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Testing the School-to-Prison Pipeline

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Abstract

The School-to-Prison Pipeline is a social phenomenon where students become formally involved with the criminal justice system as a result of school policies that use law enforcement, rather than school discipline, as a way to address behavioral problems. A potentially important part of the School-to-Prison Pipeline is the use of School Resource Officers (SROs) with arrest powers in certain schools. However, there is little research on the causal effect of hiring these officers on juvenile crime or arrests. Using credibly exogenous variation in the use of SROs generated by federal hiring grants specifically to place law enforcement in schools, I find evidence that law enforcement agencies learn about more crimes in schools upon receipt of a grant. They are also more likely to make arrests for those crimes, which primarily affects children under the age of 15. However, I find evidence that SROs help law enforcement agencies make arrests for drug charges on and off school grounds, and may increase crime reporting in jurisdictions with larger minority populations.

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1. Introduction

The relationship between educational institutions and the criminal justice system is complex. Localities that have both high quality educational infrastructure and a well-functioning criminal justice system can be places where barriers to opportunity faced by children in low income families are easily overcome. Education is one of the strongest predictors of lifetime wealth, and lack of access to quality education is one of the most frequently cited constraints on upward mobility in areas of persistent poverty (Bailey and Dynarski 2011, Autor et al. 2008). Areas of concentrated poverty are also typically characterized by high rates of crime and disorder, which can have important adverse effects on the educational attainment and future job prospects of young people living in those areas (Sharkey et al. 2014, Ludwig et al 2009, Katz and Turner 2008). In addition, public policies that reduce crime can encourage business investment that may help to revitalize blighted areas (Rosenthal and Ross 2010), although the implication of this development for low-income residents of these communities is less clear (Freedman 2015).

Inside school walls, bullying and aggressive behavior can have long lasting psychological effects on victims, and meta-analyses of anti-bullying and anti-violence programs find that there are policy levers that can be used to improve school safety (Ttofi and Farrington 2010, Wilson and Lipset 2007). One particular type of anti-violence policy, which has been used in the US since the 1960s but became increasingly common in the 1990s, is for school districts to partner with local law enforcement agencies to have specially trained police officers be stationed inside schools.[1] These school resource officers or "SROs" serve two purposes: maintain order and safety for the students and teachers in a way that a typical school security guard would not be

[1] See Brown (2006) for an overview of the history of SROs, and a more detailed description of their role in schools.

able, and also to interact with students on a daily basis, normalizing officers in the eyes of students and potentially improving police and community relations more broadly (Ray 2013).

At the same time that a proactive criminal justice agency can complement strong educational infrastructure in the revitalization of blighted areas, criminal justice agents that are too aggressive in the arrest, prosecution, and sentencing of people who violate the law can reduce the return to investments in education. People who become involved with the criminal justice system, particularly at a young age, are more likely to continue to be criminally involved (Aizer and Doyle 2013), and suffer from persistent negative employment consequences of that criminal record (Pager 2003, Western 2006). Children who are arrested and incarcerated are less likely to complete high school (Hjalmarsson 2008), and certain types of criminal records also limit a potential student's eligibility for federal grants and loans that could be used to pursue a college education (Lovenheim and Owens 2013). Finally, while a handful of project evaluations have found that SROs have increased perceptions of school safety (Raymond 2010), the use of sworn officers within schools has recently been subject to increased scrutiny as a cause of what has become known as the "School-to-Prison Pipeline" (Wald and Losen 2003). Since SROs are sworn law enforcement officials with arrest powers, critics point out that SROs will be more likely to respond to student misbehavior by making an arrest, which security guards or principals are not able to do (ACLU 2014a, 2014b).

Recent survey evidence has found that schools with SROs have 12% higher official crime rates, particularly for more marginal offences like weapons and drug violations, which went up by almost 30% after SROs were hired (Na and Gottfredson 2013). This is consistent with a creation of a School-to-Prison Pipeline that diminishes any welfare benefits associated with school safety; the presence of sworn officers in school means that behavior that would have

resulted in simple, and confidential, school-based discipline is instead formally referred to local law enforcement, resulting in the student having a criminal history. To the extent that SROs make arrests in cases where a principal would otherwise use in-school discipline, this lowered threshold at which misbehavior becomes criminal behavior can lead to otherwise similar students in different schools accumulating different criminal records. Further, to the extent that schools with SROs are more likely to be located in cities and areas with larger minority populations, hiring these officers can exacerbate racial disparities in the criminal justice system.[2]

Of course, the finding that schools with SROs have higher official crime rates or that students in SRO schools are more likely to be arrested is not necessarily evidence that SROs enhance the School-to-Prison Pipeline. Indeed, if SROs are viewed as solutions to a school safety or school crime problem, then the observation that there are more arrests and more crimes occurring where SROs are hired is simply a correlation generated by reverse causality and omitted variable bias (underlying school safety). The size of this bias is likely substantial; failure to address the endogenous (and noisy) relationship between police employment and crime resulted in a number of papers that found either null or positive effects of police on crime rates, and a later literature that carefully addressed these empirical issues has consistently found that the presence of more police officers reduces overall crime (Nagin 2013).

In this paper, I present the first evidence on the relationship between SROs and the School-to-Prison Pipeline that uses a credible source of quasi-experimental variation in the presence of law enforcement officers in schools. Specifically, I exploit variation in the timing and size of federal grants distributed by the Department of Justice's Community Oriented Policing Services' (COPS) "Cops in Schools" (CIS) program, which allowed law enforcement agencies to staff

[2] Na and Gottfredson (2013) estimated that just over 10% of elementary schools, 50% of middle schools, and 68% of high schools in urban areas had SROs, compared with 5% of elementary schools, 25% of middle schools, and 40% of high schools in rural areas.

SRO positions, to identify the impact of these SROs on the rate of officially recorded crimes in and out of schools as well as the arrest rates of teenagers and young children for offenses that occur in and out of the classroom.

I first demonstrate that CIS grants were awarded to police agencies and local governments that initially had higher crime rates in and out of school, suggesting that previous studies that do not take endogenous determination of SROs and crime into account are unlikely to produce unbiased causal estimates of the impact of those officers in schools. I then show that, conditional on agency fixed effects and demographic control variables, agencies that did, and did not, receive CIS grants had statistically identical trends in both in and out of school crime as well as juvenile arrest rates. This is consistent with previous research on COPS grants, which found that grant size was primarily determined by level differences in crime and employment across cities, but that COPS hiring grants were conditionally orthogonal to pre-existing trends in crime and police employment (Evans and Owens 2007).

I use two records of police officer employment to examine the impact of CIS grants of law enforcement. I show that unlike other COPS grants, CIS grants had an immediate, although heterogeneous, impact on overall law enforcement employment, as reported in the Uniform Crime Reports. Using a sample of law enforcement agencies in the Law Enforcement Management and Administrative Statistics, I then show that CIS grants were specifically used to staff SRO positions, and that within one month of receiving a CIS grant for one officer, the number of SROs employed by an agency increased by an average of 0.5 – essentially a 100% increase relative to the pre-grant mean.

Since agencies that did and did not receive CIS grants appear to be subject to similar unobserved month-to-month shocks in school crime and arrests, I then use the receipt of CIS

grants to estimate the causal reduced form relationship between these grants and the School-to-Prison Pipeline. I measure crimes known to police and arrests using the National Incident Based Reporting System (NIBRS) between 1997 and 2007, which allows me to differentiate between officially reported crimes based on location and day of the week, and identify the number of arrests made as a result of these reported crimes, as well as the age and race of the person arrested.

I find that, conditional on a rich set of school characteristics, police jurisdictions that received CIS grants did learn about more violent crime taking place in schools, along with more weapons and drug violations. However, the agencies also learned about more minor violations that occurred outside of school, particularly drug offenses, which taken at face value suggests that hiring CIS officers may have increased the propensity of citizens to contact the police in general.

Using detailed data on arrests for crimes committed on and off school grounds, I find that law enforcement agencies who were awarded CIS grants were more likely to make arrests for crimes committed in school, and this is driven by the arrest of juveniles who are less than 15 years old. I do not find evidence that, on average, hiring SROs results in more arrests for crimes committed off school grounds, with the exception of arrests for drug charges.

I find mixed evidence on the extent to which SROs exacerbate racial disparities; when I focus on arrest rates for white and non-white children, I find that the increase in in-school arrests for violent offenses is larger for minority children than for white children, but the observed increase in arrests for drug and weapons violations is driven by the arrest of white children. Dividing the sample by the area's non-white population fails to yield evidence that CIS officers exacerbated the School-to-Prison Pipeline in minority districts. In contrast, CIS grants awarded to communities with the largest minority presence appear to have the largest improvement in

police-community relations, as these officers appear to learn about more crimes occurring off school grounds, and also make more arrests for those crimes.

Taken as a whole, these results suggest that there are potentially important negative consequences to posting law enforcement officials in schools, but also some potential benefits. A well intentioned grant program aimed at improving school safety for at-risk children appears to have also resulted in the accumulation of arrest records for young students. At the same time, there is some evidence that people were more likely to contact police about drug crimes occurring outside of schools, particularly in districts with larger non-white populations, suggesting that posting law enforcement officers in schools may help to improve police-community relations more broadly.

The paper proceeds as follows. In the next section, I will provide background information on the Cops in Schools program. In section three I will describe the data sources that I use to evaluate the impact that this grant program had on school crime and arrests, and provide evidence that CIS grants were distributed in a way that was conditionally exogenous to crime and arrest trends. Section four presents my analytic framework for estimating the causal impact of CIS grants on school crime and arrests. I present and discuss my results in section five, and conclude in section six.

2. Cops in Schools and the VCCA 1994

In the early 1990s, crime rates in the United States were at historically high levels. In order to better incentivize state and local governments to invest in criminal justice infrastructure, in September of 1994 Congress enacted the Violent Crime Control and Law Enforcement Act (VCCA 1994). The VCCA 1994 was the third "Omnibus" crime control act passed by the federal government, and it expanded the scope of federal law enforcement authority on a number of

dimensions, including by banning assault weapons, expanding the list of federal capital offenses, formalizing the criminality of domestic violence, and prohibiting incarcerated people from applying for Stafford and Pell grants. The VCCA 1994 was also the largest Omnibus crime bill in terms of the amount of federal spending authorized, over $18 billion, almost all of which was to be allocated to state and local governments that invested in particular types of criminal justice policies. A new office in the Department of Justice, the Community Oriented Police Services or COPS office, was created by the VCCA 1994 specifically for the purposes of distributing roughly $7.5 billion in grants to local policing agencies that subsidized the cost of hiring police officers, investing in technology, or developing specialized policing strategies. To date, the COPS office has distributed over $14 billion to local law enforcement agencies (Kueter 2014).

One of the specialized policing strategies incentivized by the VCCA 1994 COPS office was the Cops in Schools grant program. The CIS grant program was intended to supplement the salary of an officer who would work in a primary or secondary school as an SRO. The first round of CIS funding was awarded in 1999, just as funding for new, general officers through the Universal Hiring Program (UHP) was beginning to decline. CIS grants were awarded through 2005, and in those seven years just over $750 million was awarded to local law enforcement agencies and school districts.

CIS grants, which lasted for three years, could only be used to create new SRO positions, unlike UHP grants which could be used to hire new officers more generally. While this restriction in use may have made CIS grants less desirable to law enforcement agencies than UHP grants, CIS grants were larger, initially capped at $100,000 per officer, and later raised to $125,000 per officer, compared with a $75,000 cap for UHP. CIS grants also did not technically

require that a new officer be hired by the department - only that a new SRO position be created and the CIS funding be used to pay that SRO's salary.

Once hired, SROs had a number of responsibilities, which varied from school to school. As sworn officers, all SROs had the authority to make arrests and issue citations, sometimes independently of the principal, and serve as a liaison between the school and local criminal justice authorities. In addition to law enforcement responsibilities, SROs frequently served a number of non-disciplinary functions. SROs teach classes, develop emergency response plans, and work with students and faculty to develop ideas to improve school safety. An important component of the SRO idea, as laid out in the Omnibus Crime Control Act of 1968, is to normalize police officers to students who might not typically interact with law enforcement officials, and to promote trust between young people and the officers who serve them in their community.

Evaluating the extent to which SROs have increased school safety and improved police-community relations is difficult, and there is very little published, peer reviewed, quantitative research on this policy. Two notable evaluations of SROs, Na and Gottfredson (2013) and Finn and McDevitt (2005), evaluate the impact of SROs on attitudes towards police and school safety based on self-reported data from principals in schools that had officers. In the case of Na and Gottfredson (2013), these reports were also compared to those from schools without SROs. Finn and McDevitt (2005) primarily focus on what SROs do, and note that "most programs fail to collect important process and outcome evaluation data" (Finn and McDevitt 2005, pg 4). Using survey data on principals' beliefs about school safety, Na and Gottfredson (2013) found that both the existence of SROs, and the addition of SROs between two survey waves, was associated with more incidents being reported to the police, rather than handled by the principal.

The central findings from these two studies highlight the two possible impacts of SROs on crime and on the School-to-Prison Pipeline. On one hand, the existence of police inside of school lowers the cost to school employees of notifying law enforcement about student misbehavior. Assuming that the benefit of contacting the police is rising in the severity of misbehavior, this lowered cost means that the behavioral threshold at which a school administrator will choose to call the police in order to discipline students will fall, and police will become involved in school discipline more frequently. The specific idea that SROs have "criminalized" behavior that would previously have been informally dealt with by school administrators is the School-to-Prison Pipeline.

However, if SROs are seen as a positive part of the school community, and develop trusting relationships with students, SROs may be associated with more arrests, but for different reasons. If students (and teachers) that are exposed to SROs view police officers as friendly, helpful people who are interested in protecting rather than persecuting them, students may become more likely to notify SROs (or police in general) when they observe a crime. This is consistent with a handful of small surveys about student perceptions of SROs, which tend to find that students, particularly non-delinquent students, generally view SROs favorably, especially relative to police officers they encounter outside of school (Brown and Benedict 2005, Hopkins 2004, Jackson 2002). Positive relationships between SROs and students would reduce any stigma cost of reporting, but unlike the School-to-Prison Pipeline, this should increase the reporting of all crime, not just crimes that occur in schools.

Increasing the rate of crime reporting among young people is a non-trivial policy goal. In 2012, young people between the ages of 12 and 17 reported roughly 16% of their own violent

victimizations to police, 1/3rd the rate in the general population.[3] Assuming this low reporting rate is not socially optimal, this means that there is potentially large scope for SROs to increase the number of crimes that police are aware of, and thus dramatically increase the ability of the justice system to reduce crime and protect children. While this may mean that more young people are arrested in areas with SROs, arrests made after costly crimes that previously would have been unreported is less obviously socially problematic than arrests resulting from a lower threshold of criminal behavior.

SROs arresting young children in schools for behavior that could have been adequately handled by school administrators is unlikely to be optimal policy, given the high opportunity cost of involving youth with the criminal justice system (Hjalrmasson 2008). However, if SROs help law enforcement learn about unreported crime, and arrest criminals who would otherwise go undetected, placing police officers in schools may increase social welfare.

3. Measuring School Crime and Arrests

Differentiating between changes in crime and arrests that one would expect if SROs improve the legitimacy of law enforcement, versus changes that one would expect to see if law enforcement was crowding out school discipline, is a difficult task. In contrast to existing research, which has relied on direct observation and principal surveys, I use officially recorded crime and arrest data to evaluate the impact of SROs on the School-to-Prison Pipeline. Specifically, I use data from the National Incident Based Reporting System (NIBRS) between 1997 and 2007.

The NIBRS data are collected annually by the FBI, and can be thought of as a more detailed version of the Uniform Crime Reports (UCR). The NIBRS data are organized in six different

[3] Bureau of Justice Statistics, "Number of violent victimizations by reporting to police and age, 2010-2012." Generated using the NCVS Victimization Analysis Tool at www.bjs.gov.

files, each corresponding to a different unit of analysis: an administrative file, an incident level file, a property file, an arrest level file, an offender level file, and a victim level file. Each file contains multiple characteristics of each Part 1 or Part 2 crime associated with a criminal incident. In contrast, the UCR records only the number of most serious Part 1 criminal acts that the agency knows about (one per criminal event) and the number of people arrested in a way that is generally reliable at the annual level. In large part because of the enhanced data collection requirements of the NIBRS, only a small fraction of law enforcement agencies participate. Roughly 17,000 law enforcement agencies report crime and arrest data to the UCR, but just over 4,900 agencies reported data to the NIBRS in 2007, and just under 2,000 participated in 1997. NIBRS agencies tend to be small; none of the 15 largest cities in the US are represented in the NIBRS.

Each year, the University of Michigan's ICPSR staff consolidates each of the six files into one extract, where the unit of observation is a crime incident, and characteristics of up to three offenders, three victims, three criminal acts, and three arrestees are recorded. For all criminal acts associated with each criminal incident, I identified whether or not the crime took place in a school or college and what type of crime it was (violent, property, a drug offense, or a weapon law violations). I then further divided those crimes by characteristics of the people arrested in association with that criminal incident, if any arrest was made. For the sake of brevity, arrestees under the age of 15 are classified as "minors," and arrestees between 15 and 19 are categorized as "young adults." I also identified whether or not the person arrested was white (as defined by the police). I then created a monthly data set that recorded the total number of criminal acts that police knew about, by whether or not the crime took place in school or out of school, along with

the total number of individual arrests made by the police, based on whether or not the underlying crime took place in or out of school, and the age and race of the person arrested.

I then merged this monthly NIBRS data set with information on grants made by the COPS office between 1994 and 2007. Between 1999 and 2004, a total of 6,631 SROs positions were funded by the COPS office though over 3,000 three-year grants; this is much smaller than the UHP program, which funded over 67,000 officers though 2004. For each of the 4,084 police department in the NIBRS that served between 5,000 and 100,000 people, I identified how many active COPS grants that agency was handling in each month between 1997 and 2007.[4] A total of 759 CIS officers (out of 6,631 granted) were directly awarded to a NIBRS agency, which is roughly proportional to the overall NIBRS participation rate by law enforcement agencies.

While the lack of NIBRS coverage limits my ability to generalize to all SRO programs (or even all CIS grants), the ability to distinguish between crimes that took place on and off school grounds in the NIBRS allows for an important test of the impact of SROs on the School-to-Prison Pipeline. If hiring of additional SROs simply lowered the behavioral threshold at which students were arrested, then we would expect agencies that received CIS grants to know about more crimes in schools and also make more arrests for crimes that took place in schools. It should also be the case that the largest increase in arrests made by the agency should be among young adults and minors. At the same time, to the extent that SROs improve the attitudes that young people have towards the police, we might expect to see that officers learn about crimes that take place outside of school as well, and also to make more arrests of subjects of all ages. By separately examining the change in official recorded crime and arrests within an agency, before and after they receive CIS awards, in and out of school, it is possible to differentiate between real

[4] I have also included CIS officers awarded to organizations in the particular agency's county. Including these county officers does not change my results, and CIS officers awarded to other county departments typically have no effect on arrests or crimes known to police.

improvements in public safety from a situation in which posting officers in school simply leads to more schoolchildren being arrested.

Of course, the correspondence between the location of crimes and the social welfare improvement association with the police learning of these behaviors is not perfect. Schools can be dangerous places for young people; violent crimes by young people tend to increase when school is in session (Jacob and Lefgren 2001), and students between 12 and 18 years old experience more victimizations in school than out of school (Robers et al. 2014). At the same time, a non-trivial fraction, roughly 63%, of crimes occurring in schools are not reported to law enforcement by school officials; underreporting is even higher for violent crimes, where 74% are unrecorded by police, primarily because of low reporting of fights where no weapons are involved and high reporting of drug offenses (Robers et al. 2014). To the extent that some fraction of the children involved in these unreported incidents should have been referred to the justice system, lowering the cost of reporting in school crimes can protect victims and lower crime in the long run, even if the general stigma associated with contacting the police does not change.

NIBRS agencies that did and did not receive CIS grants were not the same. In figure 1, I plot the mean number of monthly offenses, in and out of school, reported by agencies that did and did not receive CIS grants. I also indicate the earliest date at which an agency could have received a CIS grant (April of 1999). It is immediately apparent that agencies that received CIS grants had more crime, both in and out of school. Even though total crime in the US is falling during this time period, there a slow drift upwards in crime among all agencies, reflecting growth in the

scope of NIBRS coverage. There is some evidence of a small increase in crime in schools that received CIS officers, particularly after 2002.[5]

Figures 2 and 3 show monthly arrests, by age, made by officers in CIS and non-CIS agencies, for crimes committed inside and outside of school. CIS agencies do appear to arrest more people for crimes in schools after 1999, and in particular arrest more young people. This pattern is not evident in trends in arrests for crimes committed off school grounds, implying that once an SRO is hired, young people have a higher chance of being arrested for misbehavior in school, but it is not clear that SROs are associated with an increased likelihood of solving crimes in general.[6]

Aggregate trends in crimes and arrests suggest that there may be some change in how people who commit crimes in school are treated that is correlated with CIS receipt. In addition, prior to grant receipt, general month-to-month changes in crimes and arrests appear to be similar across CIS and non-CIS agencies. This suggests that a difference-in-differences approach which uses crime records from non CIS agencies as a counterfactual for crime records from CIS agencies will provide credible causal estimates of the program. However, these graphs to do not take into account variation in any demographic changes, or differences in school district quality, that might be directly affecting school crime and also related to the use of COPS grants.

[5] Appendix tables A1 through A4 show that this corresponds with an increase in drug offenses outside of school that come to the attention of police departments with CIS grants, but there is not clear that there is any other differential change in known crimes off of school grounds.

[6] Appendix tables A5-A12 break these out by crime type. The pattern of arrests for violent crime mirrors that of total crime. Arrests for property crime, however, behave differently. In contrast to the arrests for violence, there actually appears to be a convergence in arrest rates for CIS and non CIS agencies after 1999. Turning to more minor offenses, CIS agencies appear to make slightly more arrests for drug offenses relative to non-CIS agencies after 1999, for crime committed on and off of school grounds. This somewhat similar pattern may imply that the increase in 15 to 19 year olds being arrested for drug offenses in school may reflect an increased propensity of people to report these types of offenses to police, rather than a lowering of the culpability threshold. Finally, figures A11 and A12 present the arrest rates for weapons offenses, in and out of school, by age. While the base rates are low, there is a clear increase in the rate at which minors are being arrested for weapons charges among CIS agencies, but only on school grounds. There is also come increase among older children, and for the people of all ages.

I supplement my criminal justice data with two sets of variables that are plausible correlated both with local crime and with the propensity of the school to hire, or apply for, as CIS grant. County level measures of school resources are drawn from the National Center for Education Statistics Common Core of Data, and include the school district revenue per resident between 5 and 19, the number of county residents between 5 and 19 per school, the number of high school graduates per county resident between 15 and 19, and the number of students per teacher. These variables are updated in September of each year. In addition, annual information on county level demographic information is drawn from Census Bureau intercensal and small area income and poverty estimates, specifically the overall and child poverty rate, the log of real median household income, the percent of county residents who are non-white, and the percent of children between the ages of 15 and 19 who are non-white.

Table 1 summarizes some basic facts about crime, arrests, and the local jurisdictions of law enforcement agencies in the NIBRS sample. In terms of crimes, particularly crimes in school, agencies that receive CIS grants are worse off than agencies that do not; overall official crime rates are higher for agencies that receive federal funding. Even relative to the general community, CIS agencies seem to serve schools that are disproportionately more dangerous than schools where agencies don't receive funding; school crimes make up a larger fraction of overall offenses in all crime categories. CIS agencies also received more of UHP and MORE grants than non-CIS agencies, consistent with one of the important mechanisms determining the timing and size of grants described in Evans and Owens (2007); the COPS office was relatively aggressive about distributing money to agencies that had demonstrated the ability to successfully spend grant money in the past.

Turning the school quality, districts associated with CIS agencies also appear to be worse off than non-CIS districts on some dimensions; revenue per potential student is lower and there are more students per school. At the same time, other common schooling measures are better in CIS districts. The student teacher ratio is slightly lower in CIS districts, and there is the same number of high school graduates per young adult in both places. CIS agencies are also located in counties that have lower poverty rates, higher median income, and more white residents than non-CIS agencies. Clearly, CIS and non-CIS agencies have different crime environments, and also different schooling environments, but it is difficult to tell, a priori, to what extent these measurable demographic differences can explain the observed differences in crime.

In order to provide more explicit evidence of the validity of the assumptions underlying a differences-in-differences analysis, I identified the 1,058 agencies in my sample that entered the NIBRS before 1999, 233 of whom received CIS grants at some point after 1999, and 825 of whom did not. For each agency, I estimated a simple linear model of monthly crime and arrests between 1997 and 1999 on socio-demographic characteristics, as described in equation 1,[7]

(1) $Crime_{ym} = \alpha + Census_{ym}\theta + CommonCore_{ym}\vartheta + u_{ym}$

where $Crime_{ym}$ is the number of crimes (or arrests) per 10,000 people in an agency's jurisdiction in year *y* and month *m*, *Census* is a vector of county level demographics and *CommonCore* is a vector of school characteristics. Figures 4 and 5 present the mean residuals from these agency specific estimates, grouped by whether or not the agency ever received a CIS grant, along with 95% confidence intervals around these means.

The lack of a general trend in these residual plots, along with the overall similarity across CIS and non-CIS agencies, means that any unobserved factors that influenced police actions

[7] I can also include annual observations of police employment, which generates essentially identical results.

differentially across CIS and non-CIS agencies must have not only happened to be correlated with the timing and size of the CIS grants, but also only affected the law enforcement agencies after 1999. This further strengthens the validity of using a difference-in-differences approach that exploits variation in the receipt of CIS grants as a way to evaluate the impact of SROs on the School-to-Prison Pipeline.

4. Analytic Framework

Law enforcement agencies that received CIS grants were obviously different from those that did not, but there is no clear evidence of systematic variation in month to month fluctuations in crime or arrest rates that cannot be explained with observable school and demographic differences in cities that did or did not receive these grants. As a result, CIS grants can be used to estimate the impact of these particular officers on crime, in a way that will not be subject to the omitted variable and reverse causality bias that would arise from simply comparing schools with and without SROs.

I therefore use a simple difference in difference strategy to estimate the relationship between SROs, crime and arrests, where criminal justice outcomes are modeled as follows:

$$(2)\ Crime_{ipscym} = \alpha_{pym} + \gamma_{sy} + \delta_i + X_{cym}\theta + Y_{cy}\vartheta + Z_{ipscym}\omega + CopsInSchools_{ipscym}\beta + \varepsilon_{ipscym}$$

where $Crime_{ipscym}$ is the crime or arrest rate (per 10,000 people) reported by law enforcement agency *i*, in population group *p*, in state *s*, county *c*, in year *y*, and month *m*. The parameter of interest, β, represents the marginal impact of receiving a grant for one additional CIS officer from the COPS office that was active in year *y* and month *m*. I allow for arbitrary seasonality in crime that is common to agencies of similar sizes (between 5 and 10, 10 and 25, 25 and 50, 50 and 75, and 75 and 100 thousand residents on average) with a set of 600 (5 x 10 x 12) time

dummies α_{pym}. I also allow for annual shocks to crime that are common to all agencies in the same state, γ_{sy}, and a level difference in the crime rate of each agency δ_i. The agency is also the level at which I cluster the standard errors; this allows for arbitrary correlation in errors within agency but assumes independence across agencies.

Notably, I include in *Z* a measure of the number of active COPS grants that agency *i* received in year *y* and month *m*. I focus on the two largest programs, the COPS Universal Hiring Program and the Making Officer Redeployment Effective Program. Following Evans and Owens (2007), these variables are lagged by one year, as the receipt of the grant involved substantial hiring, training, and investment on the part of the receiving agency.

My identification of β is therefore based on month-to-month within-agency variation in crime and arrests that is correlated with the receipt of CIS grants, but is not correlated with any variation in the demographics of the areas the agency patrols, or in changes in school expenditures or standard measures of school quality. The observed relationship also cannot be explained by any unobserved time varying feature that is common to agencies of similar size or in the same state. In addition, as demonstrated by pre-CIS trends in local crime that were not explained by school and county demographics, any source of bias due to unobserved temporal shocks must not have been present prior to 1999, when the first CIS grant was awarded.

5. Results

5.1 CIS Grants and Police Employment

Before examining the impact of CIS grants on crime, I am able to shed some light on the impact of CIS grants on police employment by presenting estimates of equation 2 where the outcome variable is officer employment. I measure officer employment in three ways. First, using the sample of law enforcement agencies reporting to the NIBRS, I estimate the impact of

receiving a grant on the total number of sworn police officers, as measured in the UCR. The UCR reports the total number of sworn officers employed by the police agency as of October 7th of each year, which includes all employees with arrest powers, from beat officer to chief. While total officer employment is a noisy measure of the number of SROs hired, I am able to observe this value for each agency in every year in my sample, allowing me to estimate the impact of CIS grants on employment conditional on a relatively rich set of observables and a full set of time and agency fixed effects.

Further information on how CIS grants affected police officer employment can be gleaned from the Law Enforcement Management and Administrative Statistics (LEMAS). LEMAS data records operating statistics for a random sample of law enforcement agencies in the US, and in 1997, 1999, 2000, 2003 and 2007, agencies were asked how many school resource officers they employed in June (2003 and earlier) or September (in 2007). In these five LEMAS waves, I was able to positively identify the number of COPS grants awarded to 3,960 agencies who served between 5,000 and 100,000 people, 2,340 of which were in the survey more than once. The overlap between the LEMAS and NIBRS is not very large; all police agencies with more than 100 sworn officers are surveyed in every round, and only a representative sample of smaller agencies, which are more likely to be represented in the NIBRS, are included in each LEMAS survey. While the LEMAS measures the outcome variable of interest with precision, the repeated cross-sectional nature of the data limits my ability to use a full set of fixed effects.

These estimates are presented in table 2. Each additional CIS officer granted was associated with 1.5 (se =0.86) additional officers being hired, a large effect that is statistically significant at the 10% level.[8] In contrast, agency response to UHP grants was a smaller, but much more

[8] Finn and McDevitt (2005) report that roughly one year passes between the receipt of a CIS grant and the employment of a new SRO officer, but they do not appear to formally test this assertion. This one year lag in officer

precisely estimated, 1.11 officers per award (se=0.412) and agencies that received grants for technology and support staff also increased slightly in size, with roughly 0.13 additional officers (se=0.051) being hired for each million dollars awarded through MORE (the average MORE grant was roughly $65,000).[9] The large, but somewhat imprecisely estimated, relationship between CIS grants and total officer employment is consistent with the institutional differences across COPS grant programs; UHP grants were explicitly to hire new officers. CIS grants on the other hand, were intended to support the salary of an officer who was stationed in a local school. Complying with a CIS grant does not necessarily require hiring more police officers, but the shift in officer deployment could lead to agencies petitioning their local government to increase their overall officer complement.

In the remaining columns of table 2, I present estimates of the impact of CIS grants on SRO employment in the LEMAS, both in terms of the number of SROs per 10,000 residents, and the fraction of officers in the police department that is stationed in schools. When I do not include agency fixed effects, receiving one additional CIS officer almost doubles the number of SROs (0.624 additional SROs per CIS officer granted) an agency employs within one month. When I

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deployment does appear to be the case for UHP grants, the general hiring grants. However, in the NIBRS and LEMAS data, a strong one year lagged response is not obviously a defining characteristic of agency responses to CIS grants. Lagging CIS grants by one year produces point estimates of the impact of CIS grants on police hiring that are roughly one half the size (0.61 police officers per lagged CIS officer), but also more precise (se=0.148). Including both lagged and current CIS grants in one equation suggests that the largest increase in the police force occurs when the grant is received, as the coefficient on current grants is 1.5, and the coefficient on lagged grants is 0.096. When I look at SRO employment in the LEMAS data, I cannot reject the null hypothesis that current and lagged CIS grants have the same impact on SRO hiring.

[9] In results available on request, I re-estimate the relationship between grants and officer employment for law enforcement agencies of increasingly larger size. Law enforcement agencies that served populations of less than 50,000 people tended to hire more police officers after receiving CIS grants, while agencies in bigger cities appear to have been more likely to redeploy existing officers; in fact, police departments who served between 75 and 100 thousand people who received CIS officer grants actually became smaller. UHP grants are consistently associated with expansions in the size of the police force, although the estimates become less precise as I consider larger cities and the sample size decreases. Compliance with UHP guidelines would also tend to depress the relationship between UHP grants and employment. Officers hired under UHP are supposed to be retained for at least 3 years after the grant expires, and the majority of within-department variation in UHP officers granted in this time period is the expiration, rather than awarding, of UHP grants.

limit my identification to the 363 agencies (about 10% of the total sample) that I observe both with and without a grant, one additional CIS officer is associated with 0.385 additional SROs, a 58% increase, within one month. Roughly 4% of sworn officers in LEMAS are SROs, and on average, a CIS officer will increase that fraction by 2 to 3 percentage points, which is also consistent with agencies hiring new officers to fill these positions (or replacing experienced officers who become SROs), rather than simply reshuffling existing employees. There is essentially no relationship between other COPS grants and SRO employment.

5.2 CIS Grants and Reported Crime

I now examine whether or not the receipt of CIS grants changed the number of crimes that law enforcement agencies learned about over the course of the school year. If SROs promote trust between officers and young people and encourage them to report crimes that previously would have gone unreported and unpunished, we would expect CIS grants to be associated with more officially reported crimes in and out of school, and also potentially more arrests associated with those crimes. Alternately, if SROs simply re-label misbehavior at school as crime, we would expect to see an increase in officially recorded crimes and arrests in school, but not outside of school. This School-to-Prison Pipeline should also only affect young people, whereas improved community relationships could plausibly lead to more arrests of people of all ages.

Estimates of the impact of CIS grants on the total number of violent, property, drug, and weapons charges known to police are presented in table 3. Overall, CIS grant are not obviously associated with a change in violent or property offenses that departments are aware of, but each additional CIS officer granted is associated with 0.45 (se=0.25) additional drug crimes, and 0.03 (se=0.015) additional weapons violations, both of which are marginally statistically significant. These estimates represent 10% and 6% increases over the sample means of drug crimes and

weapons violations, respectively, or based on the LEMAS data, an elasticity of reported crime with respect to SROs of 0.17 and 0.10. The relationship between crime and county demographics are generally consistent with a priori assumptions; counties with less school revenue per young person have higher crime rates, as do places with more children in poverty, more non-white children, and lower median income. Consistent with Owens (2012), there are more officially recorded Part 2 offenses (drug and weapons charges) when an agency receives UHP grants. I do not report these results for the sake of space.

In the lower panels of table 3, I divide officially recorded crimes by location. Here, we observe that CIS grants are associated with statistically significant increases in the number of officially recorded violent, drug, and weapons crimes taking place in schools, with effect sizes ranging from 12% to 25% per CIS officer. This translates to between a 2.1% and 4.3% increase in crimes for a 10% increase in SROs. While the point estimates on crimes taking place outside of school suggest that hiring SROs might increase police awareness of all crimes, only the 10% increase (in the reduced form) in awareness of drug crimes is statistically significant. In addition to increased willingness to report drug offenses to the police, this is also consistent with SROs learning about the existence of local drug markets from students who are caught with drugs in school. A student committing a violent offense, or bringing a weapon to school, is not as likely to have information about off-campus crimes.

5.3 CIS Grants and Arrests

5.3.1 Arrests by Location of Crime and Age of Arrestee

In table 4, I examine how police agencies that receive CIS grants make arrests for violent crimes, based on where the crime occurred and how old the person arrested was. Not only do police learn of more violent crimes in schools, but each additional CIS officer is associated with

0.025 (se = 0.014) additional arrests being made, or roughly one additional charge every 4 and a half school years. A 20% increase in the arrests of minors, children under the age of 15, is driving this - agencies that receive a grant for one CIS officer per 10,000 residents arrest one additional person under the age of 15 every year, and three additional children every two school years. I do not observe any consistent change in arrest rates for violent crime that takes place outside of schools.

Table 5 shows that while police do not appear to learn of any additional property crimes when they receive CIS grants, they do make more arrests for property offenses, particularly those that occur on school grounds. There are roughly 0.02 additional charges for property offenses on school grounds per CIS officer granted (or about 0.04 per SRO). CIS grants do not appear to help police departments make arrests for off campus property crimes. Again, however, the increase in arrests is due to an increase in the number of children under 15. Each additional CIS officer is associated with 0.07 additional charges filed (per 10,000 young adults and minors) against young adults and minors, but the increase in arrests for minors is more statistically precise, and corresponds with an elasticity of arrests with respect to SROs of roughly 0.3.

The only off-campus crime that police learn about when they receive CIS grants are drug offenses. Results presented in table 6 confirm that these grants also appear to allow officers to make more arrests for drug charges across the board. The people being arrested for drug crimes appear to be older than those arrested for violent or property crimes; there are statistically significant increases in the arrest rates for 15 to 19 year olds on and off school grounds, corresponding to 1.7 additional drug charges (per 10,000 15 to 19 year olds) for off campus drug crimes per CIS officer granted, or 4.47 per SRO. Minors under the age of 15 are more likely to be arrested for drug crimes in school when agencies receive CIS grants, but there is not a clear

increase in off-campus arrests for drugs among this age group. To the extent that 14 year olds are less likely to sell drugs than young adults, and that students are more likely to buy their drugs from similar-aged peers, this pattern of arrests is additional evidence that SROs learn about ancillary drug crimes in the community from interacting with, and sometimes arresting, students in the schools they patrol.

Finally, I examine the impact of CIS grants on arrests for weapons violations in and out of school in table 7. Law enforcement officials both learn of, and make more arrests for, weapons violation in schools when they receive CIS grants. However, unlike other crimes, the age of those arrested suggests that adults, rather than children, are more likely to be arrested for having a weapon on school grounds. I observe that each additional CIS officer granted is associated with a moderately significant 0.007 increase in the number of arrests for weapons violations on school grounds a month. However, I do not observe a statistically significant increase in the in-school arrest rates for young adults or minors. On this dimension, SROs are likely making schools safer by identifying and confiscating weapons found on school employees or visitors.

Taken as a whole, the data imply that law enforcement agencies that place officers in schools learned about more criminal offenses on school grounds. They also made more arrests, and in particular appeared to arrest more young people for crimes on campus, particularly young students under 15 years old. The observed arrest patterns suggest that, even when endogenous hiring of SROs is addressed, adding police officers to schools results in more children being arrested and does not obviously increase the likelihood that young people contact officers about crime in their community. The exception to this is drug charges, where police do appear to be able to identify and arrest more young adults for off campus drug crimes.

5.3.2 Arrests by Race

I now test the role of CIS grants in exacerbating racial disparities in the criminal justice system. Specifically, I test whether minority children are disproportionately likely to be arrested for in-school crimes by SROs. When I divide my data into arrests of white students and non-white students in tables 8 and 9, I find that arrests for violent offense increase among minors of all races, but in level terms, the arrest rate for non-white minors is an order of magnitude larger than the change in the arrest rate for white minors. Dividing my results by race also reveals that CIS officers are slightly more likely to arrest white young adults for property offenses, and white minors for property offenses on school grounds. I also observe that more non-white people are arrested for drug charges out of school, but white people are more likely to be arrested for both in an out of school offenses.

Overall, most of the less serious arrests that occur in schools with more SROs are of white children, but non-white children are more likely to be arrested for violent crime in school. Arrests for violent offenses typically have more serious criminal justice ramifications, but this is far from unambiguous evidence that CIS grants were substantially contributing to racial disparities in the NIBRS agencies that received them.

5.4 Crime and Arrests by County Demographics

One potential explanation for the observed racial pattern in arrests is the NIBRS sample. As previously discussed, small cities and small agencies are over-represented in the NIBRS. Also, agencies that receive CIS grants actually serve slightly whiter populations than non-CIS agencies in the NIBRS sample (90% white vs. 82% white), which is different from the overall population of SROs (Na and Gottfredson 2013).

The racial makeup of schools in the NIBRS sample is important to consider for more than just external validity reasons. Between 2006 and 2010, black and Hispanic crime victims were

more likely to report crimes to the police than white crime victims. However, black and Hispanic victims who did not report a crime were more likely to cite mistrust of the police as a reason (Langton et al. 2012). This is consistent with other surveys, which typically find that minorities are less likely to place a great deal of trust in the police as an institution.[10] A highly relevant policy question, therefore, is whether or not there is systematic variation in the relationship between SROs and officially recorded crimes in areas with more non-white people.

I therefore divide my sample into quartiles, based on the average percent of young adults who are non-white (the critical values are 4.17%, 8.54%, and 17.67%), and re-estimate equation 2 in each of these samples. For the sake of space, I summarize the regression results in composite figures 6 and 7, which plot the estimated impact of CIS grants on each crime (or arrest) type, in and out of schools, for departments in each quartile, along with 95% confidence intervals.[11] Because the average crime rate varies across groups, the plotted estimates and standard errors are standardized by the dependent variable means.[12]

The first column of figure 6 reveals that there is no clear heterogeneity in the relationship between CIS officers and reported crime in schools with respect to a county's racial makeup; not only are the effects statistically flat across racial groups, there appears to be, if anything, a slight decrease in the impact of CIS officers on violent, drug, and weapon crimes in schools in less-white jurisdictions, and a slight increase in property crimes.

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[10] For example, see the National Institute of Justice introduction to Race, Trust and Police Legitimacy, http://www.nij.gov/topics/law-enforcement/legitimacy/Pages/welcome.aspx

[11] In addition, agencies in smaller cities, which also tend to be whiter in the NIBRS, appeared to respond differently to CIS grants than larger agencies, with smaller cities being more likely to add new officers than cities larger than 50,000. In appendix table 10, I summarize the results of a series of regressions in which I divide my sample by city size. This generally confirms that smaller cities, who quickly hired new officers when they received CIS grants, are the ones that arrest more young people with those CIS grants. In fact, in larger NIBRS cities, where CIS grants were not associated with an increase in the total size of the police force, there is no statistically detectable change in crimes known to police or in arrests.

[12] In practice, this is a technicality- not dividing the results by the dependent variable means generate qualitatively identical graphs.

Crimes occurring off school grounds, however, have a different pattern (column 2). Here, the impact of a CIS officer on officially reported crimes is increasing in the fraction of the county's youth that are racial minorities. Since these are crimes that, by definition, are not the result of a re-labeling of school disciplinary problems, this suggests that SROs may actually improve community-police relations in areas where trust in the police is relatively low.

Figure 7 displays the equivalent graphs for arrest rates. These figures suggest that the School-to-Prison Pipeline is actually weaker in jurisdictions with more minority teenagers. Compared with the results for crimes known to police, the relationship between CIS grants and arrests for property crime and drug offenses is clearly decreasing in the fraction of the community that is non-white, and in school arrests for violent or weapons charges is also weakly negatively correlated with the fraction of young adults who are racial or ethnic minorities. In contrast, and consistent with increased cooperation between police and the communities they serve, the relationship between CIS grants and arrest rates for violent, property, and drug crimes happening outside of school is increasing in the fraction of non-white young adults. Taken together, figures 6 and 7 show that, as we look across districts with more and more non-white young people, SROs are both learning about more offenses happening in the neighborhood and are also able to make arrests in those marginal cases.

5.5 Violence by Seriousness

Finally, I separately examine what police know about serious violent offenses (murder, rape, aggravated sexual assault, robbery, and assault with a weapon or resulting serious bodily injury) and less serious simple assault. Simple assault is a broad category that includes relatively minor transgressions, like spontaneous fisticuffs between two students that ends without injury to either party, and does not obviously require a formal criminal justice response. In contrast, the social

welfare argument for criminal justice involvement if a young student commits a serious violent offense is stronger.

Table 10 reveals that police departments consistently learn about more serious violent offenses once an SRO is hired. As in previous results, one CIS officer is associated with roughly a 10% increase in serious violent charges overall and out of school, and a 20% increase in serious violence occurring inside of schools. Police also learn about roughly 10% more simple assaults after getting a CIS grant, which is precisely estimated for in school offenses. Examining patterns of arrests after a CIS grant suggests that police are, in fact, more effective at clearing violent crimes that take place outside of schools, suggesting a reduction in reporting stigma. Notably, this increase in arrests for serious violent offenses outside of school is observed in two groups: a 20% increase in arrests for minors, and a 7% increase in arrests in the general population. At the same time, however, we also observe a moderately precise 20% increase in the rate at which minors are arrested for, essentially, minor fights in school. Any welfare gain from the increased apprehension of people who commit serious violent crimes must be weighed against this simultaneous increase in young children being arrested for behavior which, arguably, could be handled by school administration.

6. Conclusion

Rapidly increasing crime rates in the 1980s and 1990s, particularly among young adults, led to an expansion in the scope of law enforcement, with sworn police officers replacing security guards in private buildings and in schools. The placement of police officers in schools, a practice that has been used in some school districts since the 1960s, was promoted by the federal government as a way to both increase school safety and also increase the chance that young adults, who rarely report crime to police officers, saw police in general as trustworthy

and helpful. Today, as crime rates have fallen, and the racially disparate impact that anti-crime laws passed in the 1990s has become better known, there has been a growing concern that SROs simply create a "School-to-Prison Pipeline," where young people are arrested for behavior that previously would simply result in school discipline.

To date, evidence on the impact of SROs on crime and arrests has been limited to correlational studies that fail to address any bias generated by the simultaneous determination of school problems and SRO employment. Using credibly exogenous variation in SROs generated by DOJ hiring grants, I find that adding officers to schools does appear to increase police involvement in violent, drug, and weapons violations on school grounds, with some additional awareness of drug crimes and serious violent offenses happening in the community at large. I observe an increase in arrests that take place in schools when SROs are added. Even though people under 15 make up only a small fraction of those arrested, increases in arrest rates for children under the age of 15 are the most precisely estimated, and each CIS officer granted per 10,000 residents corresponds with roughly 0.213 additional charges per 10,000 minors being filed for in-school crimes in each school year. In addition, I find that arrests increase for violent crimes that could be reasonably characterized as scuffling, rather than acts of life-threatening violence.

Introducing police officers into schools does appear to change the dynamics of the school environment, and does lead to an increase in the arrest rates of young children, particularly for minor offenses that happen to occur on school grounds. At the same time, there is some evidence to suggest that these officers also can have a positive effect on the ability of local police to do their jobs outside of the school, particularly when it comes to disrupting drug markets or making arrests for serious violent offenses. The impact of SROs on racial disparities

in the criminal justice system is also complex; an observed increase in arrests for in-school violent crime appears to be concentrated among non-white students. At the same time, however, the largest increases in crime reporting off of campus occur in communities with fewer white people. The nature of available data on SRO employment and police activity limits my ability to draw strong conclusions about the underlying mechanisms of these observed changes, or extrapolate to larger, more urban jurisdictions with larger minority populations. Future research that more precisely quantifies the effect that CIS grants had on the employment of SROs, along with the increased availability of locations specific crime data, will help clarify these issues.

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Figure 1:Crimes known to Police per 10,000 people in NIBRS, by whether or not agencies ever received CIS grants, 1997-2007

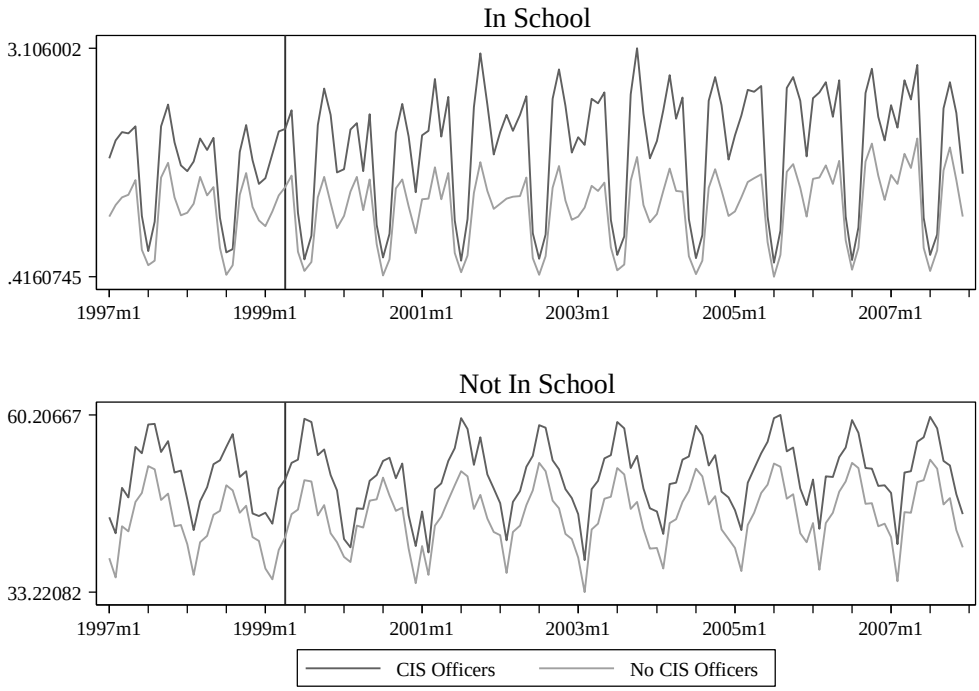


Figure 2: Arrests per 10,000 people by Age and CIS grant status, Outside of Schools

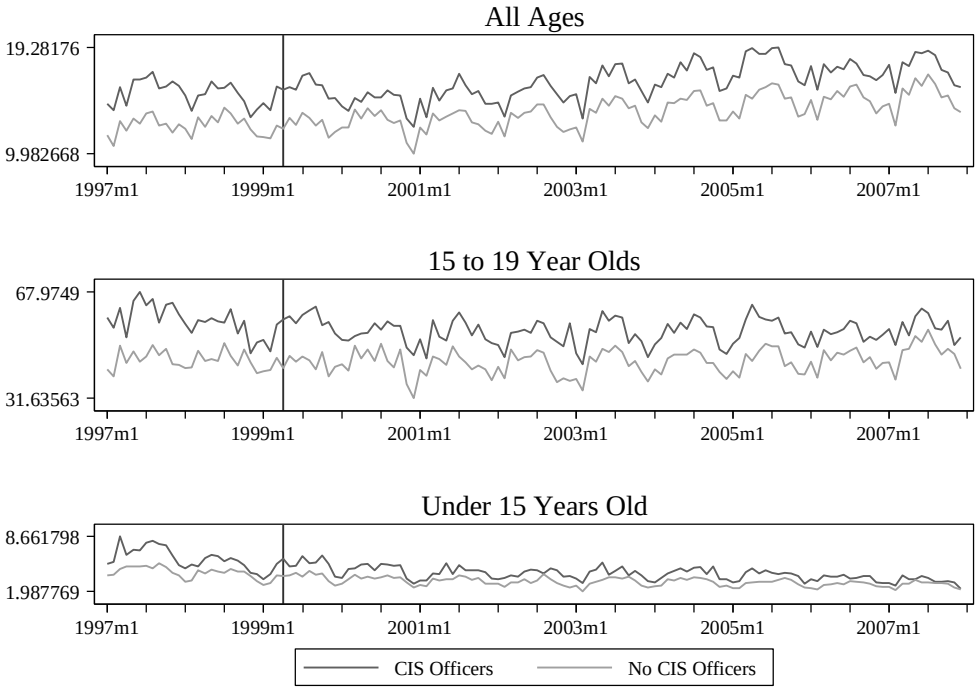


Figure 3: Arrests per 10,000 people by Age and CIS grant status, Inside of Schools

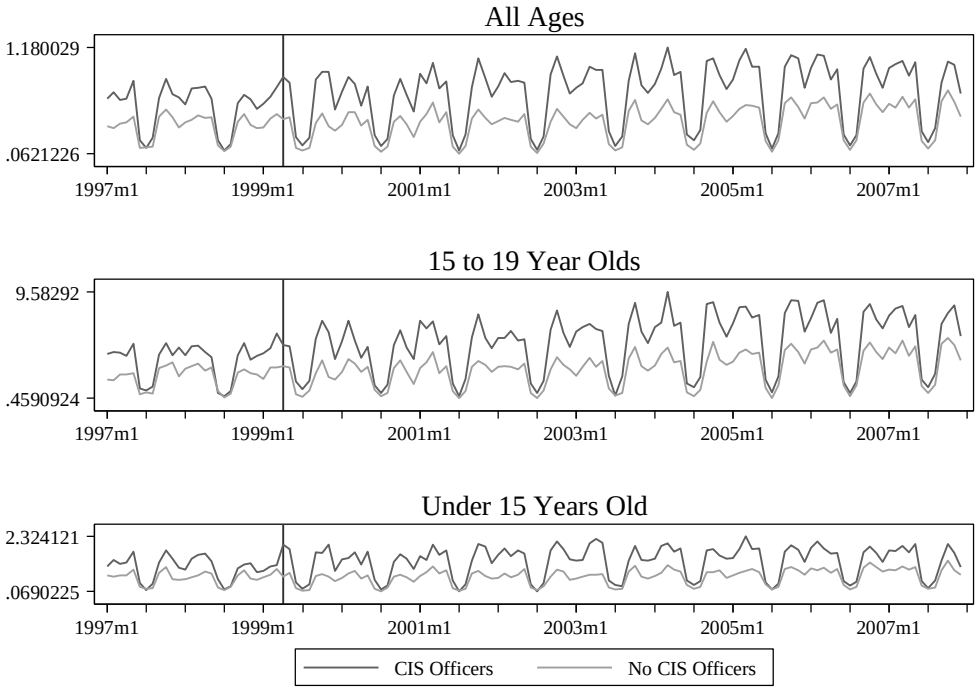
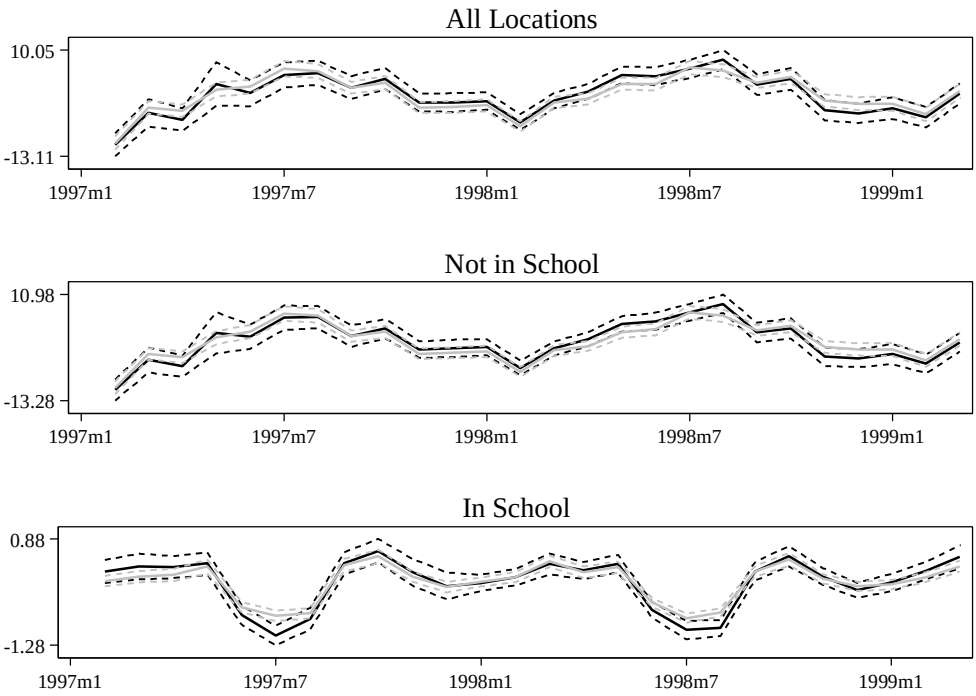
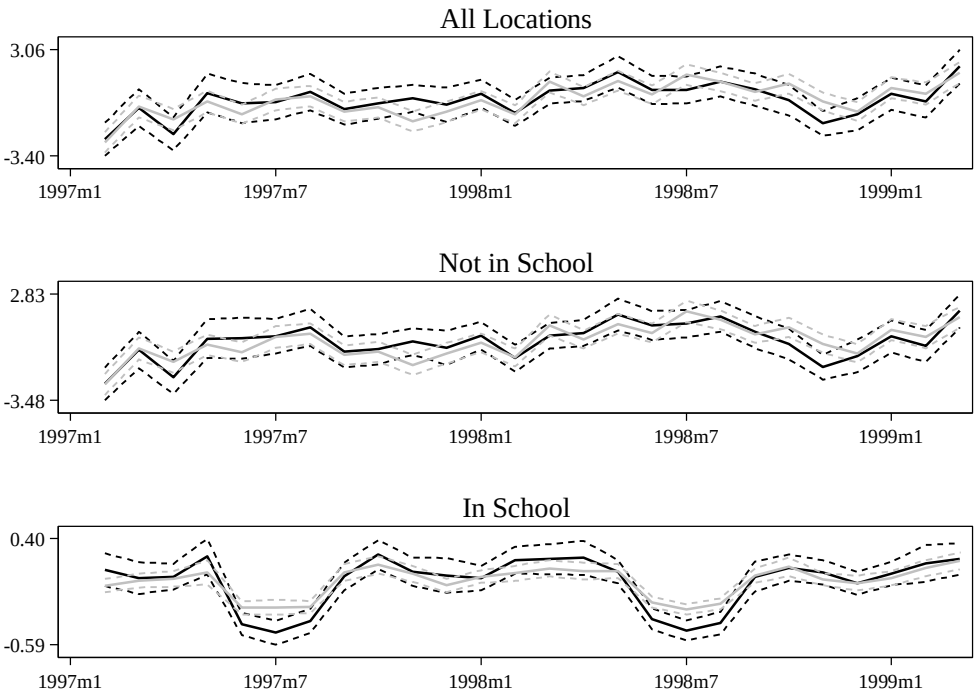


Figure 4: Mean Residualized Official Crime Rates, By Location, 1997-1999



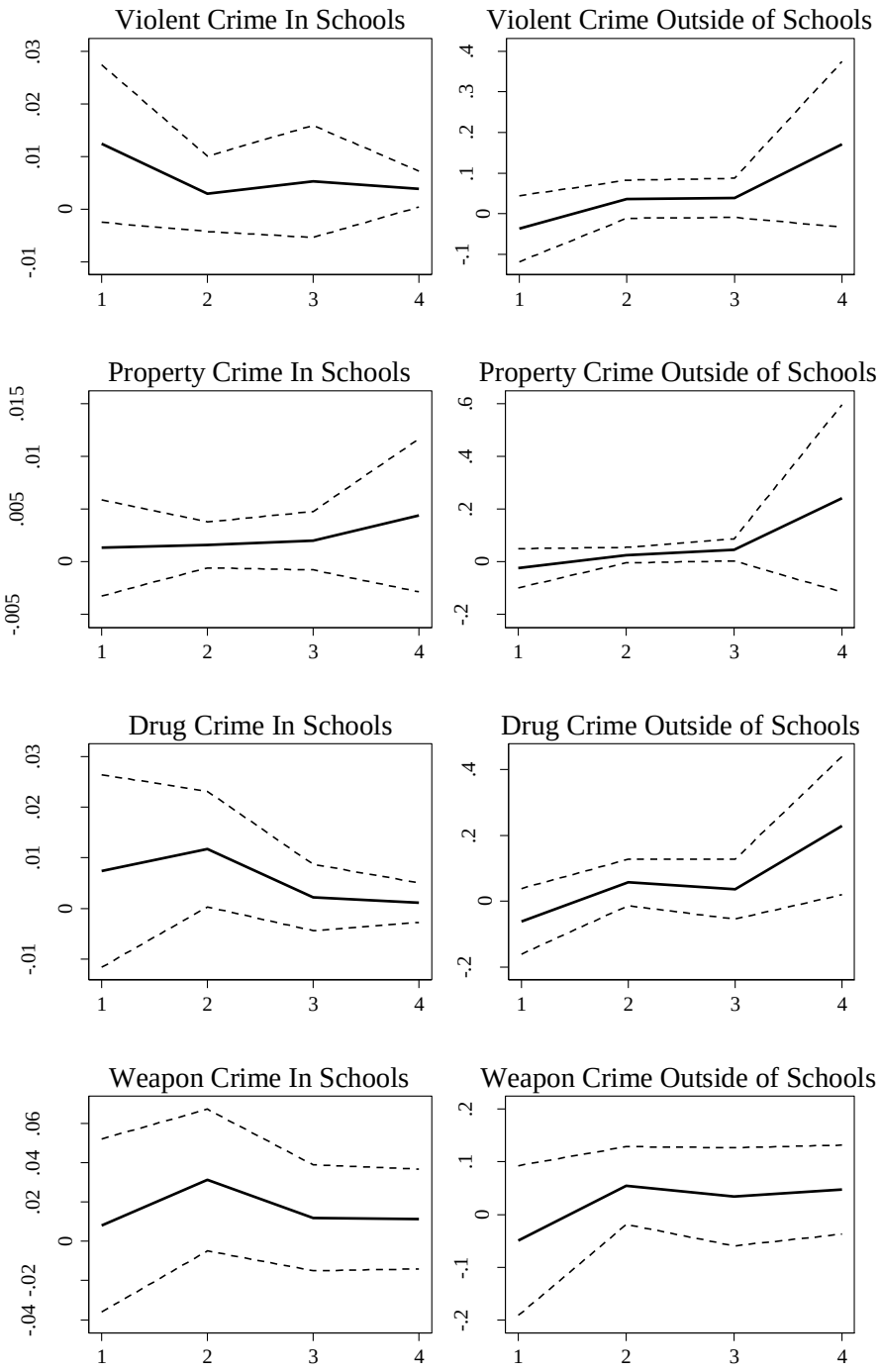
Note: black lines indicated mean of CIS agencies, grey lines are non-CIS agencies. Dashed lines indicate 95% confidence intervals.

Figure 5: Mean Residualized Arrest Rates, By Location, 1997-1999



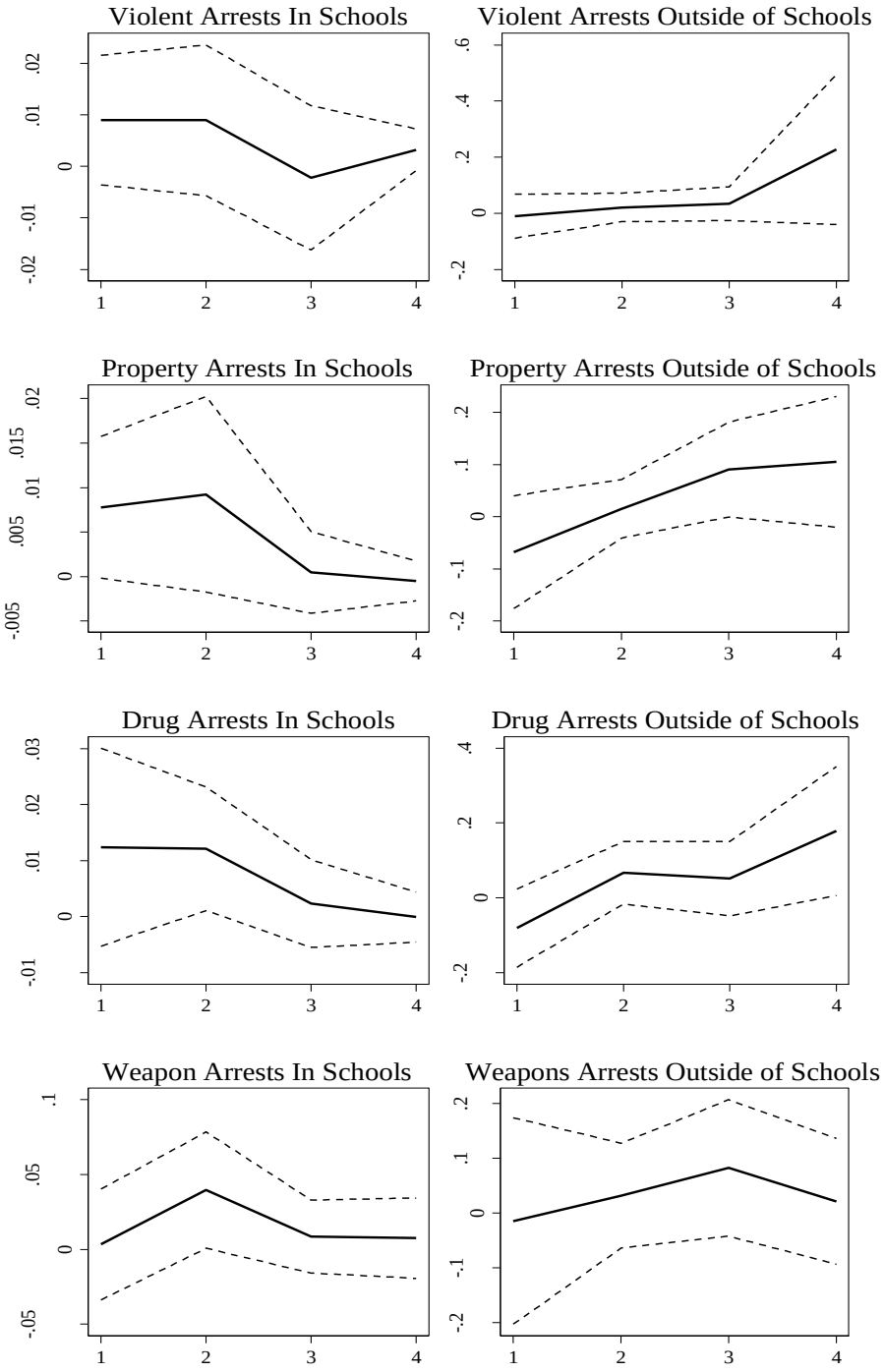
Note: black lines indicated mean of CIS agencies, grey lines are non-CIS agencies. Dashed lines indicate 95% confidence intervals.

Figure 6: Estimated Impact of CIS officers on Crime, by Location and Non-white Quartile



Notes: Non-white quartiles based on average percent of 15 to 19 year old population in the county that is not white. Dashed lines represent 95% confidence intervals for point estimates. Point estimates and standard errors scaled by dependent variable mean.

Figure 7: Estimated Impact of CIS officers on Arrests, by Location and Non-white Quartile



Notes: Non-white quartiles based on average percent of 15 to 19 year old population in the county that is not white. Dashed lines represent 95% confidence intervals for point estimates. Point estimates and standard errors scaled by dependent variable mean.

Tables

Table 1: Crime, Arrests, and Socio-demographic Characteristics of NIBRS Agencies, 1997-2007

	All Agencies (n=218,244)		CIS Agencies (n=54,948)		Non-CIS Agencies (n=163,296)	
	mean	*st. dev.*	mean	*st. dev.*	mean	*st. dev.*
Agency Measures						
Violent Crime Rate	10.44	*(11.08)*	11.20	*(10.50)*	10.19	*(11.25)*
In schools, pre 1999	0.34	*(0.85)*	0.44	*(0.89)*	0.30	*(0.82)*
Violent Arrest Rate	4.63	*(5.18)*	5.31	*(5.49)*	4.40	*(5.05)*
Property Crime Rate	32.93	*(29.64)*	36.75	*(31.53)*	31.64	*(28.86)*
In schools, pre 1999	0.84	*(1.61)*	1.05	*(1.72)*	0.76	*(1.56)*
Property Arrest Rate	5.64	*(7.82)*	6.59	*(8.19)*	5.33	*(7.66)*
Drug Crime Rate	4.10	*(5.35)*	4.59	*(5.50)*	3.94	*(5.29)*
In schools, pre 1999	0.11	*(0.45)*	0.16	*(0.50)*	0.09	*(0.432)*
Drug Arrest Rate	4.16	*(6.09)*	4.63	*(6.13)*	4.00	*(6.07)*
Weapon Crime Rate	0.48	*(1.00)*	0.52	*(0.90)*	0.47	*(1.03)*
In schools, pre 1999	0.03	*(0.18)*	0.04	*(0.19)*	0.03	*(0.19)*
Weapon Arrest Rate	0.40	*(0.92)*	0.43	*(0.87)*	0.38	*(0.93)*
UHP Grant Rate	0.27	*(0.95)*	0.32	*(1.01)*	0.26	*(0.93)*
MORE Grant Rate	0.35	*(1.12)*	0.50	*(1.21)*	0.30	*(1.08)*
CIS Grant Rate	0.053	*(0.286)*	0.212	*(0.541)*		
County Measures						
School Revenue per Pop under 20 y.o.	50.01	*(17.96)*	49.62	*(18.38)*	50.15	*(17.81)*
People under 20 per School	2259.50	*(46533.81)*	2875.40	*(52736.68)*	2052.26	*(44249.76)*
High School Grads per 15-19 y.o.	0.14	*(0.05)*	0.14	*(0.05)*	0.14	*(0.05)*
Students per Teacher	13.19	*(7.69)*	12.64	*(6.54)*	13.38	*(8.03)*
Poverty Rate	11.90	*(4.69)*	11.33	*(4.27)*	12.09	*(4.81)*
Child Poverty Rate	14.54	*(6.66)*	13.89	*(6.20)*	14.76	*(6.79)*
Real Median Income	43225.26	*(11358.87)*	44511.66	*(11202.90)*	42792.40	*(11378.25)*
Percent Non-White	11.76	*(12.99)*	10.89	*(11.20)*	12.05	*(13.52)*
Percent Non-White, 15-19	14.26	*(15.24)*	13.30	*(13.11)*	14.58	*(15.88)*

Agency Crime and Arrest rates scaled by 10,000 people in jurisdiction as reported to UCR. County measures scaled by 10,000 county residents from intercensal estimates. All monetary values in real 2010 dollars. MORE grants are measured in $100 granted per person, and decay at a rate of 2.5% per month. All other COPS grants are officers per 10,000 people.

Table 2: COPS office grants and Police Employment in UCR and LEMAS, 1997 to 2007

	Sworn Officers per 10,000 residents (mean = 18.4)	SROs per 10,000 residents (mean = 0.66)				SROs per Sworn Officer (mean =0.037)			
CIS Officers Granted	1.536+	0.643***	0.422***	0.624***	0.385**	0.030***	0.023**	0.029***	0.021**
	(0.899)	(0.068)	(0.116)	(0.068)	(0.118)	(0.006)	(0.007)	(0.006)	(0.008)
Lag UHP Officers Granted	1.111**	0.004	-0.000	0.005	0.000	0.000	0.000	0.000	0.000
	(0.412)	(0.005)	(0.001)	(0.006)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Lag MORE Dollars Granted	0.130*	2.133	-0.049	2.271	-0.240	-0.014	0.017	-0.008	0.011
	(0.051)	(1.459)	(0.847)	(1.461)	(0.865)	(0.051)	(0.044)	(0.050)	(0.046)
Year fixed effects	x			x	x			x	x
Agency fixed effects	x		X		x		x		x
State by year fixed effects	x								
Population size group fixed effects	x								
N	18,187	8,990	8,990	8,990	8,990	8,990	8,990	8,990	8,990
Agencies	2,310	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828
R^2	0.83	0.03	0.62	0.04	0.62	0.02	0.52	0.02	0.52

Note: Additional county level controls include school district revenue per resident under the age of 20 ($2010), residents under 20 per public and charter school, high school graduates per resident under 20, school district teacher to student ratio, poverty rate, children poverty rate, median income ($2010), percent non-white, and percent of residents under 20 who are non-white. Standard errors in parenthesis allow for arbitrary correlation in dependent variable with agency.

*+ p<0.10 , * p<0.05, ** p <0.01, *** p<0.001*

Table 3: CIS Officers and Officially Recorded Monthly NIBRS Crime Rates, 1997 to 2007

	Total Crime			
	Violent	Property	Drugs	Weapons
CIS Officers	1.119	3.999	0.446+	0.028+
Granted	(0.753)	(3.279)	(0.253)	(0.015)
Mean of DV	10.4	32.9	4.10	0.484
R^2	0.76	0.73	0.56	0.32
	Crime in Schools			
	Violent	Property	Drugs	Weapons
CIS Officers	0.060**	0.099	0.022+	0.009*
Granted	(0.022)	(0.065)	(0.012)	(0.005)
Mean of DV	0.425	0.816	0.151	0.036
R^2	0.34	0.38	0.19	0.09
	Crime Out of Schools			
	Violent	Property	Drugs	Weapons
CIS Officers	1.059	3.900	0.424+	0.019
Granted	(0.745)	(3.217)	(0.250)	(0.013)
Mean of DV	10.0	32.1	3.95	0.449
R^2	0.77	0.73	0.55	0.32

Note: All regressions contain 218,244 observations, and include agency fixed effects, month by population size group fixed effects, and state by year fixed effects. Additional county level controls include school district revenue per resident under the age of 20 ($2010), residents under 20 per public and charter school, high school graduates per resident under 20, school district teacher to student ratio, poverty rate, children poverty rate, median income ($2010), percent non-white, and percent of residents under 20 who are non-white. Additional agency controls include UHP officers granted last year, and total MORE awards ($2010) per capita decaying at a rate of 2.5% per month since award. Standard errors in parenthesis allow for arbitrary correlation in dependent variable with agency (2,310 clusters).
*+ p<0.10 , * p<0.05, ** p <0.01, *** p<0.001*

Table 4: CIS Officers and Officially Recorded Monthly NIBRS Violent Arrest Rates, 1997 to 2007

	Total Arrests		
	All Ages	Young Adults (15 to 19 years old)	Minors (7 to 14 years old)
CIS Officers Granted	0.557	1.731	0.354+
	(0.400)	(1.346)	(0.192)
Mean of DV	4.63	10.8	1.31
R^2	0.63	0.38	0.31
	Arrests for Crime in Schools		
CIS Officers Granted	0.025+	0.093	0.079*
	(0.014)	(0.105)	(0.037)
Mean of DV	0.183	1.24	0.378
R^2	0.27	0.18	0.21
	Arrests for Crime Out of Schools		
CIS Officers Granted	0.532	1.638	0.275
	(0.396)	(1.314)	(0.178)
Mean of DV	4.45	9.56	0.935
R^2	0.63	0.37	0.29

Note: The denominators in all rates reflect the estimated age-specific population. All regressions contain 218,244 observations, and include agency fixed effects, month by population size group fixed effects, and state by year fixed effects. Additional county level controls include school district revenue per resident under the age of 20 ($2010), residents under 20 per public and charter school, high school graduates per resident under 20, school district teacher to student ratio, poverty rate, children poverty rate, median income ($2010), percent non-white, and percent of residents under 20 who are non-white. Additional agency controls include UHP officers granted last year, and total MORE awards ($2010) per capita decaying at a rate of 2.5% per month since award. Standard errors in parenthesis allow for arbitrary correlation in dependent variable with agency (2,310 clusters).
*+ p<0.10 , * p<0.05, ** p <0.01, *** p<0.001*

Table 5: CIS Officers and Officially Recorded Monthly NIBRS Property Arrest Rates, 1997 to 2007

	Total Arrests		
	All Ages	Young Adults (15 to 19 years old)	Minors (7 to 14 years old)
CIS Officers Granted	0.329+	1.610	0.258+
	(0.199)	(0.988)	(0.152)
Mean of DV	5.64	23.3	2.60
R^2	0.58	0.30	0.27
	Arrests for Crime in Schools		
CIS Officers Granted	0.020+	0.071	0.071*
	(0.011)	(0.058)	(0.034)
Mean of DV	0.144	0.984	0.264
R^2	0.13	0.08	0.09
	Arrests for Crime Out of Schools		
CIS Officers Granted	0.309	1.538	0.187
	(0.198)	(0.984)	(0.144)
Mean of DV	5.4	22.3	2.34
R^2	0.58	0.29	0.26

Note: The denominators in all rates reflect the estimated age-specific population. All regressions contain 218,244 observations, and include agency fixed effects, month by population size group fixed effects, and state by year fixed effects. Additional county level controls include school district revenue per resident under the age of 20 ($2010), residents under 20 per public and charter school, high school graduates per resident under 20, school district teacher to student ratio, poverty rate, children poverty rate, median income ($2010), percent non-white, and percent of residents under 20 who are non-white. Additional agency controls include UHP officers granted last year, and total MORE awards ($2010) per capita decaying at a rate of 2.5% per month since award. Standard errors in parenthesis allow for arbitrary correlation in dependent variable with agency (2,310 clusters).
*+ p<0.10 , * p<0.05, ** p <0.01, *** p<0.001*

Table 6: CIS Officers and Officially Recorded Monthly NIBRS Drug Arrest Rates, 1997 to 2007

	Total Arrests		
	All Ages	Young Adults (15 to 19 years old)	Minors (7 to 14 years old)
CIS Officers Granted	0.394+	1.939*	0.072*
	(0.212)	(0.801)	(0.029)
Mean of DV	4.16	15.1	0.355
R^2	0.54	0.61	0.26
	Arrests for Crime in Schools		
CIS Officers Granted	0.025*	0.208+	0.051+
	(0.012)	(0.110)	(0.029)
Mean of DV	0.130	1.21	0.159
R^2	0.17	0.14	0.08
	Arrests for Crime Out of Schools		
CIS Officers Granted	0.369+	1.730*	0.021
	(0.212)	(0.796)	(0.015)
Mean of DV	4.02	13.9	0.197
R^2	0.54	0.33	0.07

Note: The denominators in all rates reflect the estimated age-specific population. All regressions contain 218,244 observations, and include agency fixed effects, month by population size group fixed effects, and state by year fixed effects. Additional county level controls include school district revenue per resident under the age of 20 ($2010), residents under 20 per public and charter school, high school graduates per resident under 20, school district teacher to student ratio, poverty rate, children poverty rate, median income ($2010), percent non-white, and percent of residents under 20 who are non-white. Additional agency controls include UHP officers granted last year, and total MORE awards ($2010) per capita decaying at a rate of 2.5% per month since award. Standard errors in parenthesis allow for arbitrary correlation in dependent variable with agency (2,310 clusters).
*+ p<0.10 , * p<0.05, ** p <0.01, *** p<0.001*

Table 7: CIS Officers and Officially Recorded Monthly NIBRS Weapon Arrest Rates, 1997 to 2007

	Total Arrests		
	All Ages	Young Adults (15 to 19 years old)	Minors (7 to 14 years old)
CIS Officers Granted	0.019	0.006	0.012
	(0.015)	(0.090)	(0.012)
Mean of DV	0.396	1.45	0.110
R^2	0.30	0.14	0.07
	Arrests for Crime in Schools		
CIS Officers Granted	0.007+	0.058	0.012
	(0.004)	(0.044)	(0.008)
Mean of DV	0.022	0.164	0.042
R^2	0.07	0.05	0.04
	Arrests for Crime Out of Schools		
CIS Officers Granted	0.012	-0.052	0.000
	(0.014)	(0.081)	(0.008)
Mean of DV	0.374	1.28	0.068
R^2	0.29	0.14	0.08

Note: The denominators in all rates reflect the estimated age-specific population. All regressions contain 218,244 observations, and include agency fixed effects, month by population size group fixed effects, and state by year fixed effects. Additional county level controls include school district revenue per resident under the age of 20 ($2010), residents under 20 per public and charter school, high school graduates per resident under 20, school district teacher to student ratio, poverty rate, children poverty rate, median income ($2010), percent non-white, and percent of residents under 20 who are non-white. Additional agency controls include UHP officers granted last year, and total MORE awards ($2010) per capita decaying at a rate of 2.5% per month since award. Standard errors in parenthesis allow for arbitrary correlation in dependent variable with agency (2,310 clusters).
*+ p<0.10 , * p<0.05, ** p <0.01, *** p<0.001*

Table 8: CIS Officers and Officially Recorded Monthly NIBRS Violent and Property Arrest Rates, 1997 to 2007

	Arrests for Violent Crime in Schools					
	All ages, white	All ages, non-white	White young adults	Non-white young adults	White minors	Non-white minors
CIS Officers Granted	0.065	0.192+	0.070	0.032	0.067+	0.214*
	(0.053)	(0.101)	(0.107)	(0.206)	(0.039)	(0.105)
Mean of DV	0.563	1.13	1.06	2.26	0.331	0.623
R^2	0.22	0.11	0.15	0.07	0.17	0.09
	Arrests for Property Crime in Schools					
CIS Officers Granted	0.072*	-0.018	0.095	-0.386**	0.068*	0.076
	(0.031)	(0.082)	(0.058)	(0.147)	(0.030)	(0.097)
Mean of DV	0.483	0.574	0.950	1.10	0.250	0.309
R^2	0.11	0.02	0.07	0.02	0.08	0.02
	Arrests for Violent Crime Out of Schools					
CIS Officers Granted	2.201	1.358	1.987	0.405	0.319	0.143
	(1.844)	(0.945)	(1.630)	(0.830)	(0.226)	(0.261)
Mean of DV	14.3	23.0	7.96	16.0	0.726	1.564
R^2	0.51	0.30	0.33	0.15	0.15	0.13
	Arrests for Property Crime Out of Schools					
CIS Officers Granted	1.122	1.278	2.004+	0.424	0.209	0.068
	(0.788)	(0.998)	(1.064)	(1.600)	(0.198)	(0.160)
Mean of DV	18.1	26.6	20.7	28.2	2.01	3.33
R^2	0.49	0.09	0.22	0.16	0.19	0.14

Note: The denominators in all rates reflect the estimated age and race-specific population. All regressions for arrests of whites contain 218,244 observations. Arrests for non-whites of all ages include 218.208 observations, 218,004 observations for young adults, and 218,112 observations for minors. All regressions, and include agency fixed effects, month by population size group fixed effects, and state by year fixed effects. Additional county level controls include school district revenue per resident under the age of 20 ($2010), residents under 20 per public and charter school, high school graduates per resident under 20, school district teacher to student ratio, poverty rate, children poverty rate, median income ($2010), percent non-white, and percent of residents under 20 who are non-white. Additional agency controls include UHP officers granted last year, and total MORE awards ($2010) per capita decaying at a rate of 2.5% per month since award. Standard errors in parenthesis allow for arbitrary correlation in dependent variable with agency (2,310 clusters).
*+ p<0.10 , * p<0.05, ** p <0.01, *** p<0.001*

Table 9: CIS Officers and Officially Recorded Monthly NIBRS Drug and Weapon Arrest Rates, 1997 to 2007

	Arrests for Drug Crime in Schools					
	All ages, white	All ages, non-white	White young adults	Non-white young adults	White minors	Non-white minors
CIS Officers Granted	0.101*	0.080	0.224+	0.132	0.056+	0.046
	(0.048)	(0.054)	(0.120)	(0.154)	(0.030)	(0.037)
Mean of DV	0.475	0.353	1.25	0.905	0.164	0.099
R^2	0.16	0.03	0.13		0.09	0.02
	Arrests for Weapon Crime in Schools					
CIS Officers Granted	0.013	0.033	0.019	0.105	0.014+	0.008
	(0.008)	(.)	(0.021)	(.)	(0.007)	(0.016)
Mean of DV	0.071	0.085	0.152	0.190	0.039	0.044
R^2	0.06	0.02	0.04	0.02	0.04	0.03
	Arrests for Drug Crime Out of Schools					
CIS Officers Granted	1.103	2.319+	1.750*	1.748	0.019	-0.003
	(0.815)	(1.302)	(0.882)	(1.335)	(0.017)	(0.032)
Mean of DV	13.6	17.9	13.9	13.6	0.197	0.173
R^2	0.50	0.21	0.30	0.10	0.06	0.02
	Arrests for Weapon Crime Out of Schools					
CIS Officers Granted	0.033	0.125	-0.027	-0.007	0.006	-0.015
	(0.038)	(0.153)	(0.063)	(0.271)	(0.006)	(0.020)
Mean of DV	1.11	2.29	1.03	2.15	0.056	0.100
R^2	0.19	0.03	0.08	0.06	0.05	0.03

Note: The denominators in all rates reflect the estimated age and race-specific population. All regressions for arrests of whites contain 218,244 observations. Arrests for non-whites of all ages include 218.208 observations, 218,004 observations for young adults, and 218,112 observations for minors. All regressions, and include agency fixed effects, month by population size group fixed effects, and state by year fixed effects. Additional county level controls include school district revenue per resident under the age of 20 ($2010), residents under 20 per public and charter school, high school graduates per resident under 20, school district teacher to student ratio, poverty rate, children poverty rate, median income ($2010), percent non-white, and percent of residents under 20 who are non-white. Additional agency controls include UHP officers granted last year, and total MORE awards ($2010) per capita decaying at a rate of 2.5% per month since award. Standard errors in parenthesis allow for arbitrary correlation in dependent variable with agency (2,310 clusters).
*+ p<0.10 , * p<0.05, ** p <0.01, *** p<0.001*

Table 10: CIS Officers and Officially Recorded Monthly NIBRS Violent Crime and Arrests, by Seriousness of Offense, 1997 to 2007

	Total Crime		Total Arrests					
			All Ages		Young Adults (15 to 19 years old)		Minors (7 to 14 years old)	
	Serious	Simple	Serious	Simple	Serious	Simple	Serious	Simple
CIS Officers Granted	0.244*	0.875	0.128*	0.429	-0.007	1.737	0.082*	0.273
	(0.111)	(0.647)	(0.061)	(0.386)	(0.148)	(1.295)	(0.037)	(0.175)
Mean of DV	2.41	8.04	1.66	2.97	4.09	6.71	0.393	0.917
R^2	0.67	0.73	0.67	0.25	0.19	0.22	0.09	0.22
	Crime in Schools		Arrests for Crime in Schools					
CIS Officers Granted	0.013***	0.046*	0.004	0.021	0.027	0.066	0.009	0.070+
	(0.004)	(0.020)	(0.003)	(0.014)	(0.027)	(0.109)	(0.008)	(0.036)
Mean of DV	0.056	0.369	0.027	0.156	0.185	1.05	0.052	0.326
R^2	0.10	0.33	0.04	0.23	0.05	0.17	0.02	0.14
	Crime Out of School		Arrests for Crime Out of Schools					
CIS Officers Granted	0.231*	0.828	0.124*	0.408	-0.034	1.671	0.072+	0.203
	(0.110)	(0.640)	(0.062)	(0.381)	(0.147)	(1.251)	(0.037)	(0.161)
Mean of DV	2.35	7.66	1.64	2.82	3.90	5.65	0.341	0.591
R^2	0.67	0.73	0.63	0.23	0.18	0.19	0.11	0.21

Note: The denominators in all rates reflect the estimated age-specific population. All regressions contain 218,244 observations, and include agency fixed effects, month by population size group fixed effects, and state by year fixed effects. Additional county level controls include school district revenue per resident under the age of 20 ($2010), residents under 20 per public and charter school, high school graduates per resident under 20, school district teacher to student ratio, poverty rate, children poverty rate, median income ($2010), percent non-white, and percent of residents under 20 who are non-white. Additional agency controls include UHP officers granted last year, and total MORE awards ($2010) per capita decaying at a rate of 2.5% per month since award. Standard errors in parenthesis allow for arbitrary correlation in dependent variable with agency (2,310 clusters).

*+ p<0.10 , * p<0.05, ** p <0.01, *** p<0.001*

Appendix

Figure A1: Violent Offenses per 10,000 people in NIBRS, by whether or not agencies ever received CIS grants, 1997-2007

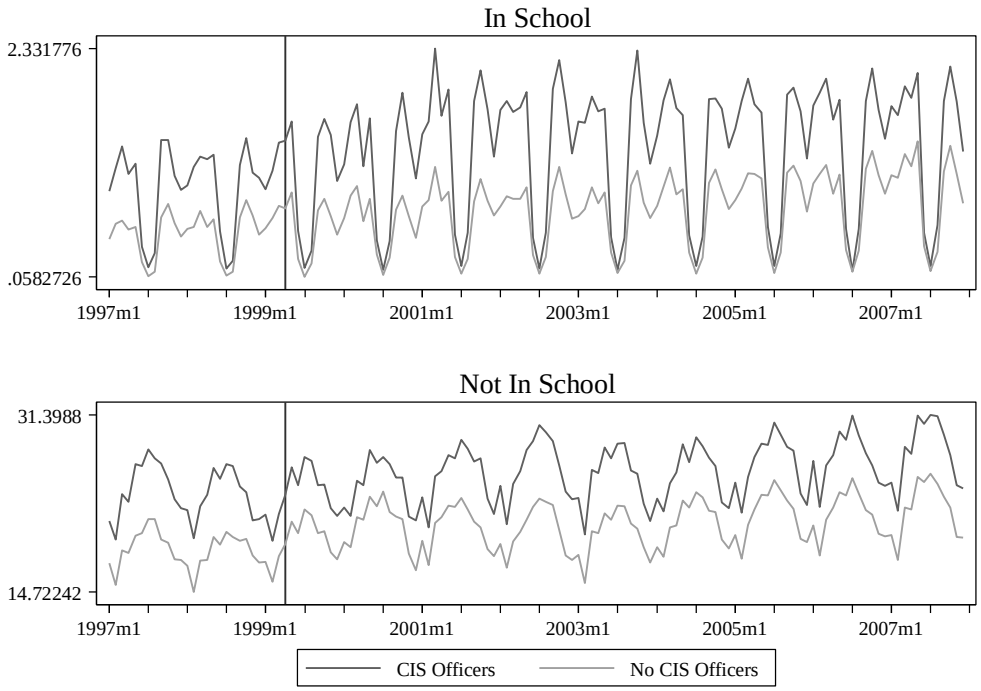


Figure A2: Property Offenses per 10,000 people in NIBRS, by whether or not agencies ever received CIS grants, 1997-2007

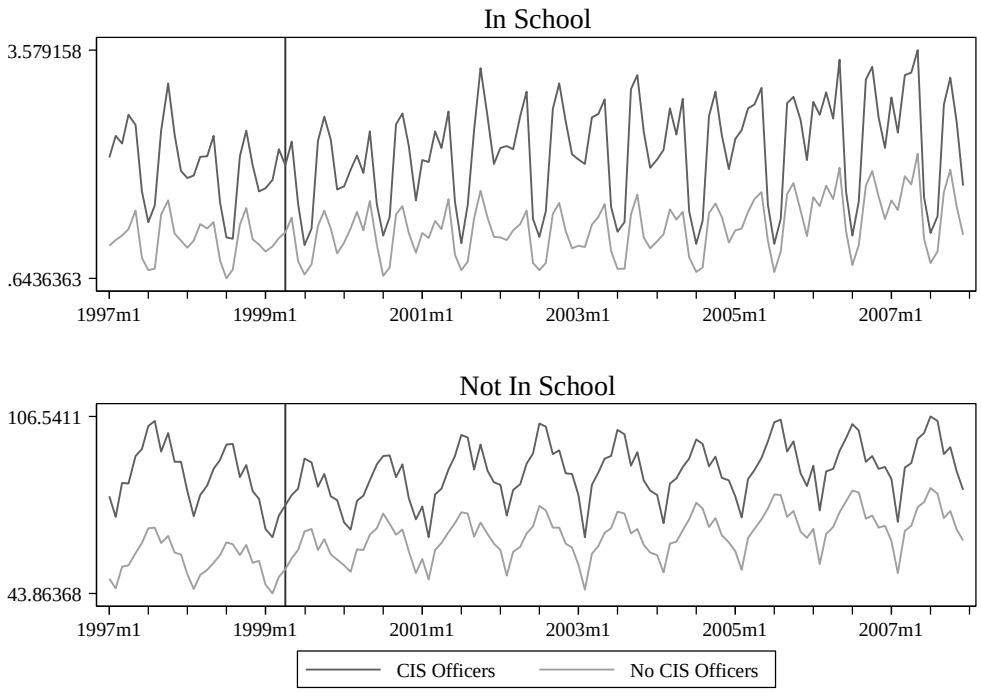


Figure A3: Drug Offenses per 10,000 people in NIBRS, by whether or not agencies ever received CIS grants, 1997-2007

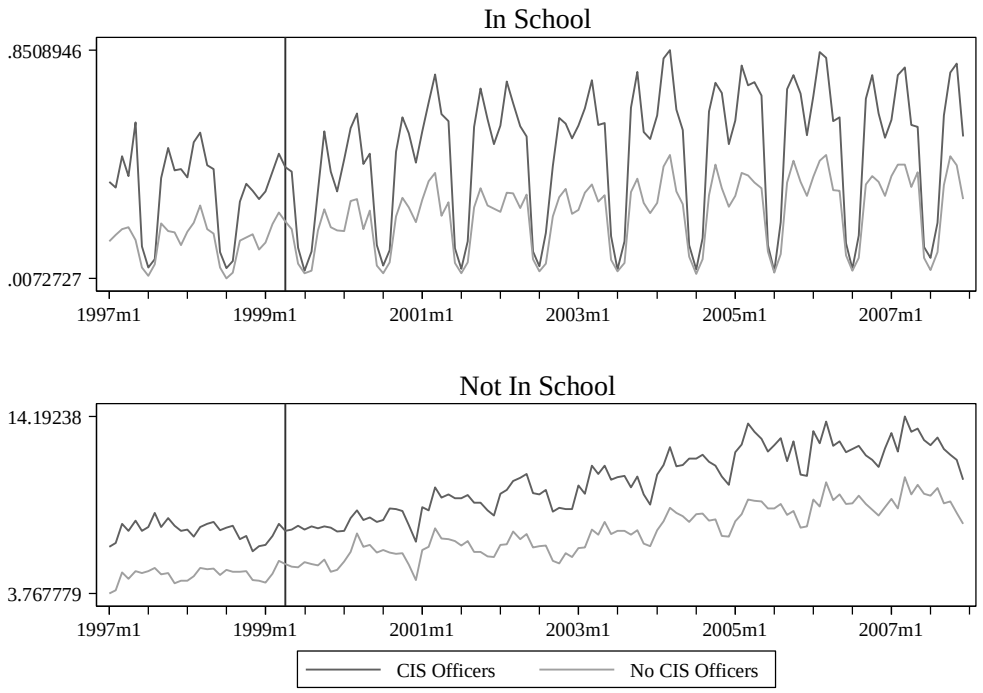


Figure A4: Weapons Offenses per 10,000 people in NIBRS, by whether or not agencies ever received CIS grants, 1997-2007

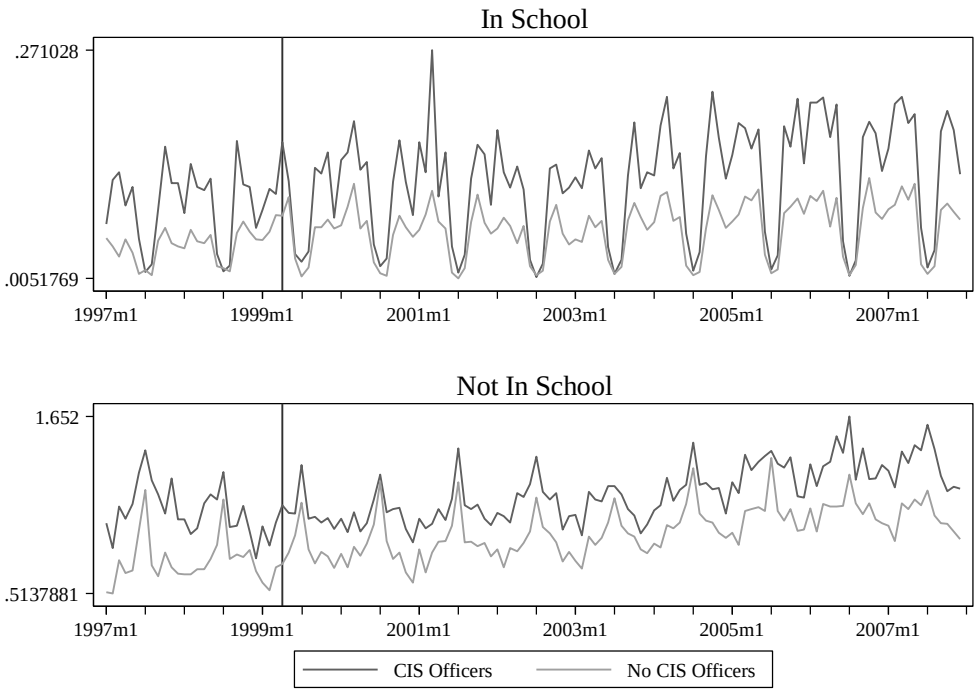


Figure A5: Arrests per 10,000 people for Violent Crimes by Age, Outside of Schools

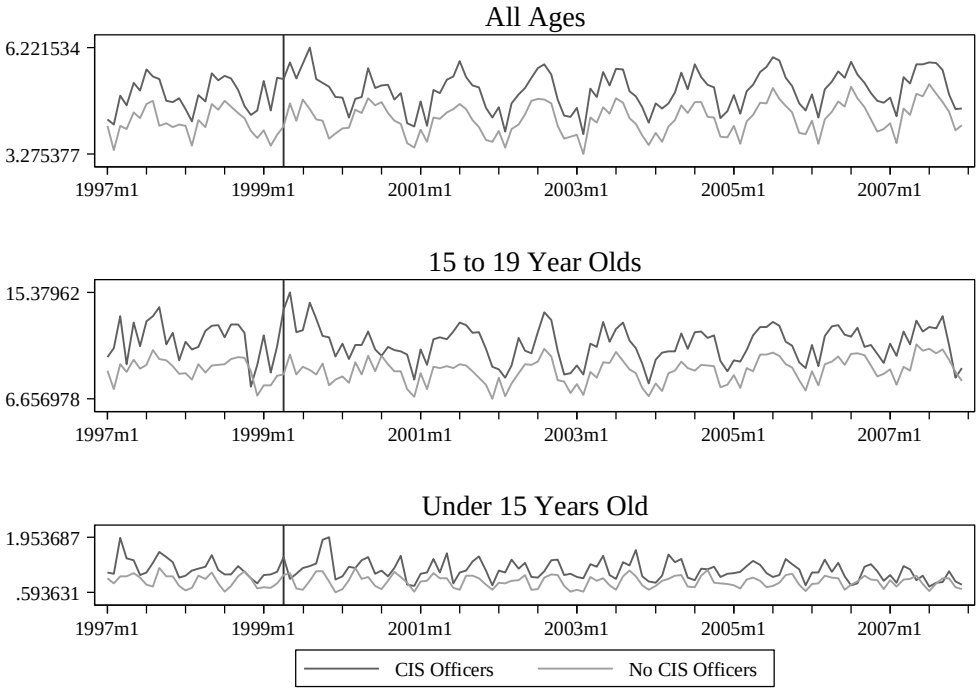


Figure A6: Arrests per 10,000 people for Violent Crimes by Age, Inside of Schools

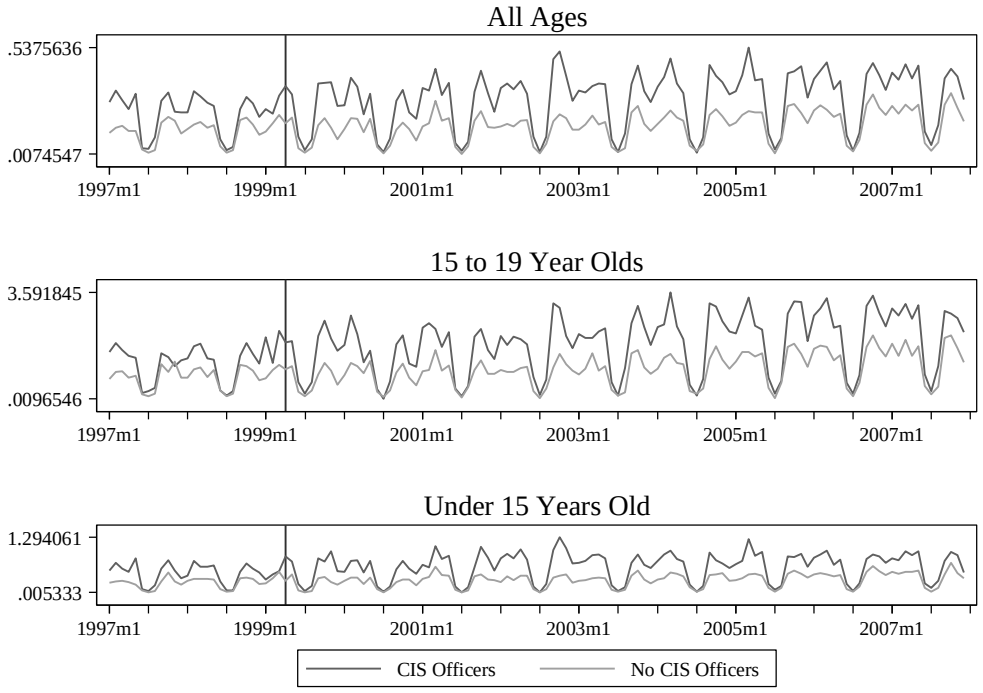


Figure A7: Arrests per 10,000 people for Property Crimes by Age, Outside of Schools

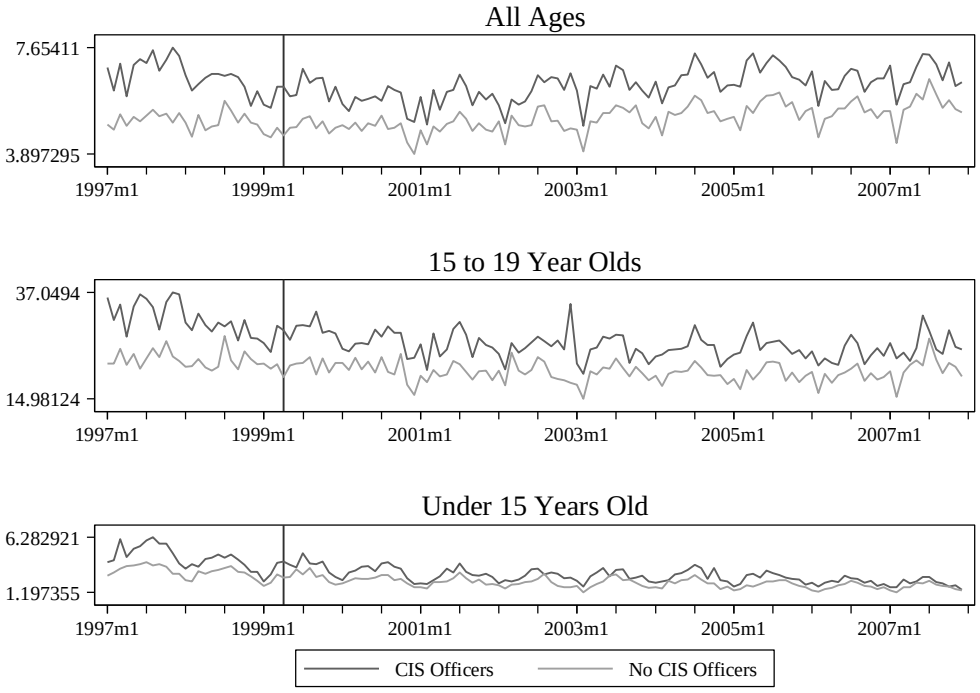


Figure A8: Arrests per 10,000 people for Property Crimes by Age, Inside of Schools

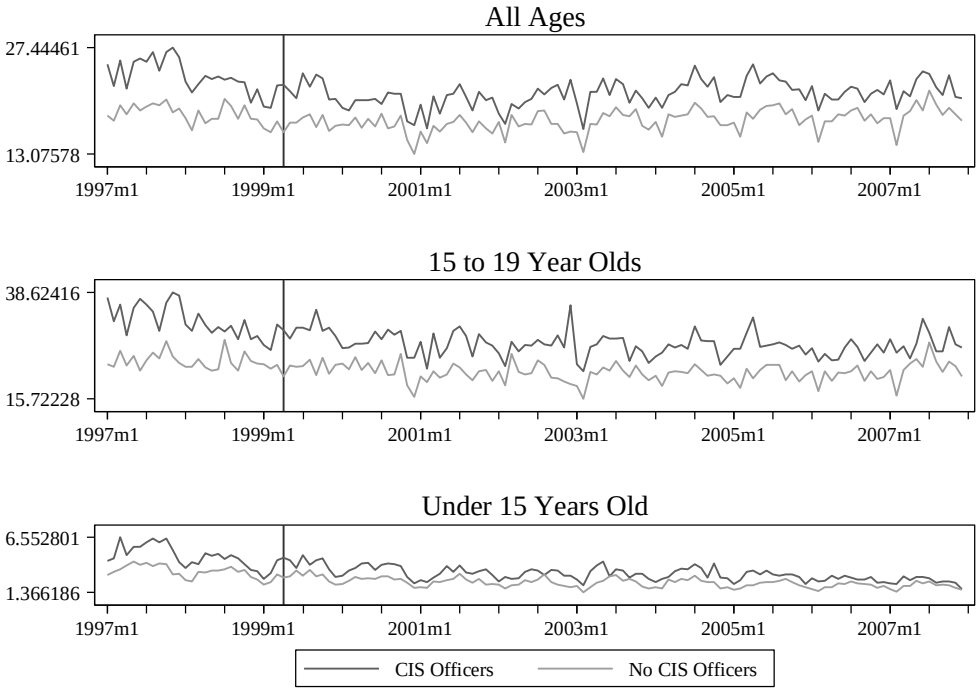


Figure A9: Arrests per 10,000 people for Drug Charges by Age, Outside of Schools

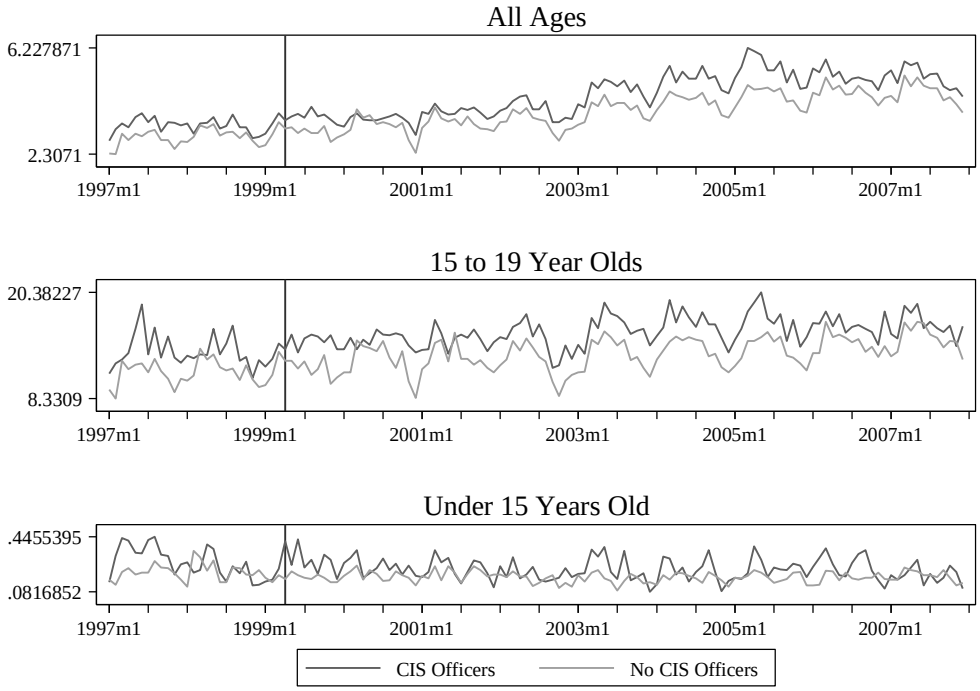


Figure A10: Arrests per 10,000 people for Drug Charges by Age, Inside of Schools

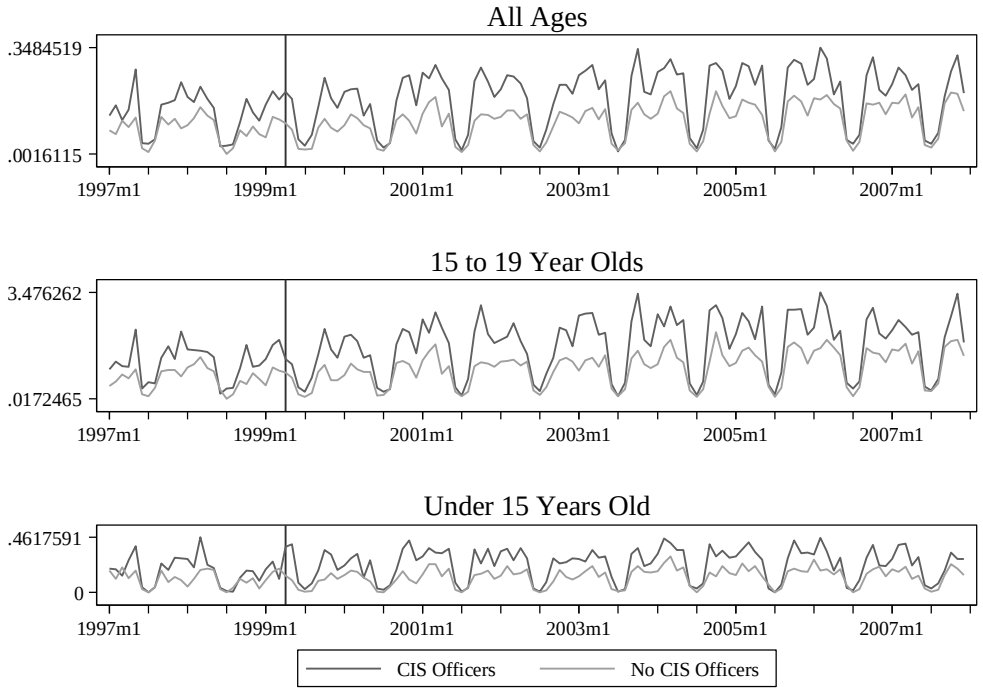


Figure A11: Arrests per 10,000 people for Weapons Charges by Age, Outside of Schools

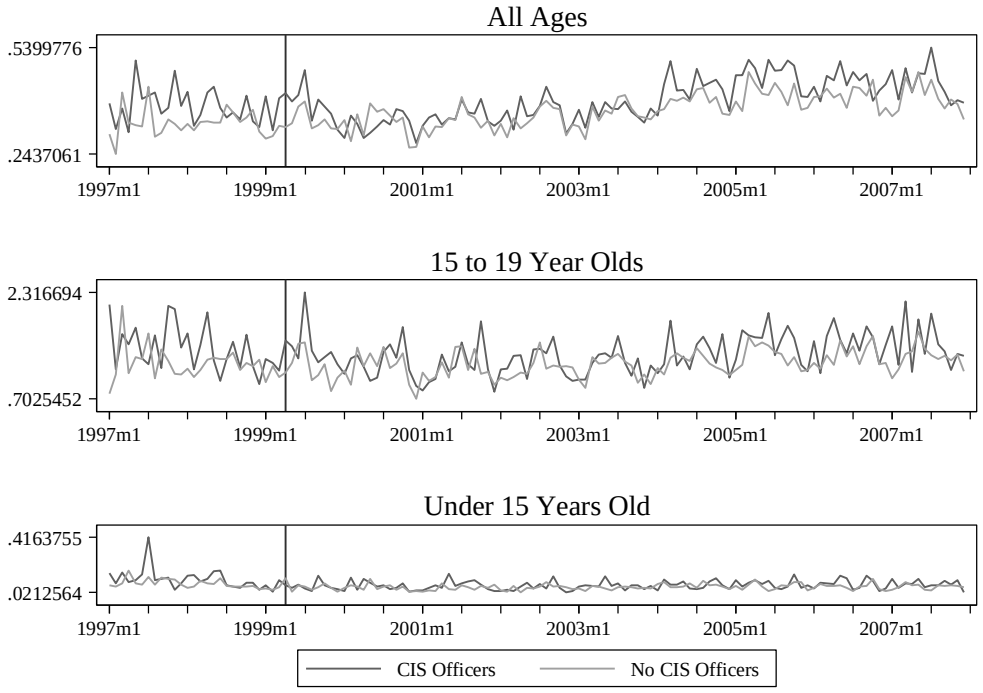


Figure A12: Arrests per 10,000 people for Weapons Charges by Age, Inside of Schools