (1=yes, 0=no); 2011/12 was reverse coded (0=yes, 1=no) to generate estimates for all years; SRO=School Resource Officer; Per Pup Exp & PPE = Log-transformed, inflation adjusted per pupil expenditure; log(Enrollment) = Log-transformed number of students enrolled in a given year; and *N* = Total number of school cases. For ease of comparison, zero portion coefficients of hurdle models are not shown here. See Table 4 for full model.

When measuring treatment intensity, results also indicate SRO treatment intensity was not related to reported acts (see Table 3, Column "NB Hurdle2"). In this model, it shows that increases in Hispanic student enrollment is significantly related to reductions in reported acts. Overall, coefficients and statistically significant variables were almost identical to the treatment model in Question one and are not repeated here. As with Question one, findings associated with race, SES, and school year fixed effects should be interpreted with caution due to additional results described in Question four. Since intensity of treatment was not related to reported acts, additional detail for the simpler model, treatment vs non-treated schools (i.e., NB Hurdle 1 from Table 3), is provided in Table 4.

Table 4

Negative Binomial Hurdle Model Estimates with Clustered Standard Errors (School Years 2011/12 - 2016/17) (N = 3,275)

		95% CI	
	Coef.	Lower	Upper
Count Part			
(Intercept)	-4.22***	-4.80	-3.64
SY2011/12	0.04	-0.10	0.19
SY2012/13	-0.09	-0.24	0.06
SY2013/14	-0.30***	-0.44	-0.15
SY2014/15	-0.19*	-0.33	-0.04
SY2015/16	-0.25**	-0.41	-0.10
SY2016/17	-0.31***	-0.47	-0.16
SRO Grant	-0.03	-0.20	0.14
log(Enrollment)	0.93***	0.84	1.01
SES	0.03***	0.01	0.04
Cent(Indian Pct)	-0.02***	-0.03	-0.02
Cent(Asian Pct)	-0.04***	-0.05	-0.02
Cent(Hispanic Pct)	-0.01	-0.01	0.00
Cent(Black Pct)	-0.01***	-0.02	-0.01
Cent(White Pct)	-0.02***	-0.03	-0.02
Cent(Pacific Islander Pct)	0.20*	0.02	0.38
Cent(Two or More Pct)	-0.02*	-0.04	0.00
SY2011/12 * SRO	-0.03	-0.27	0.20
SY2012/13 * SRO	-0.10	-0.34	0.14
SY2013/14 * SRO	0.18	-0.06	0.42

SY2014/15 * SRO	0.05	-0.19	0.29
SY2015/16 * SRO	0.13	-0.11	0.38
SY2016/17 * SRO	0.01	-0.24	0.26
Zero Part			
(Intercept)	-10.96***	-12.40	-9.52
SY2011/12	0.12	-0.28	0.53
SY2012/13	-0.11	-0.52	0.30
SY2013/14	-0.19	-0.59	0.22
SY2014/15	-0.06	-0.46	0.35
SY2015/16	-0.28	-0.68	0.12
SY2016/17	-0.49*	-0.89	-0.10
log(Enrollment)	2.05***	1.83	2.28
SES	0.03	0.00	0.07
Cent(Indian Pct)	-0.06***	-0.08	-0.05
Cent(Asian Pct)	-0.05*	-0.09	0.00
Cent(Hispanic Pct)	-0.02**	-0.04	-0.01
Cent(Black Pct)	-0.02**	-0.04	-0.01
Cent(White Pct)	-0.04***	-0.06	-0.03
Cent(Pacific Islander Pct)	0.01	-0.62	0.65
Cent(Two or More Pct)	0.05	0.00	0.11

*p < .05; **p < .01; ***p < .001
Notes. SY = School Year (1=yes, 0=no); 2011/12 was reverse coded (0=yes, 1=no) to generate estimates for all years; SRO=School Resource Officer; log(Enrollment) = Log-transformed number of students enrolled in a given year; and *N* = Total number of school cases.

3. How much variation in reported disciplinary acts can be explained by school years, schools, and districts?

Intra-class correlation coefficients, based on multilevel models with no predictors, suggest that when predicting whether a school would have zero versus one or more acts, approximately 43%, 45%, and 1% of the variance in acts can be explained by differences between districts, schools, and school year, respectively. Results also suggest that when limiting the analysis to schools that reported at least one act, the variables did not explain the total number of acts with similar levels of precision. Specifically, 1%, 14%, and approximately 0% of the variance in acts can be explained by differences between districts, schools, and school year, respectively. School- and district-level variables are better predictors of the dichotomy (i.e., schools that will report zero acts or not), explaining almost 89% of the variance. Yet, when trying to predict the total number of acts for schools that reported at least one act, school- and district-level variables explain only about 15% of the variance.

4. What additional factors were related to reported disciplinary acts?

As noted previously, three additional variables, grade level proficiency, college and career readiness, and per pupil expenditures, were available in the dataset beginning in school year 2013/14 (see Table 5). When including these three additional variables in the hurdle model, relationships between race and fixed effects for school year are no longer significant. For the count portion (schools that reported at least one act), the model suggests that for every 1% increase in grade level proficiency, it expects reported acts to decrease by approximately 4%. As enrollment increases by 10%, the model expects reported acts to increase by 9.4%. The model also shows that a 10% increase in per pupil expenditures is associated with a small (approximately 1 %) increase in reported acts. When predicting schools with zero versus at

least one act, the only additional significant variables was college and career readiness. The model suggests that as college and career readiness for a school increases by 1%, it expects reported acts to increase by approximately 11.6%.

Table 5

Negative Binomial Hurdle Model Estimates with Clustered Standard Errors (SY 2013/14 – 2016/17) (N = 1,878)

	Model 1		Model 2	
Count Part	Coef.	Std. Err	Coef.	Std. Err
Constant	-5.92***	0.65	-6.32***	0.62
log(Enrollment)	0.94***	0.08	1.04***	0.08
SES	0.05***	0.01	0.02	0.01
Cent(Indian Pct)	-0.01	0.01	-0.01	0.01
Cent(Asian Pct)	-0.03**	0.01	-0.01	0.01
Cent(Hispanic Pct)	0.00	0.01	0.00	0.01
Cent(Black Pct)	0.00	0.01	-0.01	0.01
Cent(White Pct)	-0.01	0.01	-0.01	0.01
Cent(Pacific Islander Pct)	0.09	0.13	0.10	0.14
Cent(Two or More Pct)	-0.02	0.02	-0.01	0.02
SRO Grant	-1.82	1.18	-1.55	1.21
log(Per Pup Exp)	0.11***	0.03	0.10**	0.03
SRO Grant * log(PPE)	0.16	0.10	0.14	0.10
SY2013/14	0.09	0.06	0.02	0.07
SY2014/15	0.18**	0.06	0.07	0.06
SY2015/16	0.14*	0.07	0.06	0.06
Cent(Pct_GLP)	-	-	-0.04*	0.02
Cent(Pct_CCR)	-	-	0.02	0.02
Zero Part				
Constant	-14.76***	2.23	-14.48***	2.37
log(Enrollment)	2.31***	0.19	2.40***	0.21
SES	0.07	0.04	0.02	0.04
Cent(Indian Pct)	-0.05***	0.01	-0.05***	0.01
Cent(Asian Pct)	-0.05	0.03	0.00	0.03
Cent(Hispanic Pct)	-0.01	0.02	0.00	0.01
Cent(Black Pct)	-0.01	0.01	-0.01	0.01
Cent(White Pct)	-0.03	0.01	-0.01	0.01
Cent(Pacific Islander Pct)	-0.17	0.46	-0.14	0.37
Cent(Two or More Pct)	0.03	0.06	0.06	0.06
SRO Grant	-0.42	2.88	0.16	2.84
log(Per Pup Exp)	0.14	0.12	0.10	0.13
SRO Grant * log(PPE)	0.05	0.25	0.00	0.24
SY2014/15	0.30	0.20	0.11	0.21

SY2015/16	0.50*	0.23	0.23	0.24
SY2016/17	0.27	0.20	0.09	0.20
Cent(Pct_GLP)	-	-	-0.17***	0.04
Cent(Pct_CCR)	-	-	0.11*	0.04
Log Likelihood	-4668		-4612	

*p < .05; **p < .01; ***p < .001

Notes. "Middle school" is used interchangeably with the term middle grades. Schools were coded as a middle school if the grade span included (a) any combination of grades five through eight, (b) any combination of a PreK-8 school that did not end in sixth grade, or (c) sixth grade only schools. SY = School Year (1=yes, 0=no); SRO=School Resource Officer; Per Pup Exp & PPP = Log-transformed inflation adjusted per pupil expenditure; log(Enrollment) = Log-transformed number of students enrolled in each year; Cent(Pct_GLP) = Centered percentage of grade level proficient students; Cent(Pct_CCR) = Centered percentage of college and career ready students; and Total number of school cases.

Discussion

SROs and Disciplinary Outcomes

No relationships between increased funding for SROs and overall reported acts were found in this study. This finding does not suggest that SROs failed to make any positive contributions, but when examining overall reported acts, no relationships were evident. Based on the four-year summary of Program Report Code 39, more than 23 million taxpayer dollars were spent on SROs for middle and elementary schools over the four-year period in North Carolina (Financial & Business Services, 2018). On yearly basis, these expenditures represented less than one percent of the overall state budget for SROs at the elementary and middle school level. Although the amount of money spent on SROs in middle and elementary schools is a relatively small portion of the budget, the dollar amounts are not small and such resource allocations are not inconsequential. If SROs are to continue to be used, clear and co-developed goals, followed by publicly-available reports should be required.

Teske and Huff's (2011) sentiment that SRO usage should be examined in a systems context for juvenile justice should not be understated. The authors note that police are trained to make arrests when there is probable cause. Thus, I advocate for a minimalist SRO policy approach by limiting day-to-day activity between SROs and students. Instead, I think that technological advancements (such as technology that pinpoints gunshot activity), and better infrastructure can reduce school vulnerability to mass acts. Moreover, policies that empower liaisons who do not have arresting authority (such as principals, deans of discipline, and private security) can serve the role of thwarting minor disorderly conduct and other issues. If SROs are used, I advocate for policies that facilitate proximity of SROs in discreet locations, such as closed offices that are equipped with enhanced technology to quickly locate massive acts of violence. Indeed, policy expectations that promote widespread counseling and relationship-building from sworn officers are great ambitions of the policy community. However, when using a systems context, I argue that relationship-building with sworn officers is indeed aspirational and the reality of these aspirations from a policy perspective may be overstated. Moreover, if relationship-building occurs, I believe that these relations should develop in communities, not necessarily schools.

Race and Achievement

Results in the study show that race was a poor predictor of disciplinary outcomes. This finding may be surprising to many. However, it should not be. Researchers have long indicated that regularly reporting factors out of context creates defacto causal links (e.g., race causes outcomes). In fact, Brown (2011), published a manuscript that chronicles how social scientists have long published the same narratives about black males dating back to the 1930s, leading to false causal narratives between race and negative outcomes. Like many states, North Carolina reports disciplinary outcomes by race. In the recent 2016-17 Consolidated Data report, the State Board of Education (2018) reported that Black

and Indian students were the two groups that had the highest rates at the high school level.

The decontextualized reporting practices of disciplinary practices by race play a role in Kingdon's (2011) three streams of the policy-making process and may shape the approach of policy entrepreneurs (e.g., hard line enforcement in specific communities). As shown in this study, when race is examined in the context of other variables, it is not associated with increased disciplinary acts. Instead, it shows that increased grade level proficiency is a reliable predictor of reported acts. The model predicts that a 5% increase in grade level proficiency could reduce reported disciplinary acts by approximately 20%. When race is examined in the context of achievement, no relationships between race and reported disciplinary acts were evident in this study. These findings do not suggest that race is unimportant, but race may be a misleading predictor of school safety. Additional research may show that students of a specific race may have tendencies to commit similar infractions or school staff members may interpret behaviors by race differently. Race is certainly a social construct with consequential implications, but the findings in this study show that race may serve as a marker that represents larger, more complex issues.

Discipline-related Reporting Practices

A common reporting metric used in North Carolina and elsewhere is to report disciplinary acts per 1,000 students. To create an "apples to apples" comparison for easy public consumption, states, such as North Carolina, often use a conversion formula to convert total reported acts to act per 1,000 students. I have done this in the past as well. However, the average middle school enrollment in this study was less than 700 students. Thus, acts per 1,000 students may artificially inflate the discipline problem, which is already sufficiently challenging, without inflated measures. To address this issue, I use count regression models that facilitate analysis of the total reported acts, instead of using a measure of convenience. Members of the policy community often rely on state-level reports to inform their strategies, but problematic reporting practices, such as reporting acts per 1,000 students, when there are fewer than 1,000 students enrolled in a given school, can negatively influence factors in the policy streams. Hence, the practice of reporting disciplinary acts per 1,000 students should certainly be revisited by the public policy research community.

Public Policy Agenda for School Safety

Findings in this study highlight Kingdon's (2011) notions of chaos in public policy-making when policy windows open and problems, policy, and politics collide. Figure 3 shows that the treatment group that received funding already had lower overall outcomes. My hunch is that these schools probably also had fewer resources for funding SROs. Yet, the focusing event of the Newtown shooting likely opened a policy window based on existing vulnerabilities to mass acts of violence. Figure 3 also shows that reported acts were generally declining in North Carolina over the seven-year period. Yet, statistical analyses conducted show that these improved outcomes are unrelated to the SRO grant program.

Findings from Question three indicate that a large amount of variance in reported acts, approximately 85%, was unexplained by school- and district-related variables. This finding suggests that there is a lot to be learned about improving school safety that is external to the school context. However, the policy community should equally be careful not to overreact and shape policy that only addresses individuals (e.g., more counselors). While I agree that individual students play a major role in school safety and climates, I also believe that individuals exist in ecological contexts.

Consider the following hypothetical and equally plausible scenario. There has been an increasing mood in some states by citizens and policy entrepreneurs to legalize marijuana for recreational use and profit. There is also a simultaneous increasing youth drug abuse problem in the US. The youth drug abuse problem is evident in schools and has implications for school safety. Yet, SROs' policies often charge SROs with the tasks of providing substance abuse education. This paradox seems to place SROs in impossible situations and highlights potential unintended consequences of public policy.
Unintended consequences are especially concerning in middle childhood where pre-adolescents are highly impressionable. This example highlights the challenge of increasingly diverse moral reasoning perspectives in the 21st century and the role it plays in public policy agendas, school safety, and beyond. Accordingly,

we, the policy community, must concern ourselves with the long-term consequences of public policy, not just political consequences that emerge during policy windows.

Future Research

Considering that larger schools reported more disciplinary acts, additional research that examines district policies that inform and shape school size in the middle childhood context are necessary. Likewise, as college and career readiness increased, Table 5 shows that for each percentage increase in college and career readiness, students were 11.6% more likely to be enrolled in schools that reported at least one disciplinary act instead of zero. This finding should prompt additional research that closely examines conceptualizations of college and career readiness, especially career readiness. In the past, career readiness has been a viewed as a "dumping ground" for less academically-prepared students. This "dumping ground" phenomenon, if it still exists, may explain the odd relationships between increased college and career readiness and increased disciplinary acts. Future studies should examine college and career readiness separately, as well as individual, rather than school outcomes, associated with policing in the middle grades. In addition, future studies should investigate how policing policy affects school safety, in the context of violent acts, in a middle childhood context.

Historical event studies may provide insight on other factors that are related to reduce reported acts in North Carolina. For example, one historical event, the addition of a new section to Section 8.35.a (115C-316.1) of the General Statutes was amended to read:

> **115C-316.1. Duties of school counselors.** (a) School counselors shall implement a comprehensive developmental school counseling program in their schools. Counselors shall spend at least eighty percent (80%) of their work time providing direct services to students. Direct services do not include the coordination of standardized testing. Direct services shall consist of:
> (1) Delivering the school guidance curriculum through large group guidance, interdisciplinary curriculum development, group activities, and parent workshops.
>
> (2) Guiding individual student planning through individual or small group assistance and individual or small group advisement.
>
> (3) Providing responsive services through consultation with students, families, and staff; individual and small group counseling; crisis counseling; referrals; and peer facilitation.
>
> (4) Performing other student services listed in the Department of Public Instruction school counselor job description that has been approved by the State Board of Education.
>
> (b) During the remainder of their work time, counselors shall spend adequate time on school counseling program support activities that consist of professional development; consultation, collaboration, and training; and program management and operations. School counseling program support activities do not include the coordination of standardized testing. However, school counselors may assist other staff with the coordination of standardized testing. (General Assembly of North Carolina, 2013)

This statute is aligned with the needs of the middle childhood years and could offer benefits beyond improving school safety. Future studies should investigate school safety outcomes associated with the amended counseling statute in a middle childhood context.

Conclusion

As noted previously, some students feel unsafe in the presence of SROs, whereas others feel safe (Theriot & Orme, 2016). Thus, I advocate for the use of a more complex definition of school safety, beyond just mass acts of violence, by the policy community when developing school safety policy for middle childhood. Safety in middle childhood is multi-faceted and includes psychological and physical safety. Thus, it is important for SROs and related personnel to have a sound understanding of middle childhood development when undertaking such important roles. Additional outcomes, such as culture and climate, rules of engagement, and student perceptions of SROs are not measured in this study. Considering the ambiguity in roles of SROs and rapid biological, psychological, and social development during middle childhood, it is important to set clear SRO goals and

parameters each year. Moreover, public and youth input should be central to the process. Public access to reports regarding progress towards these measurable outcomes each year should also be readily accessible.

Findings noted in a previous section clearly indicate that education enhances school safety, not policing. This finding corroborates prior work regarding suspensions and underachievement (Anderson, Howard, & Graham, 2007). When accounting for grade level proficiency, the models in the study show that race and class are not very strong predictors of reported acts. This finding should not be understated. For example, in many of the state level reports, higher acts are regularly associated with Black and Indian students (State Board of Education, 2018). However, when modeled in a quasi-experimental design context, the relationships between race and acts were weak and complex. This shows that race is not a causal factor for disciplinary findings. As noted by Brown (2011), reporting racial statistics, in isolation without proper context, is misleading and reinforces a perspective that may be unfounded. This may also lead to over-policing schools with high numbers of Black, Indian, and possibly lower SES stud
ents. Likewise, over-policing in schools could contribute to the *School to Prison Pipeline* (Pigott, Stearns, & Khey, 2018).

Policy makers must be careful not to develop SROs policy based on racial and social economic status or solely on focusing events. Rather the policy community should focus on the complex nature of school safety and vulnerability, which may vary by school and context. Public policy that is directed only at school conditions will generate marginal results at best. Multi-pronged policies that address underlying issues that may be contributing to increased school violence may generate more palpable outcomes. Acemoglu and Robinson (2012) argue that nations fail when incentives are not created for its citizens to fully participate in its enterprises. I argue for policies that improve achievement, restore dignity to communities and the human condition, support personal and professional responsibility, support families, address youth unemployment, and perennial family underemployment may be appropriate public policy agenda items that aim to improve school safety.

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