$100 Million Dollars Later

ARE SCHOOL RESOURCE OFFICERS MAKING NORTH CAROLINA SCHOOLS SAFER?

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I. Executive Summary

Since 2016, North Carolina has spent over $100 million on School Resource Officer (SRO) salaries and training. Research consistently finds SROs have little to no effect on school safety and can contribute to over-disciplining students. A difference-in-differences study on the effect of a 170% increase in SRO funding for North Carolina elementary and middle schools in 2018 suggests SROs have no effect on criminal acts or short-term suspensions but may increase the number of school-related arrests. Estimates suggest SROs caused an increase of about 0.035 arrests ($p<0.1$) per 1,000 elementary and middle school students. This translates to an additional 35 school-related arrests resulting from SRO presence. Arrests of students with disabilities increased by 0.243 ($p<0.1$) per 1,000 students, arrests of male students increased by 0.058 ($p<0.1$) per 1,000 students, and arrests of economically disadvantaged students increased by 0.068 ($p<0.1$) per 1,000 students. Findings for these subgroups align with previous research suggesting these students are particularly vulnerable to excessive disciplining. Lawmakers should consider these results when deciding the best ways to increase student safety and well-being in elementary and middle schools. Additionally, the state should require school districts to collect SRO data at the school level to evaluate the effects of SROs across time and decide if this investment of taxpayer dollars produces the desired results.

II. Introduction

A. Policy Questions

1. How do school resource officers impact **school safety** in North Carolina elementary and middle schools?
2. How do school resource officers impact **student discipline** in North Carolina elementary and middle schools?

B. School Resource Officers

The Department of Public Instruction's (DPI) Center for Safer Schools defines School Resources Officers as certified law enforcement officers who are permanently assigned to schools to fulfill three roles: law enforcement officer, law-related counselor, and law-related education teacher.[1] Between 1999 and 2019, federal and state governments spent $2 billion funding school resource officer positions to improve school safety and prevent tragedies like school shootings.[2] Some experts suggest this increase in funding leads schools to hire SROs when they otherwise would not, not for school safety but rather because the funding is available where it is not available for other positions like mental health staff.[3] Another potential reason for the rise in school policing could be "security theater" or "the enactment of tangible and highly visible measures that promote the appearance—rather than the reality—of security".[4] With school shootings more than doubling from 2019 to 2022, administrators are desperate to demonstrate action.[5]

Schools also use SROs to help law enforcement build legitimacy and good-will for their profession.[6] An interview with former member of the North Carolina Association of School Resource Officers, Capt. Leon Godlock, confirmed this theory: "If we that are in the elementary schools can form enough positive relationships with these students, hopefully one day the attitude between young people and law enforcement will be so positive that we don't have to have officers in the high schools".[7]

C. Increases in SRO Funding

In 2013, the North Carolina General Assembly began subsidizing SRO positions through the Grants for School Resource Officers in Elementary and Middle Schools program.[8] The program

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[1] Center for Safer Schools. "School Resource Officers." North Carolina Department of Public Instruction. Accessed September 23, 2022. https://www.dpi.nc.gov/districts-schools/district-operations/center-safer-schools/school-resource-officers.

[2] Thurau, Lisa H., and Lany W. Or. "Two Billion Dollars Later: States Begin to Regulate School Resource Officers in the Nation's Schools, A Survey of State Laws." Strategies for Youth, October 2019. https://strategiesforyouth.org/sitefiles/wp-content/uploads/2019/10/SFY-Two-Billion-Dollars-Later-Report-Oct2019.pdf.

[3] Fedders, Barbara A. "The End of School Policing." *California Law Review*, 2021, 1447. https://doi.org/10.15779/Z38G44HR5Z.

[4] Fedders, Barbara A. "The End of School Policing." 1447.

[5] *Education Week*. "School Shootings Over Time: Incidents, Injuries, and Deaths." March 23, 2021. https://www.edweek.org/leadership/school-shootings-over-time-incidents-injuries-and-deaths.

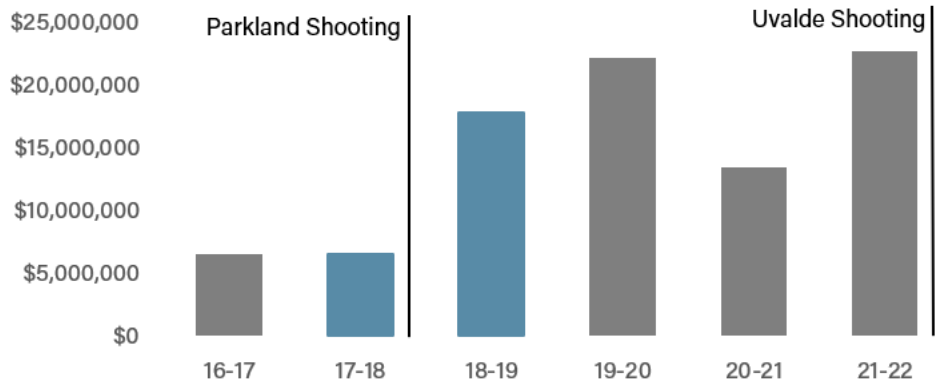
[6] Fedders, Barbara A. "The End of School Policing." 1447.

[7] Chemtob, Danielle, Alexandria Sands, and Katie Peralta Soloff. "Will More Cops Make North Carolina Schools Safer?" *Axios*. August 29, 2022. https://charlotte.axios.com/306645/will-more-cops-make-north-carolina-schools-safer/.

[8] Anderson, Kenneth. "Policing and Middle School: An Evaluation of a Statewide School Resource Officer Policy." *Middle Grades Review* 4, no. 2 (September 25, 2018). https://scholarworks.uvm.edu/mgreview/vol4/iss2/7.

matched $2 in state funding for every $1 in local funding over five years and expired in 2018. [9] In response to the mass shooting at Stoneman Douglas High School in Parkland, Florida in 2018, the General Assembly allocated another $30 million to grants including $12 million earmarked for SROs.[10] As shown in Figure 1, this resulted in about a 170% increase from the 2017-2018 to the 2018-2019 school year in district spending on SROs.[11] The General Assembly continues to look to SROs to address tragic school shootings: following the massacre at Robb Elementary in Uvalde, Texas, lawmakers increased grant funding from $18 million to $33 million for the 22-23 school year.[12]

Figure 1: North Carolina increased funding for SROs by 173% in 2018



Source: North Carolina Department of Public Instruction School Expenditure Data

As lawmakers continue spending on SROs, it is important to know whether and how that funding improves school safety or if it would be better spent elsewhere, like fully funding the Leandro Plan, a court ordered funding plan for providing North Carolina's students a constitutionally required sound basic education.[13]

D. Unintended Consequences: The School-to-Prison Pipeline

In addition to spending public dollars efficiently, it is also important to understand the negative consequences of SROs in schools for economically disadvantaged students, students of color, and students with disabilities. SROs are concentrated in high-poverty, urban areas across the

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[9] Anderson, Kenneth. "Policing and Middle School."; Holden, Cecilia. "Request for SRO Data," September 3, 2019.
[10] Doran, Will. "Students Are Back in School, and with an Extra $35 Million for Security and Mental Health Help." *Raleigh News & Observer*. September 4, 2018. https://www.newsobserver.com/news/local/article217785115.html.; School Safety Grants Program, Session Law 2018-5 Section 7.27 § 7.27 (2018). https://www.ncleg.gov/EnactedLegislation/SessionLaws/HTML/2017-2018/SL2018-5.html.
[11] North Carolina Department Of Public Instruction. "School Expenditure Data." Accessed September 23, 2022. https://www.dpi.nc.gov/districts-schools/district-operations/financial-and-business-services/demographics-and-finances/school-expenditure-data.
[12] Walkenhorst, Emily. "Budget Would Boost School Safety Grants, Police in Schools." *WRAL.Com*. June 28, 2022. https://www.wral.com/budget-would-boost-school-safety-grants-police-in-schools/20352354/.
[13] Communities for the Education of Every Child NC. "Communities for the Education of Every Child NC - The Leandro Plan." Accessed October 13, 2022. https://everychildnc.org/leandro-plan/.

country.[14] Police presence in schools is associated with higher arrest rates for all students, but Black students are arrested at a rate of 1.22 per 1,000 higher than in schools without SROs whereas the rate for white and Hispanic students is 0.38 and 0.48 per 1,000 higher respectively.[15] In North Carolina during the 2019-2020 school year, Black students made up 25% of students in public schools but received 55% of all short-term suspensions and accounted for 49% of referrals to the criminal justice system.[16] This pattern of school systems removing students from mainstream educational contexts and exposing them to the juvenile justice system has come to be known as the "school-to-prison pipeline".[17]

III. Literature Review

Despite increases in funding for SROs in recent years, evidence that they improve school safety is scarce. The most rigorous evidence comes from studies with designs intended to detect causal relationships between variables. Less rigorous studies testing associations rather than causal relationships come to similar conclusions.

A. Studies Testing Causation

Studies designed to detect causal relationships between SRO presence and outcome variables find some evidence of increases in discipline rates and little to no impact on school safety. For example, a difference-in-differences study on the impact of North Carolina's 2013 School Safety Grants program, which allocated $23 million to fund SRO positions over four years found no relationship between increased funding and reported disciplinary infractions.[18] In fact, discipline data showed infractions were declining before the grant program and statistical analysis suggested continuing declines were unrelated to the grant program.[19] The study suggested a 5% increase in grade level proficiency was associated with a 20% decrease in reported infractions, indicating academic interventions may have a role to play in addressing discipline, but this relationship was not tested for causality.[20]

A national study on the effects of federal COPS grants for SROs used a fuzzy regression discontinuity design based on application scores for federal SRO grants with data from 2014 to 2018 and came to similar conclusions.[21] The study suggests SROs reduce some forms of violence,

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[14] Muñiz, Julissa O. "Exclusionary Discipline Policies, School-Police Partnerships, Surveillance Technologies and Disproportionality: A Review of the School to Prison Pipeline Literature." *The Urban Review* 53, no. 5 (December 1, 2021): 748. https://doi.org/10.1007/s11256-021-00595-1.

[15] Homer, Emily M., and Benjamin W. Fisher. "Police in Schools and Student Arrest Rates across the United States: Examining Differences by Race, Ethnicity, and Gender." *Journal of School Violence* 19, no. 2 (April 2, 2020): 199. https://doi.org/10.1080/15388220.2019.1604377.

[16] Rash, Michelle. "Racial Equity Report Cards Find Ongoing Disparities in Discipline in North Carolina Public Schools." *Southern Coalition for Social Justice* (blog), March 16, 2021. https://southerncoalition.org/racial-equity-report-cards-2019-2020/.

[17] Okilwa, Nathern S., Muhammad A. Khalifa, and Felecia Briscoe, eds. *The School to Prison Pipeline : The Role of Culture and Discipline in School*. First edition. Vol. 4. Advances in Race and Ethnicity in Education. Bingley, UK: Emerald Publishing Limited, 2017. https://find.library.duke.edu/catalog/DUKE009791715.

[18] Anderson, Kenneth. "Policing and Middle School: An Evaluation of a Statewide School Resource Officer Policy." *Middle Grades Review* 4, no. 2 (September 25, 2018). https://scholarworks.uvm.edu/mgreview/vol4/iss2/7.

[19] Anderson, Kenneth. "Policing and Middle School." 17.

[20] Anderson, Kenneth. "Policing and Middle School." 17.

[21] Sorensen, Lucy C., Montserrat Avila Acosta, John Engberg, and Shawn D. Bushway. "The Thin Blue Line in Schools: New Evidence on School-Based Policing Across the U.S." *EdWorkingPapers.Com*. Annenberg Institute at Brown University, August 6, 2022. https://edworkingpapers.com/ai21-476.

like fighting, but not gun-related incidents they are intended to prevent.[22] The study also suggests SROs increase suspension, expulsion, police referral, and arrests of students with the largest effects for Black students, male students, and students with disabilities.[23]

B. Studies Testing Association

Studies testing associations between SROs and outcome variables provide similar evidence to causal studies. A review of quasi-experimental research on the impact of SROs from 1999 to 2018 concludes that, at best, SROs have no effect on school safety and, at worst, increase exclusionary discipline practices.[24] A meta-analysis of seven studies and two other large studies shows schools with SROs have higher levels of exclusionary discipline, which includes suspensions and arrests, than schools without SROs, while a meta-analysis of three small studies found no effect.[25] The reviewed studies suggest SROs increase reporting of crime but detected no relationship to actual safety when comparing to other measures like recorded incidences of violence, administrator reports on perceived school climate, or anonymous youth reporting.[26]

Other research shows SROs are associated with higher rates of referrals to law enforcement. For example, an analysis using the School Survey on Crime and Safety for the 2009-2010 school year found that regular contact with an SRO (at least once a week) is associated with higher rates of referrals to law enforcement even for low-level offenses like fighting or making threats without a weapon.[27] This was true even when controlling for state statutes requiring referral, levels of criminal activity and disorder in the school, levels of crime in the surrounding neighborhood, and other demographic variables.[28]

Despite a dearth of evidence of SROs' positive impact on school safety and growing evidence of negative impacts on student well-being, North Carolina lawmakers continue to increase funding for their positions. Policy researchers will continue evaluating the effects of spending taxpayer dollars this way.

IV. Methodology

North Carolina legislators have increased funding for SROs in recent years because they believe SROs deter threats and increase school safety.[29] The research questions require a causal inference study to either confirm or destabilize this belief in a causal relationship between SROs and safety. Critics of SROs in schools believe they cause harm to students by criminalizing them for relatively normal behavior.[30] This belief also demands a causal inference study of the

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[22] Sorensen, Lucy C. "The Thin Blue Line in Schools." 27.
[23] Sorensen, Lucy C. "The Thin Blue Line in Schools."
[24] Javdani, Shabnam. "Policing Education: An Empirical Review of the Challenges and Impact of the Work of School Police Officers." *American Journal of Community Psychology* 63, no. 3–4 (2019): 253–69. https://doi.org/10.1002/ajcp.12306.
[25] Javdani, Shabnam. "Policing Education." 263.
[26] Javdani, Shabnam. "Policing Education." 263-264.
[27] Nance, Jason. "Students, Police, and the School-To-Prison Pipeline." *Washington University Law Review* 93, no. 4 (January 1, 2016): 919, 959, 961.
[28] Nance, Jason. "Students, Police, and the School-To-Prison Pipeline." 919.
[29] "2020 Annual Census NC School Resource Officers." Report to the North Carolina General Assembly. Public Schools of North Carolina: State Board of Education and Department of Public Instruction, April 15, 2020. https://webservices.ncleg.gov/ViewDocSiteFile/15561.
[30] Fedders, Barbara A. "The End of School Policing." *California Law Review*, 2021, 1468. https://doi.org/10.15779/Z38G44HR5Z.

relationship between SROs and student discipline to understand whether they cause more frequent and severe punishments.

A. Grant Applications for Treatment Schools

This difference-in-differences study uses a policy change in SRO funding in 2018 to evaluate police impact on school safety and discipline, comparing outcomes in schools that experienced an increase in SROs (treatment schools) to those that did not. School level SRO funding data are not available but given the funding increase corresponded to a similar increase in the number of SROs (see Figure 2), it is safe to assume a relationship between grant funding and outcomes. It is important to understand how grants were distributed because school selection criteria could be related to outcome variables in ways that are unrelated to SROs, and therefore could bias the results.

During the summer of 2018, North Carolina's Superintendent of Public Instruction administered the School Safety Grants application with funding passed by the General Assembly in response to the Parkland shooting earlier that year.[31] The superintendent evaluated school districts' grant applications for SROs based on assessments of current and ongoing needs and cost estimates for improving school safety.[32] Applications were scored on a 100-point scale that prioritized low-wealth schools, schools with higher proportions of disadvantaged students, and schools in counties with higher juvenile delinquency complaint rates.[33] These selection criteria suggest schools that received SRO grant funding may have differed from those that did not in ways that are related to safety and discipline. For example, low-wealth schools may experience more disciplinary issues because of higher student-teacher ratios or lack of social-emotional supports for students that are available in higher-wealth schools. Applicants also disclosed whether they had previously received school safety grants.[34] Any school that included any grades from kindergarten to 8th grade was eligible, and schools received funding for a maximum of one full-time SRO.[35] Of 131 applications, 124 received some funding.[36] It is possible applicants differed from non-applicants in ways that are also related to discipline and safety. For example, large urban districts like Wake, Durham, and Charlotte-Mecklenburg County Schools did not receive grant funding. Urban areas with high populations may have higher crime rates that spill over onto school campuses. Regardless of the reason for receiving or applying for the grants, any non-random distribution of funding introduces bias to the results.

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[31] "School Safety Grant Application: School Resource Officers." Office of the NC Superintendent Mark Johnson, August 26, 2018. https://web.archive.org/web/20180826144908/http://www.ncpublicschools.org/docs/cfss/law-enforcement/sro-application.pdf.

[32] "School Safety Grant Application: School Resource Officers.

[33] "School Safety Grant Application: School Resource Officers.

[34] "School Safety Grant Application: School Resource Officers.

[35] "School Safety Grant Application: School Resource Officers.

[36] Martin, Kym, and Erika Berry. "School Safety Grants Program." Presented at the House Select Committee on School Safety, September 28, 2018. https://web.archive.org/web/20181029142548/https://www.ncleg.net/documentsites/committees/House2017-190/9-28-2018/School%20Safety%20Grant%20Programs%20-%20DPI.pdf.

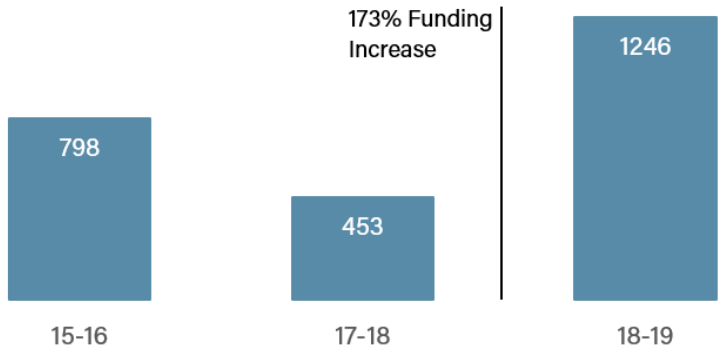
B. Data

1. Independent Variable: School Resources Officers

School-level SRO data were collected from the Civil Rights Data Collection for the 2017-2018 school year[37] and from the 2020 Annual Census of NC School Resource Officers[38]. Data from the 2020 Census, administered from December 2019 to February 2020, should be similar to the SRO count for the 2018-2019 school year, when funding for grants increased by about 170%, because grants were automatically extended to districts that complied with reporting requirements and new grant funding from the 2019 School Safety Grant Program was not disbursed until December of 2019.[39] Most schools would not have had time to hire additional SROs by the 2020 Census.

Of approximately 2,100 elementary and middle schools in North Carolina in 2015, about 800 had an SRO as shown in Figure 2.[40] In 2017, that number decreased to about 450.[41] According to the 2020 SRO Census, the number of elementary and middle schools with SROs increased by 175% to almost 1,250.[42] This number is probably lower than the actual number of SROs in 2020 because of the voluntary nature of the census and a relatively low response rate.[43] These data suggest the 2018 grant funding significantly increased SRO presence in North Carolina elementary and middle schools.

Figure 2: The number of middle and elementary schools with SROs increased by 175% in 2018.



One drawback of the Census data is a response rate of only 65%.[44] Additionally, the report does not differentiate between schools that responded but have no SROs and schools that did not

[37] "Civil Rights Data Collection 2017-2018." Accessed October 14, 2022. https://ocrdata.ed.gov/resources/downloaddatafile.
[38] "2020 Annual Census NC School Resource Officers."
[39] "School Safety Grant Application: School Resource Officers."; Johnson, Mark. "Report to the North Carolina General Assembly: School Safety Grants Program Session Law 2019-222." Raleigh, NC: North Carolina Department of Public Instruction, April 1, 2020. https://webservices.ncleg.gov/ViewDocSiteFile/15533.
[40] "Civil Rights Data Collection 2015-2016." Accessed October 14, 2022. https://ocrdata.ed.gov/resources/downloaddatafile.
[41] "Civil Rights Data Collection 2017-2018."
[42] "2020 Annual Census NC School Resource Officers."
[43] Truitt, Catherine. "2021 School Resource Officer (SRO) Census." Public Schools of North Carolina: State Board of Education and Department of Public Instruction, April 1, 2021. https://webservices.ncleg.gov/ViewDocSiteFile/15568.
[44] Truitt, Catherine. "2021 School Resource Officer (SRO) Census."

respond at all. This distinction was addressed by cross-referencing the 2020 data with data collected by policy analyst Katie Dukes in late 2020 and early 2021.[45] Schools that reported zero SROs to Dukes were assigned a "zero" for the 18-19 school year based on the assumption that schools generally hire more SROs over time rather than fewer. However, the distance between the data collection and the time period of interest prompted the use of three different control groups to examine whether trends were consistent across specifications.

2. Dependent Variable 1: Crime

SROs are intended to increase school safety by preventing crime. Therefore, school-level crime reports from the Department of Public Instruction (DPI) from each time period were used to measure school safety.[46] These data are publicly available on DPI's website. DPI collects data on a variety of crimes that occur at schools, but of particular interest are crimes that would be detected regardless of SRO presence like "assault involving use of a weapon". If SROs increase school safety, this crime should have decreased from one time period to the next in schools that acquired SROs. In contrast, a crime like "possession of a weapon" might have increased from one time period to the next not because it occurs more when SROs are present, but rather because their presence increases detection.

3. Dependent Variable 2: Discipline

Critics of police in schools claim they increase the frequency and severity of disciplinary actions experienced by students. Therefore, school-level short-term suspension and arrest reports from DPI from each time period were used to measure the impact of SROs on discipline.[47]

4. Control Variables

Other variables were included to control for other factors that might influence school crime and discipline. These include average daily membership, school level, the proportion of students of color at a school, the proportion of economically disadvantaged students at a school, and average class size. Future analysis could include per-pupil expenditures which DPI began collecting during the 2019-2020 school year. Most of these data are available through DPI's School Report Card Resources for Researchers datasets.[48] Demographic data at the school-level are available through DPI's Statistical Profile resource.[49]

C. Treatment and Control Samples

A difference-in-differences (DID) regression design was used to measure the impact of the increased funding and number of SROs in middle and elementary schools between the 2017-2018 and 2018-2019 school years. DID regression design is used to measure the impact of a policy, in

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[45] Dukes, Katie. "The Prevalence of School Resource Officers in North Carolina's Public Schools." Durham, NC: Sanford School of Public Policy, April 19, 2021. https://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/22744/Dukes.Katie.FinalMP.pdf?sequence=2&isAllowed=y.

[46] "Discipline, ALP and Dropout Annual Reports | NC DPI." Accessed October 14, 2022. https://www.dpi.nc.gov/data-reports/dropout-and-discipline-data/discipline-alp-and-dropout-annual-reports#2018-19.

[47] "Discipline, ALP and Dropout Annual Reports | NC DPI."

[48] "School Report Card Resources for Researchers | NC DPI." Accessed October 14, 2022. https://www.dpi.nc.gov/data-reports/school-report-cards/school-report-card-resources-researchers.

[49] North Carolina Public Schools Statistical Profile. "Tbl 10A_School_Race." Accessed October 14, 2022. http://apps.schools.nc.gov/ords/f?p=145:220:::NO::

this case, a 175% increase in SROs, based on differences in outcomes for similar units of analysis, in this case, elementary and middle schools, before and after the policy intervention.[50] There are 421 schools in the treatment group, which experienced an increase in SRO presence from 0 to 1 or more after the 2018 grant funding increase. There are three control group specifications to examine bias from data sources from different time periods. The least biased or "preferred" control group includes 235 schools that had a constant positive number of SROs in both time periods. The "constant zeros" control group includes 298 schools that had zero SROs in both years, although some of the data were collected over two years after the funding increase. The "combined" control group combines the constant zeros control group and the preferred control group and includes 533 schools.

Summary statistics for the treatment group and preferred control group of schools with a constant positive number of SROs in both time periods show averages for control variables are relatively similar, as shown in Figure 3. Treatment and control schools have similar proportions of economically disadvantaged students and similar student-teacher ratios. However, treatment schools have higher proportions of white students and lower average daily memberships. The most notable difference between the treatment and control group is the distribution of school levels: the control group is 17% elementary schools and 63% middle schools while the treatment group is 39% elementary schools and 50% middle schools. These differences could bias the regression estimates which is why it is important to control for school level. Control schools have an average of about 1 SRO in each time period while treatment schools increase from zero to about 1 SRO after the increase in grant funding. Summary statistics tables for the "constant zeros" and "combined" control groups can be found in Appendix A.

Figure 3: Summary Statistics for Treatment and Preferred Control Group (Constant Positive SROs)

TCgroups_year	Control 2018			Control 2019			Treatment 2018			Treatment 2019		
Variable	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
SROs	235	0.97	0.29	235	0.97	0.29	421	0	0	421	1.09	0.28
Criminal acts per 1,000	235	16.77	64.72	235	13.77	30.61	421	25.38	334.02	421	27.17	283.53
STS per 1,000	233	320.51	577.35	235	315.51	575.3	417	267.82	556.89	419	260.43	539.48
Arrests per 1,000	233	0.6	8.3	235	0.66	9.34	417	0	0	420	0.04	0.29
Average daily membership	235	620.03	307.94	235	633.17	319.74	421	572.4	292.82	421	580.64	300.14
% economically disadvantaged	235	51.42	15.49	235	57.29	17.49	421	51.23	17.54	421	53.32	19.07
% non-white	235	56.35	25.84	235	57.18	25.87	421	47.22	23.9	421	48.14	23.97
Students per teacher	235	14.5	3.08	235	13.41	3.2	421	14.36	3.12	421	12.95	3.17
School Level	235			235			421			421		
… A	8	3%		7	3%		9	2%		9	2%	
… E	40	17%		40	17%		163	39%		162	38%	
… I	25	11%		24	10%		16	4%		17	4%	
… M	146	62%		146	62%		212	50%		212	50%	
… T	16	7%		18	8%		21	5%		21	5%	

A = all grades, E = elementary, I = elementary and middle, M = middle, T = middle and high

[50] Anderson, Kenneth. "Policing and Middle School: An Evaluation of a Statewide School Resource Officer Policy." *Middle Grades Review* 4, no. 2 (September 25, 2018). https://scholarworks.uvm.edu/mgreview/vol4/iss2/7.

D. Analysis

The following hypotheses were tested through DID regression analysis:

Hypothesis 1: Increases in SRO presence have no impact on school crime.
Hypothesis 2: Increases in SRO presence have no impact on school discipline rates.

Hypothesis 1 was tested using the following equation:

$$CRIME_{st} = \alpha + \beta_1 TREATMENT_s + \beta_2 POST_t + \beta_3 TREATMENT_s * POST_t + \theta_s + \boldsymbol{\Gamma X_{st}} + \varepsilon_{st}$$

$CRIME_{st}$ represents criminal acts per 1,000 students in year t at school s. $TREATMENT_s$ represents a binary variable for each school's treatment or control group. $POST_t$ represents a binary variable for the school year. β_3 represents the difference-in-differences coefficient, or the effect of an increase from 0 to 1 SRO from one time period to the next on criminal acts. θ_s is a vector of school fixed effects. $\mathbf{X}_{st}$ represents the control variables. An error term is included to account for unobserved variation at each school in time t.

Hypothesis 2 was tested using the following equation:

$$DISCIPLINE_{st} = \alpha + \beta_1 TREATMENT_s + \beta_2 POST_t + \beta_3 TREATMENT_s * POST_t + \theta_s + \boldsymbol{\Gamma X_{st}} + \varepsilon_{st}$$

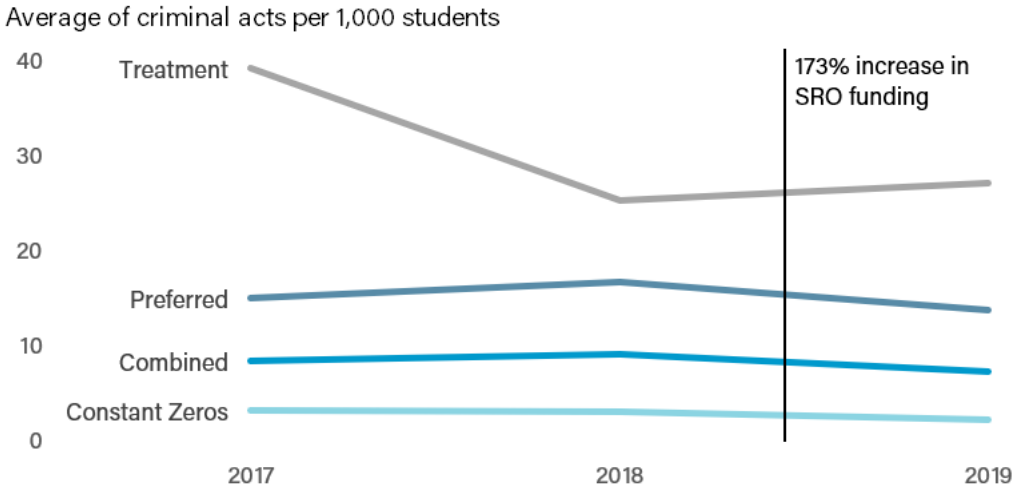
All variables are the same as the first equation, but $DISCIPLINE_{st}$ represents short-term suspensions or arrests per 1,000 students in time t at school s.

V. Results

A. Criminal Acts

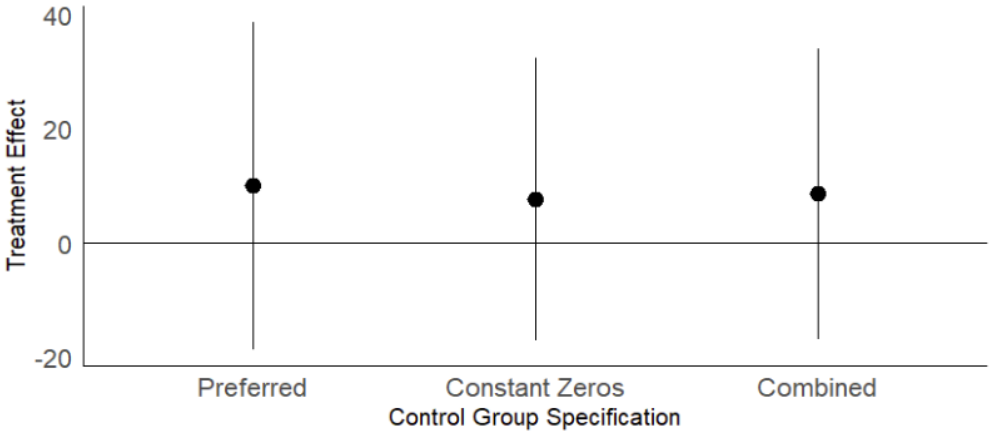
Difference-in-differences estimation works best when trends in treatment and control groups are similar in the time before the policy intervention. When trends before the policy intervention are similar, differences in the treatment group after the policy intervention are more attributable to the policy than to other factors. However, trends in criminal acts for the treatment and control groups before the SRO funding increase were quite different, as shown in Figure 4. The average number of criminal acts in the treatment group fell from almost 40 in 2017 to 25 in 2018 while the numbers of criminal acts for each control group were smaller and relatively flat. The divergence in the treatment group may be due to the SRO grant funding being prioritized for counties with higher juvenile delinquency complaint rates. Although data for criminal acts do not meet the parallel trends assumption, a slight increase in criminal acts for the treatment schools and slight decreases in criminal acts for control schools after the SRO funding increase suggest the difference-in-differences estimates will be positive.

Figure 4: Criminal acts were already falling for treatment schools before funding for SROs increased, while all control groups remained relatively flat.



Regression analysis shows there is no statistically significant effect of SROs on crime reduction or detection. As shown in Figure 5, estimates for the treatment effect are positive and of similar sizes for every control group specification but the standard error bars cross the zero, or x-axis, showing we cannot conclude treatment effects are statistically different from zero, the null hypothesis. The average number of criminal acts for the treatment group in 2018 was about 25, so if the results were significant, they would represent an increase of 8 to 10 acts, or about 30%, per 1,000 students. However, the insignificant results suggest the null hypothesis that SROs have no impact on crime cannot be rejected. A table of results for each control group specification is shown in Figure 14 in Appendix B. Additionally, a table of results for each type of criminal act on which DPI collects data can be found in Appendix C. None of the results from these regressions were significant.

Figure 5: Treatment Effect of School Resource Officers on Criminal Acts per 1,000 Students



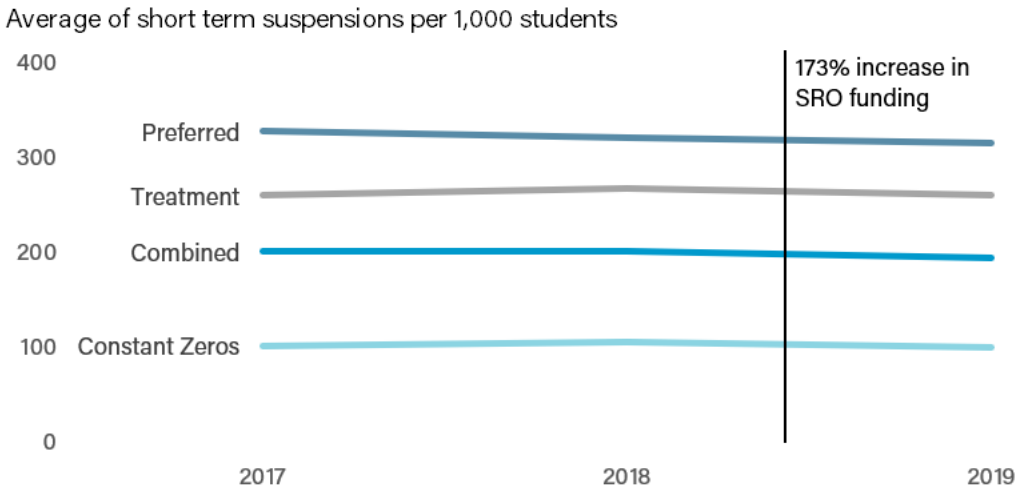
Note: Standard error bars correspond to a 95% confidence interval.

Although the lack of parallel trends creates bias in the regression estimates, results that are not statistically significant are consistent with reviewed literature that finds little to no effect of SROs on crime.

B. Short-Term Suspensions

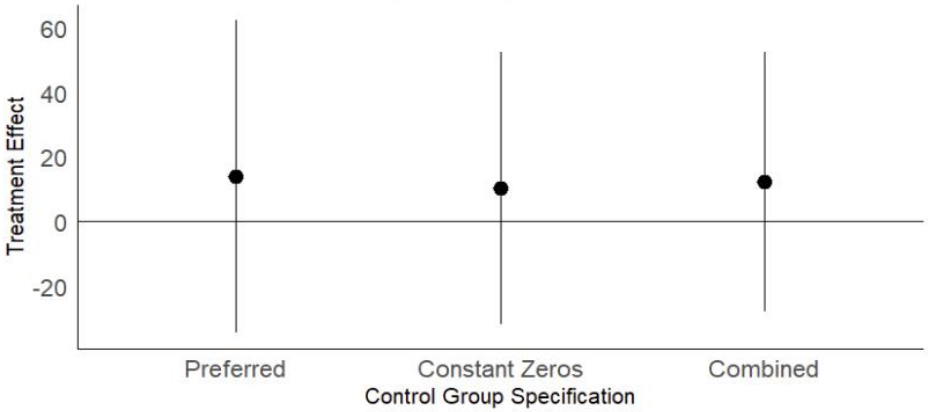
In contrast to trends for criminal acts, trends for short-term suspensions are parallel across all treatment and control groups as shown in Figure 6. These parallel trends suggest the regression results may be less biased than the results for crime.

Figure 6: Short term suspensions were relatively flat across all treatment and control groups from 2017 to 2019, meeting the parallel trends assumption.



Regression analysis suggests there is no statistically significant effect of SROs on short-term suspensions. Figure 7 shows the estimates for the treatment effect are positive and of similar sizes for every control group specification, but the standard error bars cross the zero, showing we cannot conclude treatment effects are statistically different from zero, the null hypothesis. The average number of suspensions for the treatment group in 2018 was about 268, so if the results were significant, they would represent a modest increase of 9 to 11 suspensions per 1,000 students. A table of results for each control group specification is shown in Appendix B, Figure 15. It is possible this analysis was not powerful enough to detect a significant effect. If a causal relationship exists between SROs in middle and elementary schools and suspension rates, as prior research suggests, a study with a larger sample size of schools could better detect it.

Figure 7: Treatment Effect of School Resource Officers on Short Term Suspensions per 1,000 Students

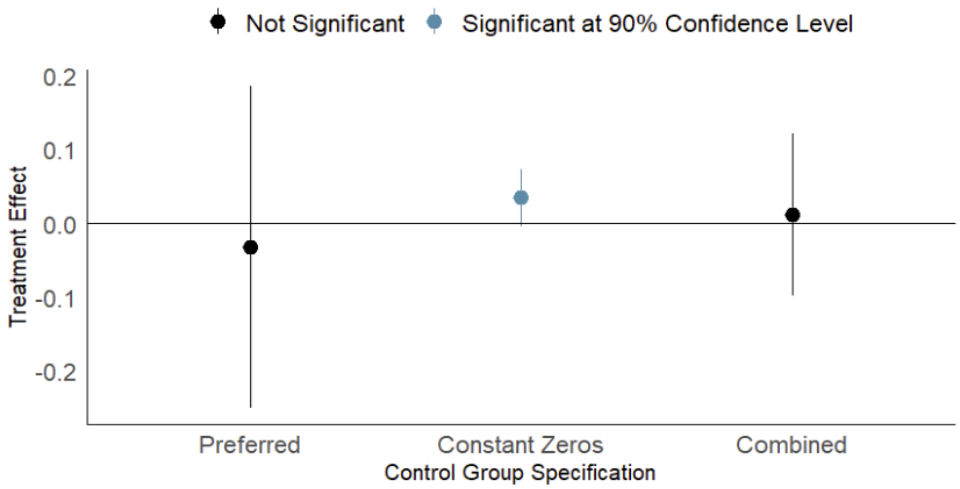


Note: Standard error bars correspond to a 95% confidence interval.

C. Arrests

Unfortunately, it is not possible to contextualize regression estimates for arrests with prior-year trends because data on arrests are not publicly available from DPI for the 2016-2017 school year. The difference-in-differences estimates for arrests per 1,000 students suggests there may be some relationship between SRO presence and school-related arrests. The treatment effect estimate relative to the constant zeros control group is positive and statistically significant at a 90% level as shown in Figure 8. This provides some evidence for rejecting the null hypothesis that SROs have no impact on student discipline as measured by arrests. However, this result should be interpreted with caution because the treatment effects relative to the other control group specifications are not significant, and the estimate relative to the preferred control group is negative. Additionally, the grade-level makeup of schools in the constant zeros control group is quite different from those of the other control groups, as shown in Figure 12 in Appendix A: 96% of schools in the control group are elementary schools compared to 17% of the preferred control group and 61% of the combined control group. This difference could bias the treatment effect estimate relative to the constant zeros control group. However, if the treatment effect relative to the constant zeros control group is accurate, it means 35 students were arrested during the 2018-2019 school year who would not have been otherwise because of SRO presence in their schools. A table of results for each control group specification is shown in Figure 16 in Appendix B.

Figure 8: Treatment Effect of School Resource Officers on Arrests per 1,000 Students



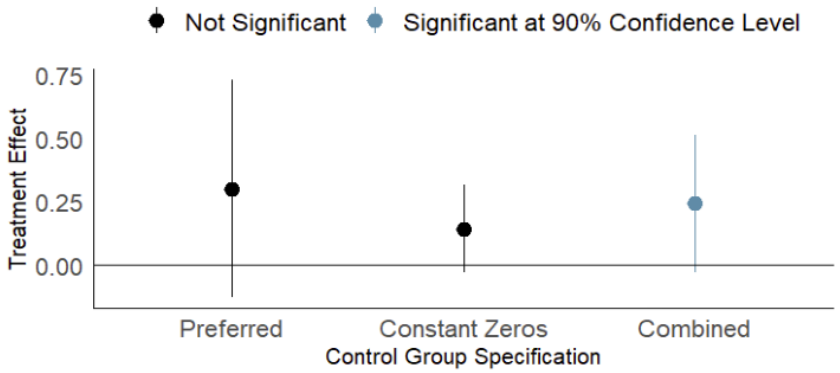
Note: Standard error bars correspond to a 95% confidence interval.

D. Arrests Subgroup Analysis

Subgroup analysis suggests some evidence for a positive relationship between SRO presence and school-related arrest rates for students with disabilities, male students, and economically disadvantaged students.

The difference-in-differences estimates relative to each control group are positive and of similar sizes for arrests of students with disabilities. As shown in Figure 9, the results are not significant at the 95% confidence level, but the estimate relative to the combined control group is significant at the 90% confidence level. If this estimate is accurate, 0.24 more students with disabilities per 1,000 were arrested who would not otherwise have been because of SRO presence in their schools during the 2018-2019 school year.

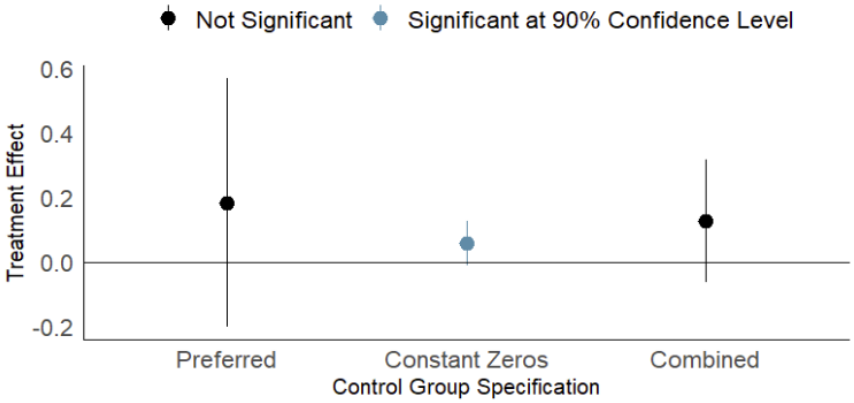
Figure 9: Treatment Effect of School Resource Officers on Arrests per 1,000 Students with Disabilities



Note: Standard error bars correspond to a 95% confidence interval.

Results for arrests of male students are also all positive and of similar sizes for each control group specification. Figure 10 shows results are not significant at the 95% confidence level, but the estimate relative to the "Constant Zeros" control group is significant at the 90% confidence level. If this estimate (0.058 per 1,000 students) is accurate, it means SRO presence led to almost 30 arrests of male students in the 2018-2019 school year that would not have happened otherwise.

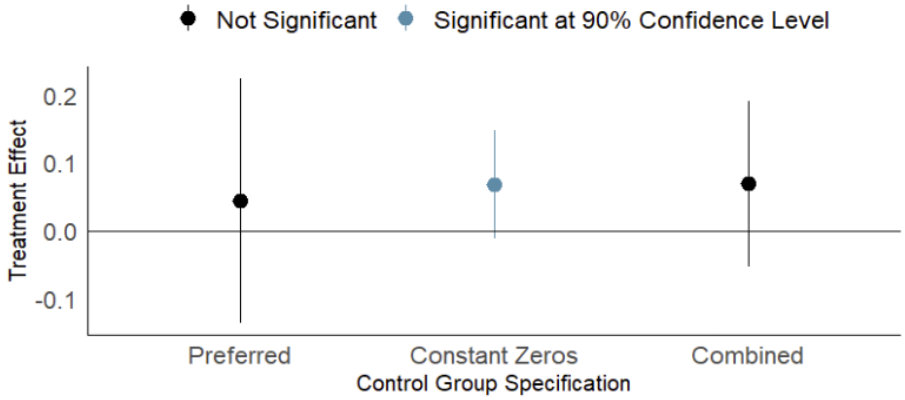
Figure 10: Treatment Effect of School Resource Officers on Arrests per 1,000 Male Students



Note: Standard error bars correspond to a 95% confidence interval.

Results for arrests of economically disadvantaged students are also all positive and of similar sizes for each control group specification. Figure 11 shows results are not significant at the 95% confidence level, but the estimate relative to the "Constant Zeros" control group is significant at the 90% confidence level. If this estimate (0.068 per 1,000 students) is accurate, it means SRO presence led to 35 arrests of economically disadvantaged students in the 2018-2019 school year that would not have happened otherwise.

Figure 11: Treatment Effect of School Resource Officers on Arrests per 1,000 Economically Disadvantaged Students



Note: Standard error bars correspond to a 95% confidence interval.

VI. Discussion

North Carolina spent almost $18 million on SROs during the 2018-2019 school year. Results from difference-in-differences analysis suggest these taxpayer dollars did not influence school-based crime and violence in either direction. These results align with prior research and suggest there may be more effective methods for improving school safety.

The results also suggest SROs do not influence short-term suspension rates but may increase school-related arrests. This makes sense given sworn police officers' authority to arrest. Students may be arrested for behavior that is technically against the law but would be handled outside the juvenile justice system without the presence of an SRO with arresting authority. Subgroup analysis produced results similar to prior research, showing students with disabilities, male students, and economically disadvantaged students are arrested more than they would be if SROs were not present in their schools.

The North Carolina General Assembly has demonstrated a commitment to school safety with funding, select committees, and the Center for Safer Schools. Some of these efforts may be more effective than others but consistent and comprehensive data collection is necessary to evaluate them. The years after the shocks from the COVID-19 Pandemic provide an opportunity to evaluate the effect of SROs over time, potentially producing stronger evidence than is possible with only two years of data. However, the state still does not have an accurate count of SROs. The annual SRO Census remains voluntary, has an incomplete response rate, and excludes counts of zero in its reports.[51] The state should require districts to report the number of SROs at

[51] "2022 School Resource Officer Census." Report to the North Carolina General Assembly. Session Law 2019 - 222. North Carolina Center for Safer Schools, March 1, 2022. https://webservices.ncleg.gov/ViewDocSiteFile/15710.

each school, as the Student Physical Safety Working Group recommended in 2017.[52] Future research should also control for per-pupil expenditures since those data are now available at the school level.[53]

These results do not say anything about the qualitative impact of SRO presence. It is possible SROs build positive relationships with students or that they contribute to a culture of police surveillance among children as soon as they arrive at elementary school. Qualitative research is necessary to understand the mechanisms that do or do not mediate the relationship between SROs and the outcome variables explored here, or others such as school shootings.

VII. Conclusion

The results of this study suggest the impacts of SROs in North Carolina elementary and middle schools are similar to effects found in prior research. Statistical analysis provides no evidence SROs make schools safer and some evidence they increase student arrest rates. This study adds evidence to prior empirical work but also to the lived experience of North Carolina students and parents who have been subject to and witnessed police respond to student behavior with outsized consequences. In response to violent interactions with SROs and discriminatory arrests, some students in Wake County have been advocating for the school board to reevaluate its SRO program in recent years.[54] In light of the results of this study, the North Carolina General Assembly should consider alternative, evidence-based methods for making schools safer.

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[52] "Student Physical Safety Working Group Potential Recommendations." North Carolina House Select Committee on School Safety, May 2, 2018. https://web.archive.org/web/20181029142716/https://www.ncleg.net/documentsites/committees/House2017-190/Student%20Physical%20Safety%20and%20Security%20Working%20Group/5-2-18%20Meeting/01_Potential%20Recommendations.pdf.

[53] North Carolina Department Of Public Instruction. "School Report Card Resources for Researchers." Accessed May 1, 2023. https://www.dpi.nc.gov/data-reports/school-report-cards/school-report-card-resources-researchers.; See rcd_funds2

[54] Napier, Courtney. "'When You Come to School, You Forfeit Your Rights.'" Scalawag, January 19, 2021. http://scalawagmagazine.org/2021/01/student-resource-officers-nc/.

VIII. Appendices

A. Summary Statistics Tables for Alternative Control Groups

Figure 12: Constant Zeros Control Group

TCgroups_year	Control 2018			Control 2019			Treatment 2018			Treatment 2019		
Variable	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**
SROs	298	0	0	19	0	0	421	0	0	421	1.09	0.28
Criminal acts per 1,000	298	3.02	13.74	298	2.25	6.95	421	25.38	334.02	421	27.17	283.53
STS per 1,000	294	105.5	179.15	298	98.9	147.31	417	267.82	556.89	419	260.43	539.48
Arrests per 1,000	294	0	0	298	0	0	417	0	0	420	0.04	0.29
Average daily membership	298	497.97	205.38	298	486.19	203.11	421	572.4	292.82	421	580.64	300.14
% economically disadvantaged	298	49.54	19.59	298	50.29	20.57	421	51.23	17.54	421	53.32	19.07
% non-white	298	55.46	27.88	298	55.9	27.6	421	47.22	23.9	421	48.14	23.97
Students per teacher	298	14.02	2.18	298	12.44	2.29	421	14.36	3.12	421	12.95	3.17
School Level	298			298			421			421		
… A	4	1%		4	1%		9	2%		9	2%	
… E	287	96%		287	96%		163	39%		162	38%	
… I	3	1%		3	1%		16	4%		17	4%	
… M	2	1%		2	1%		212	50%		212	50%	
… T	2	1%		2	1%		21	5%		21	5%	

A = all grades, E = elementary, I = elementary and middle, M = middle, T = middle and high

Figure 13: Combined Control Group

TCgroups_year	Control 2018			Control 2019			Treatment 2018			Treatment 2019		
Variable	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**
SROs	533	0.43	0.52	254	0.89	0.38	421	0	0	421	1.09	0.28
Criminal acts per 1,000	533	9.08	44.66	533	7.33	21.72	421	25.38	334.02	421	27.17	283.53
STS per 1,000	527	200.56	419.91	533	194.4	411.44	417	267.82	556.89	419	260.43	539.48
Arrests per 1,000	527	0.27	5.52	533	0.29	6.2	417	0	0	420	0.04	0.29
Average daily membership	533	551.78	262.56	533	550.99	270.8	421	572.4	292.82	421	580.64	300.14
% economically disadvantaged	533	50.37	17.91	533	53.38	19.57	421	51.23	17.54	421	53.32	19.07
% non-white	533	55.85	26.98	533	56.46	26.83	421	47.22	23.9	421	48.14	23.97
Students per teacher	533	14.23	2.62	533	12.87	2.77	421	14.36	3.12	421	12.95	3.17
School Level	533			533			421			421		
… A	12	2%		11	2%		9	2%		9	2%	
… E	327	61%		327	61%		163	39%		162	38%	
… I	28	5%		27	5%		16	4%		17	4%	
… M	148	28%		148	28%		212	50%		212	50%	
… T	18	3%		20	4%		21	5%		21	5%	

A = all grades, E = elementary, I = elementary and middle, M = middle, T = middle and high

B. DID Results: Main Findings and Subgroups

Figure 14: Difference-in-Differences Results for **Criminal Acts** per 1,000 Students

	Preferred Control	Constant Zeros Control	Combined Control
Treatment Mean 2018	25.38	25.38	25.38
Treatment Effect	**9.979**	**7.642**	**8.574**
Standard Error	(14.62)	(12.64)	(12.99)
Observations	1,312	1,438	1,908
R-squared	0.901	0.903	0.901

*** p<0.01, ** p<0.05, * p<0.1

Figure 15: Difference-in-Differences Results for **Short-Term Suspensions** per 1,000 Students

	Preferred Control	Constant Zeros Control	Combined Control
Treatment Mean 2018	267.82	267.82	267.82
Treatment Effect	**11.44**	**9.297**	**10.14**
Standard Error	(14.09)	(12.58)	(12.90)
Observations	1,305	1,429	1,897
R-squared	0.638	0.627	0.639

*** p<0.01, ** p<0.05, * p<0.1

Figure 16: Difference-in-Differences Results for **School-Related Arrests** per 1,000 Students

	Preferred Control	Constant Zeros Control	Combined Control
Treatment Mean 2018	0	0	0
Treatment Effect	**-0.0322**	**0.0349***	**0.0117**
Standard Error	(0.112)	(0.0199)	(0.0562)
Observations	1,305	1,429	1,897
R-squared	0.995	0.509	0.995

*** p<0.01, ** p<0.05, * p<0.1

Figure 17: Subgroup Results for Criminal Acts

variable	type	Treatment_Effect	Standard_Error	t-value	P_value	rsq	n_eff
act_per1000SWD	preferred	12.739402	16.698131	0.7629238	0.4457861	0.6203450	1287
act_per1000SWD	constant_zeros	10.871849	14.798661	0.7346509	0.4627944	0.6175627	1401
act_per1000SWD	combined	11.528011	15.200012	0.7584212	0.4483880	0.6223296	1866
act_per1000MALE	preferred	12.554571	16.186159	0.7756362	0.4382446	0.6617828	1301
act_per1000MALE	constant_zeros	9.939973	14.349872	0.6926873	0.4887304	0.6529265	1424
act_per1000MALE	combined	11.150294	14.812819	0.7527462	0.4517889	0.6630131	1889
act_per1000EDS	preferred	2.459251	2.965077	0.8294053	0.4071773	0.8980787	1307
act_per1000EDS	constant_zeros	1.616748	2.016068	0.8019309	0.4228582	0.9074935	1434
act_per1000EDS	combined	2.135998	2.179561	0.9800130	0.3273284	0.8956728	1902

Note: SWD refers to students with disabilities and EDS refers to economically disadvantaged students.

Figure 18: Subgroup Results for Short-Term Suspensions

variable	type	Treatment_Effect	Standard_Error	t-value	P_value	rsq	n_eff
sts_per1000SWD	preferred	-9.5089079	37.09360	-0.2563490	0.7977626	0.8903821	1285
sts_per1000SWD	constant_zeros	25.9473760	33.30467	0.7790913	0.4361852	0.8680673	1400
sts_per1000SWD	combined	9.3717022	29.44806	0.3182451	0.7503693	0.8817293	1864
sts_per1000MALE	preferred	-2.1299477	27.27654	-0.0780872	0.9377827	0.9531351	1294
sts_per1000MALE	constant_zeros	-6.8359723	23.45085	-0.2915021	0.7707520	0.9327687	1417
sts_per1000MALE	combined	-3.7173018	21.80989	-0.1704411	0.8646996	0.9506489	1882
sts_per1000EDS	preferred	-5.5359266	21.08218	-0.2625879	0.7929508	0.9274191	1307
sts_per1000EDS	constant_zeros	1.9834827	19.82604	0.1000443	0.9203370	0.9149745	1434
sts_per1000EDS	combined	-0.3329237	17.93451	-0.0185633	0.9851934	0.9291273	1902

Note: SWD refers to students with disabilities and EDS refers to economically disadvantaged students.

C. DID Results: Types of Crime

Variable Key

AR: Assault resulting in a serious injury	PA: Possession of alcoholic beverage
AW: Assault involving use of a weapon	PS: Possession of controlled substance
AP: Assault on school personnel	PF: Possession of firearm
BT: Bomb threat	PW: Possession of a weapon
BS: Burning of school building	SA: Sexual assault
D: Death by other than natural causes	SO: Sexual offense
K: Kidnapping	

variable	type	Treatment_Effect	Standard_Error	t-value	P_value	rsq	n_eff
AR	preferred	-0.0092107	0.0258167	-0.3567749	0.7213752	0.5752796	1312
AR	constant_zeros	0.0234485	0.0205198	1.1427217	0.2535350	0.6035538	1438
AR	combined	0.0063992	0.0199101	0.3214068	0.7479726	0.5821865	1908
AW	preferred	0.0044612	0.0349354	0.1276999	0.8984256	0.5953183	1312
AW	constant_zeros	-0.0018869	0.0225564	-0.0836502	0.9333578	0.4977458	1438
AW	combined	0.0004771	0.0215365	0.0221532	0.9823304	0.5648392	1908
AP	preferred	0.4612010	0.5845896	0.7889312	0.4304377	0.6865884	1312
AP	constant_zeros	0.2741368	0.4638930	0.5909483	0.5547410	0.6617222	1438
AP	combined	0.3473961	0.4761018	0.7296677	0.4657726	0.6837092	1908
BT	preferred	0.0487475	0.0299886	1.6255383	0.1045289	0.5715245	1312
BT	constant_zeros	-0.0056046	0.0194974	-0.2874534	0.7738481	0.5378844	1438
BT	combined	0.0156219	0.0187410	0.8335672	0.4047338	0.5646635	1908
BS	preferred	-0.0007497	0.0069290	-0.1082016	0.9138689	0.5042139	1312
BS	constant_zeros	-0.0003096	0.0054189	-0.0571308	0.9544569	0.5022763	1438
BS	combined	-0.0006769	0.0051094	-0.1324741	0.8946372	0.5031557	1908
D	preferred	-0.0023430	0.0033401	-0.7014686	0.4832598	0.5043796	1312
D	constant_zeros	-0.0020099	0.0028554	-0.7039094	0.4817174	0.5046442	1438
D	combined	-0.0022143	0.0031362	-0.7060372	0.4803376	0.5035812	1908
K	preferred	-0.0042018	0.0059557	-0.7054996	0.4807502	0.5046739	1312
K	constant_zeros	0.0000000	0.0000000	NaN	NaN	NaN	1438
K	combined	-0.0023557	0.0033363	-0.7060767	0.4803130	0.5034020	1908

variable	type	Treatment_Effect	Standard_Error	t-value	P_value	rsq	n_eff
PA	preferred	-0.1727799	0.1883130	-0.9175144	0.3592109	0.6134744	1312
PA	constant_zeros	-0.1604304	0.1374820	-1.1669194	0.2436303	0.5952651	1438
PA	combined	-0.1714453	0.1414112	-1.2123889	0.2256640	0.6111258	1908
PS	preferred	-0.1040011	0.3658353	-0.2842838	0.7762827	0.7657641	1312
PS	constant_zeros	0.0564198	0.1706682	0.3305818	0.7410568	0.7418491	1438
PS	combined	-0.0556898	0.2182064	-0.2552164	0.7986110	0.7794549	1908
PF	preferred	-0.0684350	0.0583073	-1.1736951	0.2409438	0.5113187	1312
PF	constant_zeros	0.0189119	0.0297259	0.6362084	0.5248434	0.5250884	1438
PF	combined	-0.0259236	0.0347053	-0.7469656	0.4552686	0.5082259	1908
PW	preferred	0.2196903	0.2660378	0.8257860	0.4092262	0.7091198	1312
PW	constant_zeros	0.0732639	0.1513772	0.4839822	0.6285461	0.6904363	1438
PW	combined	0.1453733	0.1668171	0.8714534	0.3837261	0.7132579	1908
SA	preferred	-0.0150001	0.0914260	-0.1640688	0.8697276	0.6082707	1312
SA	constant_zeros	0.0079928	0.0345043	0.2316453	0.8168795	0.6203150	1438
SA	combined	-0.0073109	0.0516027	-0.1416759	0.8873659	0.6100805	1908
SO	preferred	-0.0493894	0.0704213	-0.7013412	0.4833392	0.4963164	1312
SO	constant_zeros	-0.0219110	0.0298319	-0.7344825	0.4628945	0.4994038	1438
SO	combined	-0.0324353	0.0407998	-0.7949858	0.4268197	0.4971948	1908