“It works in Denmark”- a quantitative study on Danish stop and search zones

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Abstract

In 2004, Denmark implemented a new law which allows the police to issue so-called “Stop & Search zones”, as a measure to defeat mainly violent crimes. In Sweden, the implementation of such zones is a current frequently occurring matter in the political debate and parliamentary motions, in the context of defeating gang crime. One common argument in favor of implementation is “It works in Denmark”. So far, no follow-ups including quantitative analysis has been published of the gang-related crime defeating or preventative nature of stop and search zones in Denmark. As the current evidence on the effectiveness of stop and search zones consists of police statements, the aim of this thesis is to provide empirical evidence as to whether stop and search zones is an effective measure to defeat gang-related crime, and more specifically violent crime. This is investigated through a Differences-in-Differences approach using municipality level data on issued “Stop & Search zones” and “violent crime” rates. By investigating this causal relationship in Denmark, this article is aimed to contribute empirical evidence to add to the discussion on Danish and Swedish stop and search zones, as well as to the academic discussion of the efficiency of suspicion-less stop and search. The results from the DiD analyses conclude that stop and search zones are not an efficient measure to reduce violent crime in Denmark, and the results are considered robust.

I want to direct the biggest thank you to my mentor Ana Rodriguez-Gonzalez, your help was invaluable to me, especially your way of helping me stay in lane throughout the process.

1. Introduction

Crime prevention, defeat and investigation are processes that have long been subject to both discussion and research. What are the most efficient means to prevent, defeat and investigate crime respectively? And what other implications could the use of these means have? The multidisciplinarity of this issue, including criminological, judicial, sociological, philosophical, statistical and economic perspectives provides different views and answers to these questions. In recent years, the discussion on gang-related crime specifically has been on the rise in Sweden and Denmark along with other countries, frequently occurring in the political debate. This increased interest in the issue has brought new policy suggestions and implementations, of which evaluation is important. The political and broader societal concern in the context of gang-related crime often concerns the violence. The disproportionate occurrence and exposure in more socioeconomically deprived areas of society is another aspect of the problem.

As both Sweden and Denmark are currently and have in recent years been implementing action plans against specifically gang-related crime (Swedish Government 2022 & Danish Government 2017), it is of interest to evaluate the efficiency of these. On one hand the action plans as a whole could have effects, but also the separate measures and policies could have different effects. The interest of evaluating separate measures is largely due to enabling resources being directed to the most efficient measures, and to reduce or cease allocation of resources to inefficient measures. The stop and search zones is one such measure that is interesting to investigate further, largely due to the empirical setting of specific areas being issued as S&S zones for a specific period of time.

The question of S&S zones' efficiency caught my interest because of the political debate, and the fact that I never once heard a connection to empirical evidence of how "It works in Denmark". Sweden has so far declined all motions of implementing S&S zones, but as defeating gang-related crime remains an important topic in Swedish politics, it is a highly relevant matter. Briefing the current research outlook of the topic, my interest increased due to the lack of empirical evidence on its efficiency in Denmark. I found not a single evaluation or report on the issue specifically, but only individual police statements. The question is also interesting for the sake of evaluation of

police intervention and optimization, and continue the discussion of efficient means to investigate, defeat and prevent crimes. The baseline research question is whether implementation of stop and search zones is an efficient measure against gang-related crime, and specifically violent crime.

This study aims to investigate further whether the policy actually works in Denmark by contributing a quantitative analysis using economic methodology, specifically the Differences-in-Differences (DiD) approach. The outcome variable of interest is violent crime, and the treatment variable is determined by different S&S zones-thresholds. The analysis is conducted using municipality level data on issued S&S zones from the implementation in 2007 to 2022, and violent crime rates data from 1993 to 2020. The comparison groups are on one hand municipalities in which S&S zones were *Ever issued* compared to *Never issued*, followed by comparison between sub-groups within the *Ever issued* group on the basis of treatment level and timing.

I aim with this paper to contribute empirical evidence, or at least a quantitative context, to this issue and debate. Several previous studies on "stop and search" as a whole but also S&S zones have been conducted using data from the United Kingdom and the United States, this paper contrasts to these previous works as it focuses on gang-related and violent crime specifically rather than crime as a whole, or other crime categories such as theft and burglary. A further contribution of this essay is to provide an analysis in a Danish and Scandinavian context, and thereby present a new geographical addition to the academic discussion of S&S zones.

The approach I chose to exploit S&S zones' efficiency at reducing gang-related crime is the DiD approach. I chose to limit the analysis to S&S zones' effects on violent crime, as this is what I interpret as the core of the discussion on gang-related crime. Through the chosen approach, I investigate S&S zones' effects on violent crime on the municipality level. To extend the validity of the results, I conducted a number of robustness checks. I found few significant violent crime-reducing effect of S&S zones compared over *Ever treated* and *Never treated*, also between any subgroups within the *Ever treated* group. The significant effects that were acquired, on the contrary, indicates a possible positive relationship between S&S zones treatments and violent crime rates, which means that in this context S&S zones treatments could be increasing violent crime. The results survive a majority of the robustness checks and are consistent with previous research from the UK & the US.

The essay is structured as follows; first off, a background section to explain the S&S and gang-related crime context, followed by the previous literature section on S&S. Next comes the empirical strategy section, which includes a data overview, the empirical evaluation and DiD design, then the results of the DiD analyses are presented and last comes the discussion and conclusion sections to finish up the essay.

2. Background

2.1 Stop and search

Stop and Search is a force used by the police to defeat, investigate or prevent crime. There are two different types of stop and search; suspicion-based and suspicion-less stop and search. In some countries there are several degrees of suspicion on which stop and search can be based, for example in the US (e.g. MacDonald 2016). If the police have suspicion that a person committed a crime or is about to commit one, they can stop and search the person on suspicion-basis. The matter of interest in this paper is the contrasting "suspicion-less" stop and search. This is defined as when the police stop and search individuals of which they do not suspect to have committed or to be about to commit a crime (Liberty Human Rights 2022). The laws in Denmark and the UK of S&S zones, thereby allow the police to conduct suspicion-less stop and search. Suspicion-based stops could be thought to be mostly a responsive form of policing, as they are conducted when suspicion of crime commission arises. Suspicion-less stops on the other hand cannot to the same extent be considered responsive (Liberty Human Rights 2022). For example, an S&S zone can be issued due to that a crime or series of crimes recently have been committed, and thereby the S&S zone stops are to some extent responsive. However, it is also in its nature of "suspicion-less" not a responsive form of policing.

2.2 Stop and search zones

The Danish law of Stop & Search zones

In 2004, a new Police law entered into force in Denmark. Section §6 of the law concerns the implementation of S&S zones (Retsinformation Denmark 2004). The first paragraph introduces that in an S&S zone, the police can stop and search anyone in order to control if the person carries a weapon, under the condition of the second paragraph. The second paragraph continues to describe that the said stop and search can be carried out "if there is reason to do so in order to prevent someone from committing criminal acts which involve danger to the life, health or welfare of persons." (Politiloven §6.2). In the last paragraph, it is described that the decision of issuing

said zone in paragraph 1 must be taken by the Chief of Police, or a person authorized by the Chief to do so. The decision must include a justification along with a specification of the time and place to which the decision applies (Retsinformation Denmark 2004). The definition of the law thereby focuses on the prevention of violent and weapon crime. The zone can consist of a really small area such as a few blocks, or of several municipalities in their entirety. The zones are announced by one or several of the 14 Police districts, always issued for a specified area and time, but can be revoked or elongated.

Other countries have implemented similar policies before, such as the UK and the US. With the Criminal Justice and Public Order Act 1994, the UK implemented "Section 60", a law enabling issuance of S&S zones. The UK Home Office and researchers have conducted and published investigations of the Section 60 policy, and so far evidence seems to conclude no reducing effect of S&S zones on different types of crime (e.g. McCandless 2016). The nature of S&S zones in the UK as well are that they are issued for a specific area and time, and within these frames the police are then allowed to stop and search anyone on suspicion-less basis.

Bandepakken

In the past two decades, Denmark has taken several actions to defeat and prevent gang-related crime, and various laws and policies have been suggested and implemented. Denmark implemented three "gang packages'' called Bandepakken, in 2009, 2014 and 2017. Bandepakken are action plans aimed to defeat and prevent gang-related crime and reduce overall gang activity (Danish Government 2017 II). The three packages have included different measures of different extent. The latest Bandepakke III, implemented in 2017, included extensive and to an extent also controversial measures. Examples include increased sentences and the possibility to ban persons previously convicted for gang-related crime to go to certain areas (Danish Government 2017). Bandepakken are implemented on national level.

2.3 Political debate and context

In Sweden, several motions have been sent to the government to implement stop and search zones (e.g. Swedish Ministry of Justice 2020). The motions and politicians repeatedly use the argument

"It works in Denmark", see for example (Swedish Ministry of Justice 2020). Investigating what evidence these statements are based on, they generally refer to police statements (Swedish Ministry of Justice 2020). Investigating further for other sources of evidence, all I can find is police statements along with presentation of absolute numbers.

2.4 Gang-related crime

Gang-related crime is defined as crime that is committed in the name of a gang, or by a member of a gang. An exact measure of gang-related crimes is not possible to acquire, due to imperfect information of criminals' and crimes' connection to gangs. Four types of crime that are typically brought up as gang-related are violent crime, drug crime, property crime and weapon crime. There is a wide assortment of measures used to prevent and defeat gang-related crime, implemented in different institutions of society.

2.5 Data availability

One last point important to provide the full context to this analysis, is the one of data availability. As I started the work on this essay, I realized that there was no official data collection on S&S zones in Denmark. I contacted several authorities but all of them referred to each other, and no one suggested that there exists such a data collection. In some of the Annual Police reports (Politi 2022) on the Gang situation in Denmark, annual frequency of issued S&S zones are published on national level, but apart from that no official statistics are published. However, the Police districts always release announcements as an S&S zone is issued, and on a website called "Visitationszoner.dk" a private person called Christian Panton has collected statistics of S&S zones from these announcements (Visitationszoner.dk 2022). As this was not in any way an official publisher, I randomly double checked the compliance of the details of some S&S zones on the website with Police district announcements (e.g. Københavns Politi 2021), and compared the absolute number of issued zones to the Police reports mentioned above. I found that the assortment of observations matched the announcements, and that the number of issued zones matched for the years of which data is available. This led me to consider "Visitationszone.dk" a credible data source for S&S zones documentation.

2.6 Economic theory & Crime

Economic theory has for a long time been used to analyze and understand mechanisms and realities of society. Economic models, and especially applied microeconometric tools, are increasingly used for quantitative analysis of society at large rather than just purely and traditionally economic issues. The attractiveness of using economic theory for broader societal analysis is for example the economic methodology's design in terms of analyzing causality and optimization behaviors, for example how institutions optimize their behavior in a societal context. Crime economics is also a field of which economic theory and models have been applied to understand mechanisms of crime. One of the first economists to study economics of crime was Gary Becker, known for his 1974 article "Crime and Punishment: An Economic Approach" published for the National Bureau of Economic Research (Becker 1974). This is one of his many articles, and one of the first in the field "crime economics".

2.7 Hypothesis

As there so far is no empirical evidence on the presumed success of S&S zones in Denmark, my hypothesis would be that S&S zones are not an efficient measure at reducing gang-related crime, and specific to my analysis violent crime. It seems to me that suspicion-less stop and search is largely controversial and judicially difficult to justify, and therefore substantial empirical evidence should support significant crime-reducing effects if it should be used. The upcoming section of Previous literature will provide a broader perspective of the implications of S&S zones along with a more general view of stop and search, but also contrasted to suspicion-less stop and search.

3. Previous literature

This section will provide an overview of previous literature both on stop and search, as well as specifically stop and search zones and suspicion-less stop and search. The previous evidence mainly comes from the UK and the US, which is why a large share of the mentioned previous works originate from these countries. The disproportionate use of stop and search towards ethnic minorities is something that many articles bring up, and therefore this will also be discussed in this section. The two articles of McCandless et. al from 2016 and of Bradford and Tiratelli from 2019 will be described a bit further than the rest, as I think they have important implications and connections to this essay. The section is finished off with a brief description of the contribution of this essay in the field.

The article by McCandless et. al from 2016 investigates the effects of a stop and search initiative in the UK in 2008. The nature of stop and search as a well-established police power lacking evidence of its effectiveness at reducing crime is what brings this investigation. Operation BLUNT 2 aimed at reducing violent crime in the UK. As stop and search is a responsive form of policing in general, it is difficult to evaluate whether stop and search affects or simply reflects crime rates. The stop and search-increases in conjunction with Operation BLUNT 2 were however not simply responses to crimes, but also to policy change (McCandless et. al 2016). This setting of investigating a policy change is similar to the one of the policy implementation of S&S zones in Denmark. The outcome variable of the analysis are crimes that might be affected by increases in stop and searches. An increase in stop and searches in one borough should imply that violent offenses drop in that borough, compared to others that do not see an as large increase in searches. A differences-in-differences approach is used, controlling also for other factors that might affect crime trends. The analysis found no statistically significant crime reducing effect of the large increase in searches for certain boroughs that came with Operation BLUNT 2 (McCandless et. al 2016).

An article published for the Centre of Crime and Justice studies from 2019 discusses what exactly is effective police work, and whether stop and search can be considered such. Further the article mentions the political focus of using stop and search as a means to defeat violent crime, while drug

crime is the main ground provided for stop and searches in the UK. Suspicion-based stop and search is framed in law to be more investigatory than preventative (Bradford & Tiratelli 2019), something that could undermine the crime-reducing effects of stop and search. The article also discusses that "hotspots" literature establishes that focusing police activity to small, high crime rates areas is a proven efficient way to reduce crime, and that more targeted stop and search should thereby be the most effective. The authors conclude that the effect of stop and search on crime is not clear, however that it seems to have mainly investigatory power rather than preventative. Further the article includes brief calculations of the amount of resources necessary to increase searches, and how significantly much more is required for plausible negative effects on crime. The article connects their results of how many extra searches are required for crime reductions, and calculates the amount of extra police hours it would require (Bradford & Tiratelli 2019). The issue of resource allocation is an interesting and important aspect of stop and searches to take into consideration, but not something that I will investigate further in this essay.

In the research paper which is the foundation of the (Bradford & Tiratelli 2019) article, stop and search in London is studied specifically by using both crime data and ambulance data. The authors find statistically significant small reducing effects of increases in searches on crime, the main reductions seen in the category of drug crime. As for violent crime, the authors found little evidence of a reducing effect of stop and search. Further the authors investigate a sudden increase in section 60 searches specifically, for which they find no significant decrease in violent crime rates (Tiratelli et. al 2018). An article by Miller from 2000 concerns stop and search in the UK, one of the earlier studies on the matter. The article concludes that stop and searches have a negative effect on crime rates, but that suspicion-less searches such as Section 60 should be carefully considered and evaluated. This is based on the findings that they are likely to have a negative impact on community confidence in the police, and are relatively inefficient at producing arrests compared to suspicion-based searches. Further, the importance of focusing searches to defeat serious crimes rather than minor offenses is brought up, which according to Miller was to a large extent the case at the time of the study (Miller 2000).

Moving on from the UK setting to some evidence from the US studies of stop and search, we start off with the paper by MacDonald et. al from 2016. It investigates Operation Impact in New York

City, an operation in which "hotspots" in New York were targeted with more police officers, stops and searches and arrests. The article investigated possible differential effects between different types of measures. The results suggest that stop and search on "probable cause", a higher degree of suspicion than "reasonable suspicion" had relative reductions in crime compared to the lower degree of suspicion (MacDonald et. al 2016). The authors use a differences-in-differences approach, comparing the districts included in Operation Impact to those excluded, before compared to after implementation. The article concludes a statistically significant but small impact of the Operation Impact. Further these results suggest that a more targeted approach for stop and searches is more efficient for crime reduction. This article uses a differences-in-differences approach, for which they check within police precincts (MacDonald et. al 2016). This check of "within police precincts" is similar to the robustness check of within Police districts conducted in this paper. Further investigation on the difference between using stop and search for "reasonable suspicion" and "probable cause" using New York data is carried out by Jeffrey Fagan. A regression with clustered standard errors and controls is used, and concludes that stop and searches based on higher degree of suspicion have consistently larger effects (Fagan 2016).

An article by Rosenfeld and Fornango from 2014 investigates the crime drop in the US that started in the early 1990s, and the possible contribution of a "Stop Question and Frisk" (SQF) initiative to this decrease, respective "stop and search" in the US. This is done by investigating the impact of the initiative on robbery and burglary rates, and the authors reach the conclusion that the SQF initiative has few effects (Rosenfeld and Fornango 2014). The article further presents results of highly differing rates of stops of white people compared to Hispanic and especially black people, who experience a much higher stop rate. As SQFs increased, the results also conclude that the rate of increase in stops is much higher for black people, and higher for Hispanic people than white people (Rosenfeld and Fornango 2014).

The issue of visible ethnic minorities being subject to stop and search to a larger extent is something that many of the mentioned articles also address. For example, the (McCandless et. al 2016), (Miller 2000) and (Bradford & Tiratelli 2019) articles address the disproportionate use of the force towards individuals of visible ethnic minorities or minority backgrounds. Further, an article published by the Home Office reveals that under section 60, black people are significantly

more likely to be stopped and searched on suspicion-less basis compared to white people. Black people are more likely to be stopped on suspicion-basis as well, however the difference between the black and white people doubles for suspicion-less stop and search. The paper also concludes that the arrest rate for stops under section 60 is 4%, compared to suspicion-based stop and search's arrest rate of 13% (Home Office 2020). Lastly, the Criminal Justice Alliance filed a super complaint to the UK government in 2021, vouching for the government to repeal section 60 and put an end to "suspicion-less" stop and search. The report is connected to a previous report from 2017 in which a survey concludes that people of visible ethnic minorities are being disproportionately targeted by stop and search. The super-complaint brings up the issue of lacking data collection of Section 60 use, and the following issue of evaluation, transparency and accountability (Ali & Champion 2021). Similar to these previous articles, the evident disproportionate use of stop and search of people of visible minority background, is one reason that I think it is important to investigate stop and search to a larger extent. As especially suspicion-less stop and search is thought to be used disproportionately, extra careful consideration and evaluation of such policies should be conducted.

The implementation of stop and search zones could also be considered the implementation of suspicion-less stop and search in Denmark, which provides a unique possibility of evaluating the effects of suspicion-less stop and search on crime rates. In this essay, specifically the effects of S&S zones on violent crime is examined, which is thought to be equivalent or close to the effects of suspicion-less stop and search on violent crime. Both the policy implementation of S&S zones, as well as the possible differential effects induced by high or low levels of issued S&S zones are of interest in this article. A difference to some of the previously mentioned articles is the large sample size and time span, along with careful parallel trends analysis. Due to the non-existent empirical evidence of the effectiveness of Danish stop and search zones, the aim of this essay is to provide some. Another motif is to encourage further empirical research of the matter.

4. Empirical strategy

4.1 Data & Sample selection

Three panel datasets were used for this analysis. The first one collects information on S&S zones in Denmark from 2007-2022, the second one on violent crime along with underlying characteristics from 1993-2021 and the third one on different types of crime trends from 2007-2022. The data is collected annually, and the sample consists of the 98 Danish municipalities.

4.1.1 Explanatory variable data selection- S&S zones

A problem that I encountered and mentioned in the Background section was the lack of official data collection of the Danish S&S zones. As mentioned I used the collection from "Visitationszone.dk", which includes (1) the name of the issued S&S zone, consisting of the areas regarded, (2) the Police district which issued the S&S zone, (3) area, (4) population size, (5) time of issuing of and (6) expiry time of the S&S zone. The data was aggregated to municipality level, to increase the sample size from 14 Police districts to 98 municipalities, and thereby increase the precision and validity of the analysis. Further the municipalities in which the S&S zones were issued, along with the total time in hours of each stop and search zone were of interest. The municipality variable was created by map analysis of the S&S zones area compared to municipality borders, and the total time was calculated by time of issue and expiry. Lastly, a variable for the annual hours as an S&S zone by municipality was created. Out of Denmark's 98 municipalities, an S&S zone was ever issued in 35 municipalities, constituting the *Ever treated sample*. See a collected overview of this data in Table 1 of the Appendix. Those municipalities in which an S&S zone was never issued constitutes the *Never treated sample.* By using the mean violent crime rate of all municipalities and years, I also create a subsample of the municipalities above the mean as the *High violence municipalities.* Furthermore, I create subsamples within the group of *Ever treated* municipalities; *Highly treated* & *Lowly treated* and *Early treated* & *Late treated.* The level of what is considered "highly treated" is defined as a municipality of which the Annual hours as an S&S zone exceeds the total mean of Annual hours as S&S zones (1531). The *Early treated* is

defined as the municipalities in which an S&S zone is issued between 2007-2013, the *Late treated* as those treated only after 2013.

The time of implementation of S&S zones in Denmark was as mentioned in the background section 2004, however the first observation of the data set is from 2007. I also find no issued S&S zones for the Police districts from before 2007, which leads to a little bit of uncertainty for the years 2004-2007. As the violent-crime rate trends look approximately similar between 2004-2007 as between 2000-2004, I choose to conduct the main analysis with 2007 as the cutoff year for post-treatment. For robustness, I conduct the same analyses with 2004 as the cutoff year.

4.1.2 Outcome variable data selection- Gang-related crime

Next comes the selection of an outcome variable for gang-related crime. Gang-related crime is often mentioned as violent crime, property crime, drug crime and weapon crime, but could be defined in different ways. As the law of S&S zones in Denmark mainly concerns violent and weapon crime, these are the variables I wanted to use as outcome variables for the analysis. Getting an overview of the data availability, I found that weapon crime by municipality is only available from 2007 and onwards. Further, The Danish Ministry of Interior has published municipality level violent crime data since 1993 (Ministry of Interior 2022). Due to these conditions, I chose to use *Violent Crime rate* as the outcome variable for my analysis. Thereby the dataset from the Ministry of Interior was used, more specifically the variable "Reported violent crimes rate" on municipality level. Control variables of *Population size, Socioeconomic index, Total expenditures per capita, Social expenditures per capita* & *University educated share of population* were also collected from the same dataset. As the weapon crime was possible to acquire from 2007 and onwards, I plotted the rates for S&S versus No S&S municipalities in the Diagram 1 below. The groups seem to follow similar trends, but further analysis is necessary to draw conclusions on the S&S zones' effect on weapon crime.

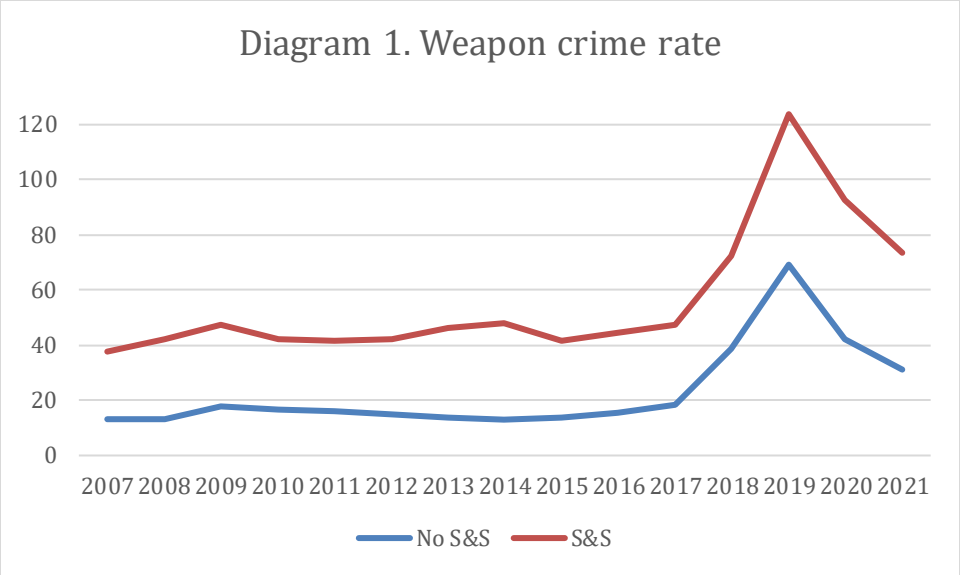

Diagram 1. Total weapon crime rate 2007-2021, aggregated by S&S vs No S&S groups. Data collected from Danmarks Statistik (2022).

Violent crime is of course not only gang-related at all, and it would be beneficial if it was possible to distinguish gang-related violent crime from non-gang-related violent crime. This type of data is unfortunately not possible to acquire as I am writing this essay, and therefore I use the violent crime rate in total. As some other components of violent crime such as domestic violence or bar fights should not be affected by S&S zones, this should at least decrease the effect of other types of violent crime on the results. The fact that violent crime has many components is still a possible source of error for the interpretations of the causal relationship between S&S zones and gang-related violence specifically. If there are drastic shifts in the trends of other violent crimes throughout the period, or if other types of violent crime are largely affected by S&S zones, this could intensify or diminish the effects of S&S zones on specifically gang-related violent crime. However, in the absence of more precise data, I will use violent crime rate as a whole for the outcome variable.

Compared to previous studies, and reflecting on the outcome variables, the rate of reported violent crime is one of several possible outcome variables. The number of recorded violent crimes is another, and the arrest rates another that have been used in other studies. The reason I chose reported rates was mostly a result of data availability, however I also plotted the number of reports

against convictions, and as seen below in Diagram 2 below, they largely follow the same trend. Another question in regard to the chosen variety of crime rate, is the one if perhaps S&S zones could implicate a higher share of total reported crimes leading to a conviction. This relationship is also depicted in Diagram 2 below, that the number of convictions in relation to total reported violent crimes is not increasing, but if anything, decreasing. One could investigate this further, but for the sake of this essay I will stick with total reported violent crimes. The violent crime conviction rate is available from 2007 and onwards, therefore this is the base year for Diagram 2. It is possible that rates differed largely before 2007.

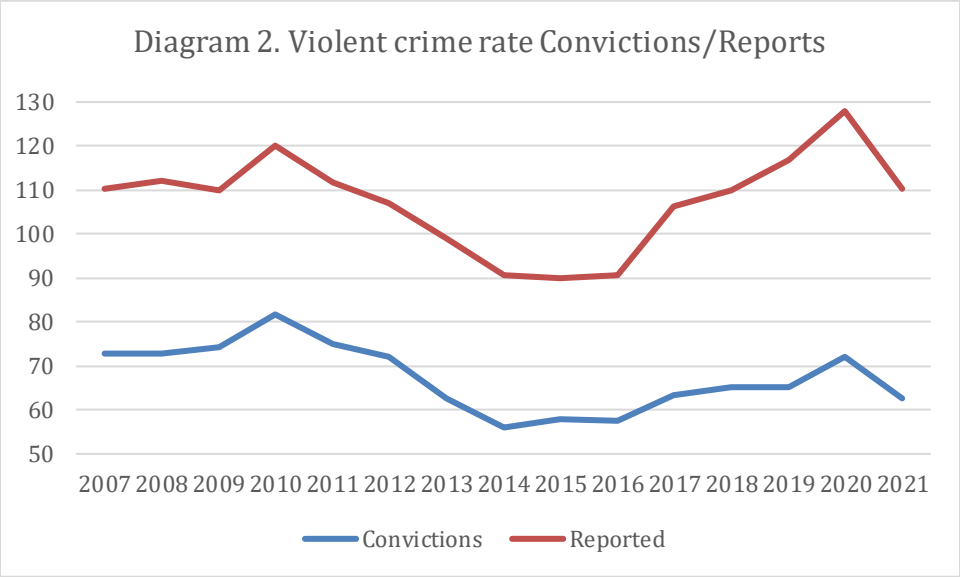

Diagram 2. Total weapon crime rate 2007-2021, aggregated by S&S vs No S&S groups. Data collected from Danmarks Statistik (2022).

Previous articles (e.g Tiratelli 2018, McCandless et. al 2016) use ambulance data on calls for violence-induced injury as robustness for the results. This type of data is only available from 2007 and onwards on municipality level, so to include this in the analysis would take another evaluation of a new data set with different characteristics and perhaps different parallel trends. Therefore, this is not included as a robustness check for my DiD analysis, but this would be an interesting extension for future research.

4.2 Empirical evaluation and approach

Evaluating the relation and causality between stop and search and crime rate is difficult, as stop and search is in general a responsive form of policing. It is difficult to establish whether stop and search is only a responsive measure and then simply reflect crime rates, or if stop and search affects crime rates more generally. However, evaluating the implementation and further dynamics of Stop and Search zones differs from simply evaluating stop and search, as this is a policy specifically designed to allow *suspicion-less* stops. As discussed in the background section, suspicion-less stop and searches are not purely responsive in their nature, like suspicion-based stops could be considered. If suspicion-based S&S was the causal variable of interest, the analysis would likely suffer from endogeneity, as S&S is largely determined by crime rates. The existence of S&S zones however allows us to evaluate the effect of suspicion-less stop and search on crime rates, which is not to the same rate a responsive measure. 63 out of Denmark's 98 municipalities never issued an S&S zone, and 17 of the 44 *High violence municipalities* never issued one, which supports the notion of treatment exogeneity for this analysis. If S&S zones would be responses to crime, they could be thought to be issued proportionately to crime rates in all, or most municipalities. For visual representation of the developments of S&S zones and violent crime rate developments over time, aggregated "S&S zone hours" and violent crime rates within municipalities Ever issued as an S&S zone are plotted in Diagram 3, with the same starting point to simply observe differences in trends. As seen, "S&S zone hours" follow a significantly different pattern than violent crime rates.

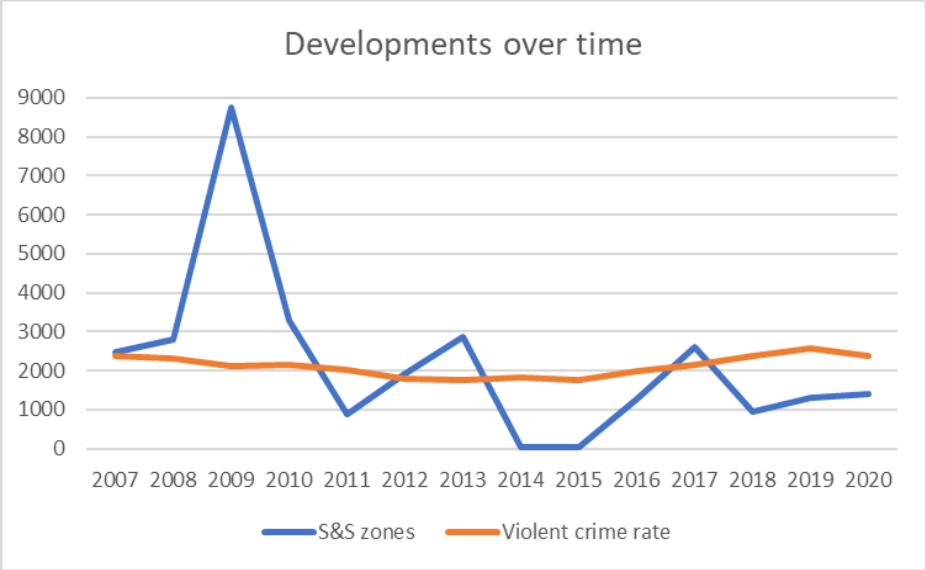

Diagram 3- Development of S&S zones hours and Violent crime rate 2007-2020. Data collected from Visitationszone.dk (2022) & Danmarks Statistik (2022).

To analyze questions of causality careful consideration is needed. The initial and most basic approach would be to use an LS regression model, regressing S&S zone hours on violent crime rates. In this setting, the random sample assumption would be clearly violated, as the basis of issuance of S&S zones cannot be certainly considered random. Omitted variable bias is a possible endogeneity source, as exactly what explains crime rates might not all be reflected by appropriate explanatory variables, nor be known at all. These are some examples that allow us to conclude that using a simple regression model might not give us adequate results. Considering other potential methods; as trends comparison between control and treatment groups is what is of largest interest here, a differences-in-differences approach could be a way to go. We thereby allow the group trends to differ, along with pre- and post-treatment time trends. DiD enables inclusion of group- and time differing effects without actually having to calculate these separately, as simply the differences are needed for analysis. Therefore, DiD seemed to be an appropriate approach for this analysis, as it allows comparison of simply the development of violent crime rates between groups, rather than the absolute levels. DiD also allows us to eliminate possible omitted variable bias to an extent, as some omitted variables could be assumed to be time-or group-invariant, and these are thereby not affecting the DiD results. Since I am using panel data across the sample of municipalities, standard errors are clustered at the Municipality Year level.

4.3 Differences-in-Differences design

4.3.1 Parallel trends

In this context, DiD is used as a quasi-experimental approach. The core identifying assumption required for DiD analysis is the parallel trends assumption. It entails that the treatment and control group should have the same expected trends pre- and post-treatment, had the treatment not existed. How to exactly fulfill this requirement is not clear-cut, but the identification often includes visually studying the trends of the outcome variable of interest prior to treatment in a diagram, and consideration of whether these could be considered parallel. Another common strategy to support the assumption of parallel trends prior to treatment is analysis of DiD coefficients in the years prior to treatment. If these estimates are statistically insignificant or zero, treatment and control groups can be considered to follow parallel trends in the pre-treatment period. I choose to use both measures to investigate parallel trends for the comparison groups in my analysis.

4.3.2 Treatment & Post-treatment periods

As the treatment here is not clear-cut but several dynamics are of interest, I use three different treatments and post-treatment periods in this analysis. Although not as straight-forward as just one treatment, I considered it important to try to answer different questions about this setting due to the lack of previous evidence. Thereby I use different "thresholds" for S&S zones data as treatment and post-treatment determination, described below

1) *Ever issued as an S&S zone as Treatment & Post 2006 as Post-treatment period*

The first DiD analysis uses a dummy variable that describes whether a municipality has ever been issued an S&S zone, the treatment group (S&S), or has never been issued an S&S zone, the control group (No S&S). The time of "post-treatment" is set to the years Post 2006, as 2007 is the first year of issued SS-zones. These analyses are conducted both for the whole sample, but also for only the group of municipalities with an above-mean violent crime rate (High violent crime).

2) *High S&S level as treatment & Post 2006 as Post-treatment period*

Potential effects of different levels of treatment are also of interest. In this setting, I use the "mean annual hours as an S&S zone" as the cutoff for high treatment (High S&S) and low treatment (Low S&S). This analysis is thereby conducted within the sample of S&S municipalities. Post 2006 is used as the post-treatment period, like in the first regression.

3) Early treated as Treatment & 2014-2015 as Post-treatment period

Working with the S&S-zone data set, I noticed a drop in the number of issued S&S-zones in 2014 and 2015 compared to the years before and after, depicted in Diagram 3. As this is approximately the middle of the treatment period, I thought it would be interesting to compare those treated between 2007-2013 (Early S&S), to those later treated, in 2016 or later (Late S&S). This was inspired by the analysis of (Fadlon & Nielsen 2019), in which they both compare treatment and control groups that receive the same shocks but in different periods, the time of comparison set to the years between the groups' shocks (Fadlon & Nielsen 2019). I conducted an additional analysis between the Early S&S, to the never treated (No S&S). The years of treatment, 2007-2013 were excluded from analysis, as the treatment is considered ongoing in these years, and the years up until 2006 were considered for parallel trends analysis. Lastly, all municipalities treated in 2014 and 2015 are excluded from these analyses. To have a clear "after-period" can be beneficial, as it is then more of a clear post-treatment period rather than during ongoing treatment. However just looking at these two years results in substantially less data and complicates drawing conclusions from the results in terms of both internal and external validity.

4) S&S or High S&S as Treatment & the first issued S&S zone-year as Post-treatment cutoff

In this analysis, the treatments of (1) and (2) are used, but the analysis differs as "years to treatment" is normalized such that year 0 is the first year of an issued S&S zone, respectively the first year of receiving "high treatment" in the municipality, year 0 being the post-treatment cutoff. For the No S&S control group, the mean of the normalized year was used to create the counterfactual normalized years. This could be expanded as in (Fadlon & Nielsen 2019) paper, in which they match the counterfactual "time of treatment" of the control group to the treatment group.

4.3.3 Parallel trends analysis

Now that the treatments and post-treatment periods are defined, the identification strategy can be used for parallel trends comparison, to conclude whether the treatment and control groups fulfill the identifying assumption. Here follows both diagrams of the violent crime rate trends prior to treatment for visual interpretation, followed by tables presenting DiD estimates of the years prior to treatment.

Diagrams

Here follows Diagrams 4-10 for graphical presentation of trends across groups. Note that the y-axis intervals have been adapted to the intervals specific to each analysis, to simplify comparison of trends. The Diagrams 4-10 below plots the violent crime rates across different treatment and control groups for different time intervals prior to treatment.

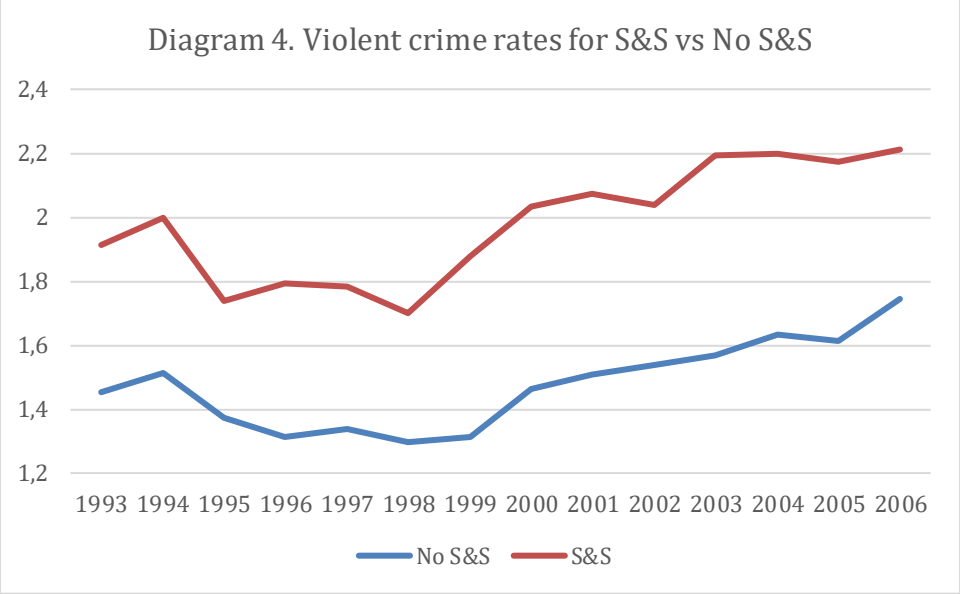

Diagram 4. Mean violent crime rate 1993-2006 for S&S vs No S&S groups. All observations included; data collected from Visitationszone.dk & the Ministry of Interior (2022).

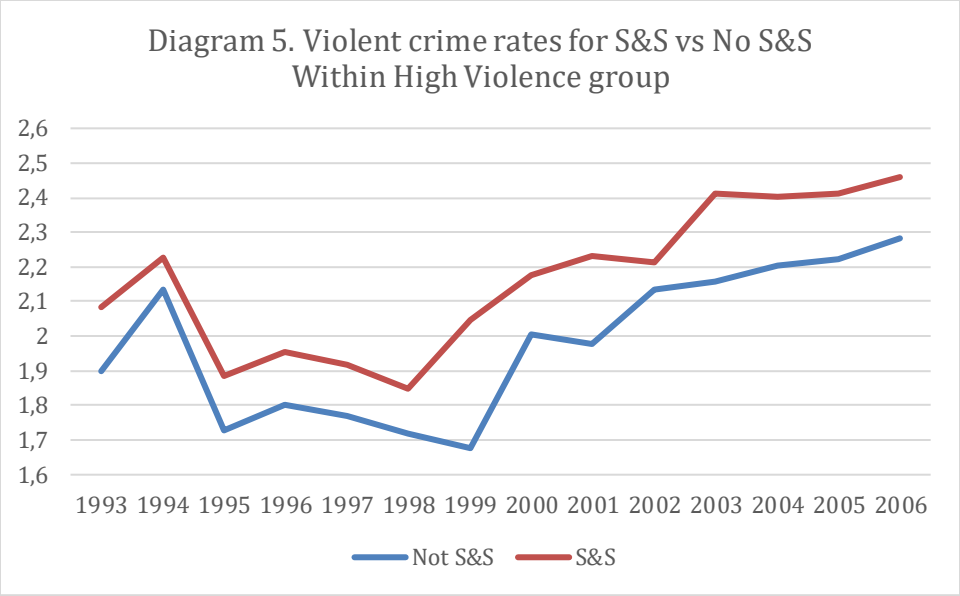

Diagram 5. Mean violent crime rate 1993-2006 for S&S vs No S&S groups. Only "High violence" municipalities included, defined as "above the mean Violent crime rate"

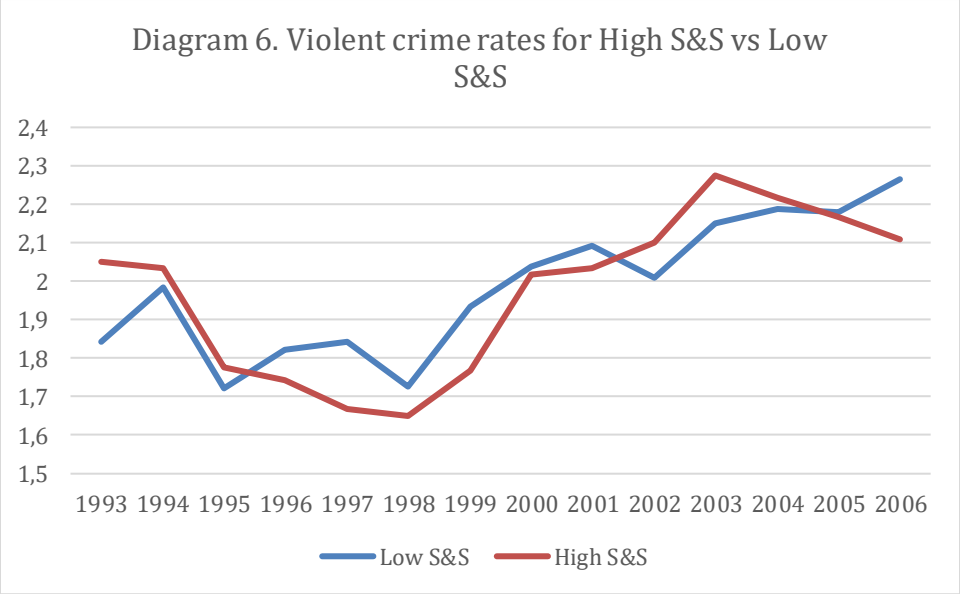

Diagram 6. Mean violent crime rate 1993-2006 for High S&S vs Low S&S groups. Only S&S municipalities included, defined as the Ever-treated municipalities. Data collected from Visitationszone.dk & the Ministry of Interior (2022).

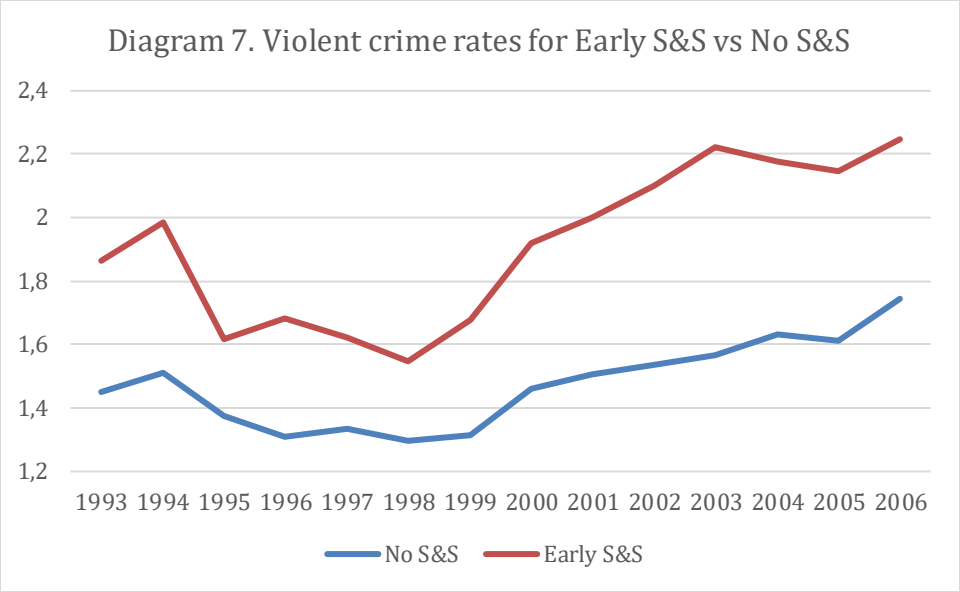

Diagram 7. Mean violent crime rate 1993-2006 for Early S&S vs No S&S groups. The Late S&S municipalities excluded. Data collected from Visitationszone.dk & the Ministry of Interior (2022).

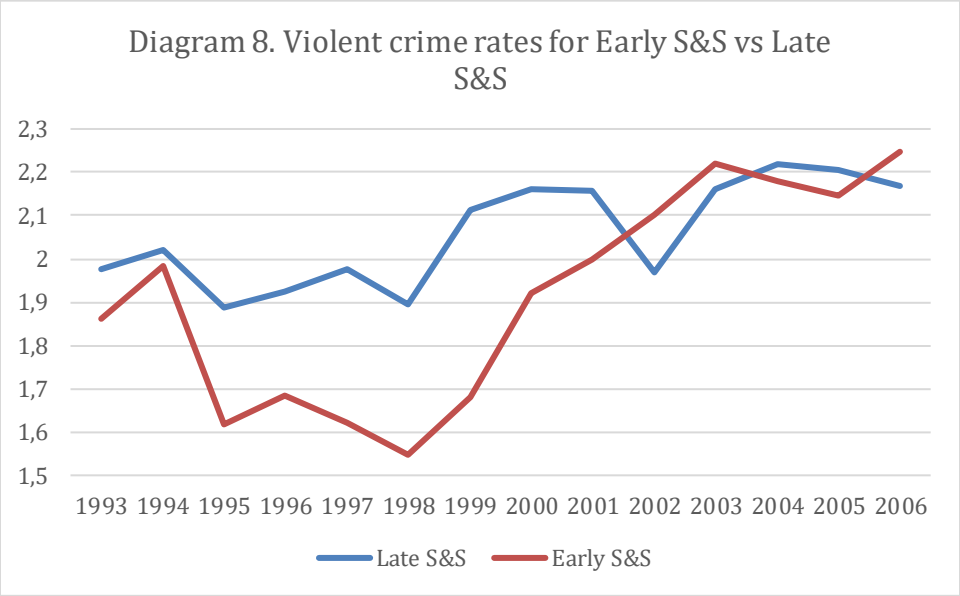

Diagram 8. Mean violent crime rate 1993-2006 for Early S&S vs Late S&S groups. Only the S&S municipalities included. Data collected from Visitationszone.dk & the Ministry of Interior (2022).

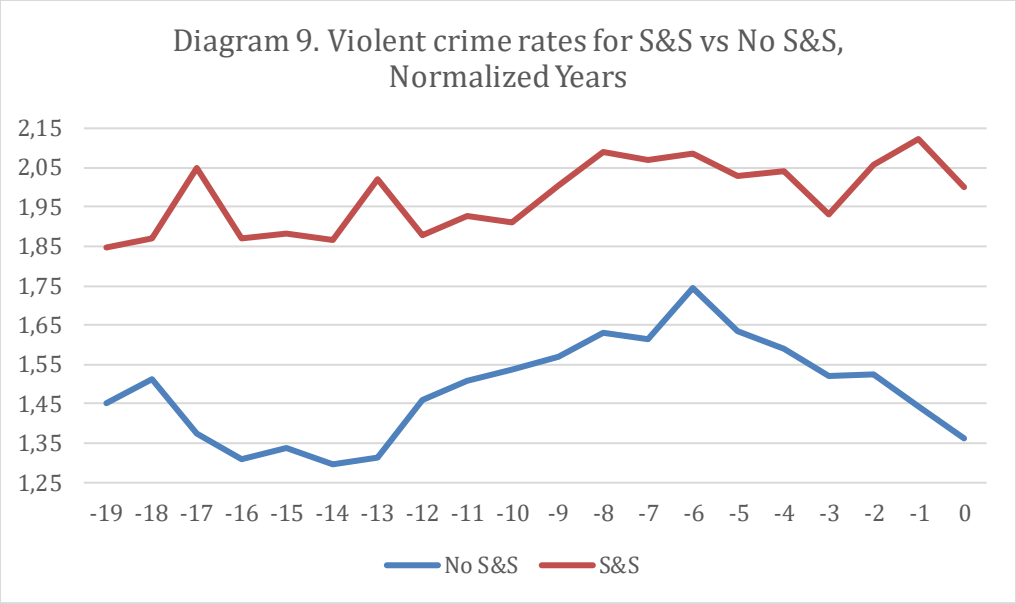

Diagram 9. Mean violent crime rate for the normalized years prior to Treatment (the first issued S&S zone) for the S&S group and placebo normalized years prior to Treatment for the No S&S group. Data collected from Visitationszone.dk & the Ministry of Interior (2022).

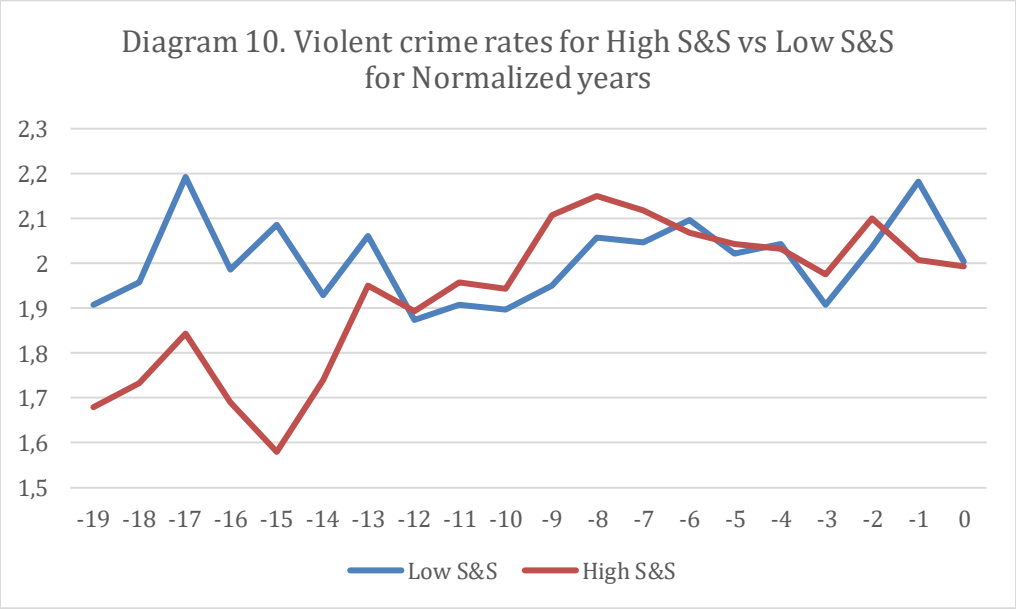

Diagram 10. Mean violent crime rate for the normalized years prior to Treatment (the first year of "high S&S zones rate", defined as above the total annual mean within the S&S group) for the High vs Low treated S&S municipalities, Non-S&S municipalities excluded. Data collected from Visitationszone.dk & the Ministry of Interior (2022).

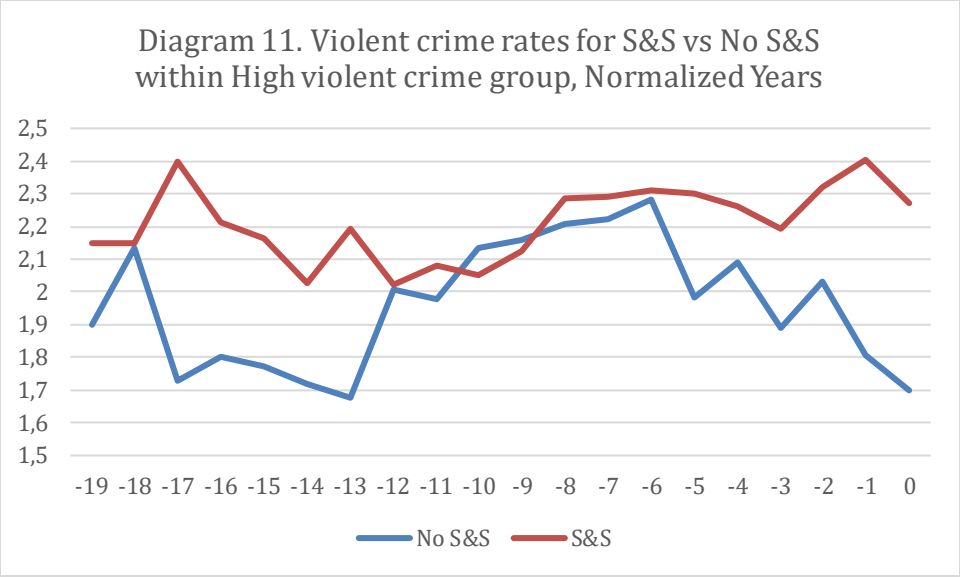

Diagram 11. Mean violent crime rate for the normalized years prior to Treatment (the first issued S&S zone) for the S&S group and placebo normalized years prior to Treatment for the No S&S group, within the High violence sample. Data collected from Visitationszone.dk & the Ministry of Interior (2022).

From studying the diagrams, I exclude one possible comparison due to obviously differing previous trends; seen in diagram 11.

DiD estimates

For the next step, I am using the DiD estimates comparing the "base year", the year prior to treatment, to the 6 previous years. Parallel trends DiD equation for Regular Treatment Year is presented in Equation (1) below, and Parallel trends DiD equation for Normalized Treatment Year is displayed in Equation (2) below. The δ is the DiD coefficient of interest, presented in Table 1 & 2 below for the different comparison groups.

$$(1)\ y_{it} = \alpha + \beta_1 \cdot Treat_i + \sum_{T=(2005)}^{2000} \beta_T \cdot Lag_T + \sum_{T=(2005)}^{2000} \delta \cdot Treat_i \cdot Lag_T + \beta X_{it} + \varepsilon_{it}$$

$$(2)\ y_{it} = \alpha + \beta_1 \cdot Treat_i + \sum_{T=(-6)}^{-2} \beta_T \cdot Lag_T + \sum_{T=(-6)}^{-2} \delta \cdot Treat_i \cdot Lag_T + \beta X_{it} + \varepsilon_{it}$$

TABLE 1: Pre-treatment DiD estimates by Regular Year

VARIABLES	(1) S&S vs No S&S	(2) S&S vs No S&S within High violent crime	(3) High S&S vs Low S&S	(4) Early S&S vs No S&S
2006	0	0	0	0
	(0.0)	(0.0)	(0.0)	(0.0)
2005	0.076	0.013	0.136	-0.032
	(0.019)	(0.026)	(0.031)	(0.033)
2004	0.048	-0.018	0.174	0.010
	(0.025)	(0.023)	(0.030)	(0.036)
2003	0.114	0.075	0.287	0.174
	(0.024)	(0.034)	(0.152)	(0.038)
2002	-0.038	-0.112	0.258**	0.017
	(0.030)	(0.066)	(0.018)	(0.048)
2001	0.028	0.080	0.073	-0.014
	(0.023)	(0.033)	(0.021)	(0.021)
2000	0.014	-0.006	0.091	-0.077
	(0.022)	(0.076)	(0.051)	(0.024)

*Table 1. Violent Crime rates' DiD estimates summary from Tables 2-5 of Appendix, calculated according to Equation (1). 2006 as baseline year, comparison groups described in table. Data collected from Visitationszone.dk & the Ministry of Interior (2022). Standard errors are clustered by municipality and year, reported in parentheses. (*** p<0.01, ** p<0.05, * p<0.1)*

TABLE 2: Pre-treatment DiD estimates by Normalized Year

VARIABLES	(1) S&S vs No S&S	(2) High S&S vs Low S&S
-1	0	0
	(0.0)	(0.0)
-2	-0.138	0.222
	(0.134)	(0.182)
-3	-0.260**	0.158
	(0.130)	(0.213)
-4	-0.248*	0.087
	(0.134)	(0.163)
-5	-0.303**	0.081
	(0.140)	(0.193)
-6	-0.403***	0.116
	(0.139)	(0.273)
-7	-0.300**	0.116
	(0.139)	(0.222)

*Table 2. Violent Crime rates' DiD estimates summary from Tables 6-7 of Appendix, calculated according to Equation (2). The first year of treatment for S&S municipalities vs placebo first year of treatment for Non-S&S municipalities is used as baseline year 0, comparison groups described in table. Data collected from Visitationszone.dk & the Ministry of Interior (2022). Standard errors are clustered by municipality and year, reported in parentheses. (*** p<0.01, ** p<0.05, * p<0.1).*

Observing these DiD estimates, one lag of significant difference is shown in column (3) in Table 1, however since this is only one out of the six lags, I choose to disregard this. In table 2 column 1, all but one lag is significantly different. Therefore, I choose to exclude this comparison from the analysis, as the identifying assumption is not fulfilled

4.3.4 DiD regressions

Next comes the definition of the DiD regressions. First off, Equation (3) displays the baseline DiD regression that is used for all analyses but for different definitions of *Treated* and *PostTreatment.* Both these are dummy variables, that equal one for the Treated respectively Post-treatment, and

zero for the Untreated respectively Pre-treatment. The δ is the DiD coefficient of interest, and X_{it} consists of the control variables added to the regressions.

$$(3)\ y_{it} = \alpha + \beta_1 \cdot Treated_i + \beta_2 \cdot PostTreat_{it} + \delta \cdot Treated_i \cdot PostTreat_{it} + \beta X_{it} + \varepsilon_{it}$$

Next follows the DiD regressions in which "Post 2006" is the defined post-treatment period. For Equation (4), the treatment is *S&S*, the municipalities in which an S&S zone was ever issued. For Equation (5), the treatment *HighS&S* is defined as described in section 4.3.2.

$$(4)\ y_{it} = \alpha + \beta_1 \cdot S\&S_i + \beta_2 \cdot Post2006_{it} + \delta \cdot S\&S_i \cdot Post2006_{it} + \beta X_{it} + \varepsilon_{it}$$

$$(5)\ y_{it} = \alpha + \beta_1 \cdot HighS\&S_i + \beta_2 \cdot Post2006_{it} + \delta \cdot HighS\&S_i \cdot Post2006_{it} + \beta X_{it} + \varepsilon_{it}$$

Equation (6) displays the DiD equation in which the treatment is *EarlyS&S*. The Post-treatment period *Midperiod* is defined as 2014 and 2015.

$$(6)\ y_{it} = \alpha + \beta_1 \cdot EarlyS\&S_i + \beta_2 \cdot Midperiod_{it} + \delta \cdot EarlyS\&S_i \cdot Midperiod_{it} + \beta X_{it} + \varepsilon_{it}$$

Lastly, Equation (7) is the regression in which the Year of treatment is normalized to zero, and the treatment *HighS&S* is defined as for Equation (5). Using a DiD regression with a normalized year of treatment aims to capture the dynamics and implications of differential timing of treatment.

$$(7)\ y_{it} = \alpha + \beta_1 \cdot HighS\&S_i + \beta_2 \cdot PostYear0_{it} + \delta \cdot HighS\&S_i \cdot PostYear0_{it} + \beta X_{it} + \varepsilon_{it}$$

4.3.5 Robustness checks

Robustness checks are made in order to include possible effects that could alter the results, and thereby check whether the results are robust or not. I conduct three robustness checks for my results as follows.

5. Different interpretations of new laws and policies such as Bandepakken across Police Districts could bias the DiD estimates. Police spending is also a possible determinant for crime rates, and this is constant within districts. Therefore I run all DiD analyses with

additional Police District-specific dummy variables to each analysis, to see if this alters the results.

6. The annual hours of S&S zones in the municipality of Copenhagen is noticeably higher and more frequent than in any other municipality, as seen in Table 1 of the Appendix. To check whether the inclusion of Copenhagen biases the results, the municipality is excluded from all DiD analyses as a robustness check.

7. Lastly, I chose the base year 2007 as this is the year of the first observation of the dataset, however the S&S zones policy was implemented in 2004. As there is a possibility that S&S zones were issued from 2004-2007, a robustness check with 2004 as the base year for all DiD analyses with 2007 as base year is conducted.

8. Results

TABLE 3: Violent crime rate on S&S as treatment

VARIABLES	(1) S&S vs No S&S	(2) (1) with controls	(3) (1) Within high violence only	(4) (3) with controls
S&S	0.504535***	0.024566	0.179437*	-0.124743
	(0.091)	(0.091)	(0.089)	(0.088)
Post 2006	0.004528	-0.192378	-0.084724	-0.445755*
	(0.063)	(0.178)	(0.090)	(0.232)
S&S x Post 2006	0.029388	0.179078***	0.153507**	0.281150***
	(0.048)	(0.061)	(0.067)	(0.074)
Population		0.000002***		0.000001
		(0.000)		(0.000)
Socioeconomic index		1.167816***		0.956421***
		(0.197)		(0.252)
Social expenditure		0.035597*		0.009749
		(0.020)		(0.020)
University education share		-0.006764		0.002467
		(0.005)		(0.010)
Total Expenditure		-0.000005		0.000004
		(0.000)		(0.000)
Constant	1.476651***	0.536665***	1.982203***	0.824549***
	(0.060)	(0.184)	(0.081)	(0.268)
Observations	2,739	2,314	1,230	1,032
R-squared	0.161	0.446	0.058	0.242

*Table 3. Violent Crime rates' DiD estimates, calculated according to Equation (4). Data from 1993-2020 is used for the analysis, Post 2006 as the cutoff for post-treatment. Comparison groups described in table. For column 1 & 2 the whole sample is used, for column 4 & 4 only the municipalities above the mean violent crime rate are included. Data collected from Visitationszone.dk & the Ministry of Interior (2022). Standard errors are clustered by municipality and year, reported in parentheses. (*** p<0.01, ** p<0.05, * p<0.1)*

TABLE 4: Violent crime rate on High S&S as treatment

VARIABLES	(1) High S&S vs Low S&S	(2) (1) with controls	(3) High S&S vs Low S&S	(4) (3) with controls
High S&S	0.027527	-0.115543	-0.003640	-0.157580
	(0.187)	(0.118)	(0.197)	(0.121)
Post 2006	0.063661	-0.212409		
	(0.096)	(0.222)		
High x Post 2006	-0.080030	0.041088		
	(0.089)	(0.081)		
Population		0.000003***		0.000003***
		(0.000)		(0.000)
Socioeconomic index		1.031529***		1.092926***
		(0.277)		(0.254)
Social expenditure		0.032849		0.045336**
		(0.021)		(0.018)
University education share		-0.014974**		-0.011212
		(0.007)		(0.007)
Total Expenditure		0.000005		0.000001
		(0.000)		(0.000)
Post Year 0			0.002537	-0.302384**
			(0.122)	(0.131)
High S&S x Post Year 0			-0.024248	0.116311
			(0.134)	(0.082)
Constant	1.971729***	0.581778	2.001109***	0.481674
	(0.088)	(0.351)	(0.089)	(0.326)
Observations	979	817	979	817
R-squared	0.002	0.455	0.000	0.469

*Table 4. Violent Crime rates' DiD estimates, calculated according to Equation (5) for column 1 & 2, and according to Equation (7) for column 3 & 4. Data from 1993-2020 is used for the analysis, Post 2006 as the cutoff for post-treatment for column 1 & 2. For column 3 & 4, the first year of treatment for S&S is used as the post-treatment cutoff Post Year 0, comparison groups described in table. Data collected from Visitationszone.dk & the Ministry of Interior (2022). Standard errors are clustered by municipality and year, reported in parentheses. (*** p<0.01, ** p<0.05, * p<0.1)*

TABLE5: Violent crime rate on Early S&S as treatment

VARIABLES	(1) Early S&S vs No S&S	(2) (1) With controls
Early S&S	0.409956***	0.086039
	(0.103)	(0.121)
Midperiod	-0.271096***	-0.962880***
	(0.042)	(0.115)
Early S&S x Midperiod	-0.162386***	0.058245
	(0.009)	(0.094)
Population		0.000003***
		(0.000)
Socioeconomic index		0.667938**
		(0.270)
Social expenditure		0.085166***
		(0.016)
University education share		-0.006413
		(0.004)
Total expenditure		0.000011
		(0.000)
Constant	1.476651***	0.475855**
	(0.061)	(0.183)
Observations	1,260	1,023
R-squared	0.115	0.419

*Table 5. Violent Crime rates' DiD estimates, calculated according to Equation (6). Data from 1993-2006 and 2014-2015 is used for the analysis, 2014 and 2015 constituting the Midperiod or post-treatment period. The data between 2007-2013 is excluded due to ongoing treatment. The sample is trimmed as follows; all municipalities receiving S&S treatment in the late period are excluded, along with all municipalities in which an S&S zone was issued in 2014 or 2015. Data collected from Visitationszone.dk & the Ministry of Interior (2022). Standard errors are clustered by municipality and year, reported in parentheses. (*** p<0.01, ** p<0.05, * p<0.1)*

Robustness checks

As the robustness checks tables are large and many, these are to be found in the Appendix. Robustness check 1 can be found in Tables 8-10, Robustness check 2 in Tables 11-12 and lastly Robustness check 3 can be found in Tables 13-14.

9. Discussion

The DiD coefficients from Table 3 are positive and significant at the 5% level, except for the first column comparing Ever and Never treated groups without control variables, for which the coefficient is insignificant. A positive significant coefficient entails a positive effect of the treatment on the outcome variable, in this setting an increase in the violent crime rate. In the context of Table 3, this would imply that the first treatment of S&S implementation (S&S), induced a relative increase in the violent crime rates in municipalities in which an S&S zone was ever issued. These results are concluded for the whole sample in column (2), and for the municipalities within the high violence sample in (3) & (4).

The DiD coefficients from Table 4 are all insignificant. This entails that within the group of Ever treated, there are no significantly differential effects of receiving High S&S or Low S&S treatment. Thereby, no significant effects of treatment level can be observed for this analysis. In column (3) and (4) the normalized first year of a high level of S&S zones hours issued for a municipality is used as the base year. These results might have some implications as for internal validity, perhaps adjusting for the differential timing of treatment does not change the results of this analysis. This should however not be considered a conclusion but should be studied to a larger extent first.

The results from Table 5 column (1) gives us the only significantly negative DiD coefficient throughout this analysis. This is interpreted as S&S treatment in the early period of 2007-2013 might have induced a relative decrease in violent crime rates compared to the never treated group. However, the fact that the post-treatment period consists of only two years is a weakness of this analysis, as this substantially reduces the number of observations for the post-treatment period and thereby decreases the validity of these results. The DiD coefficient in the second column for the same analysis but with added control variables is insignificant, which may indicate that the result from column (1) could be due to a lack of further explanatory variables.

For the robustness checks, the general conclusion is that the results are similar or the same as the main results. Some coefficients increase respectively decrease, but none shift from significant to non-significant or the opposite, with two exceptions in the 2004 as base year robustness check.

Firstly, the estimate for Ever vs Never treated within the "high violence" sample shifts from a significantly positive estimate to an insignificant one. Secondly, the coefficient for comparison between High and Low treated municipalities within the Ever-treated group shifts from insignificant to significantly positive. The implications of these differences are difficult to interpret, as six of the eight coefficients for this analysis do not show significant difference to the main analysis. Perhaps the differential results imply that S&S zones were actually issued before 2007, or some unaccounted-for shock affected the estimates. Considering that 26 robustness check DiD coefficients were calculated, and that only two differed significantly, the results can be considered highly robust, and the internal validity of the quasi-experiment high.

To discuss the results in terms of previous literature, the results of my analysis are in line with the findings of previous literature. The imprecise nature of Danish stop and search zones to often cover whole cities or municipalities also goes against the evidence from the "hot-spots" literature, of targeting interventions as much as possible to high crime rate areas. For example, both Copenhagen and Odense have often been issued as stop and search zones as whole cities and municipalities. Further, the implementation of Bandepakken and their extensive measures could be efficient at reducing gang-related crime in general, however the stop and search zones should not be considered to do so in terms of violent crime. The implications for other types of crime could be further analyzed, however the effect on violent crime would be most interesting in terms of the phrasing of the stop and search zones law.

The lack of data is a further problem in terms of evaluation and transparency. Policy and law evaluation are important to ensure efficient resource allocation, and for the transparency of state financed authorities. The effects of suspicion-less stop and search and S&S zones on the trust in the Police force is further interesting and important, but not something I had the chance to dive further into in this essay. The issue of disproportionate use of suspicion-less stop and search of visible ethnic minorities adds further dimension to why policy and law legalizing suspicion-less stop and search should be carefully evaluated. As the crime-reducing effect of the suspicion-less type specifically is not supported by empirical evidence, implementation could be thought to cause further alienation and segregation of ethnic minorities.

10. Conclusion

The aim of the implementation of stop and search zones in Denmark was according to the phrasing of the law to reduce violent crime. As stop and search zones according to this analysis do not seem to have reducing effects on violent crime, this could suggest caution to the implementation of such policy in other countries. Further analysis is needed, but in conclusion; most results of the DiD estimates suggest insignificant effects of the different S&S treatments on violent crime rates, three estimates show positive significant effects, and one shows negative significant effects of treatment. As to answer the question of whether stop and search zones in Denmark is an efficient measure at reducing violent crime, the answer would be no. This conclusion is in line with previous research and evidence of stop and search zones and suspicion-less stop and search.

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12. Appendix

Table 1- S&S zones statistics

Municipality	S&S Frequency	S&S Total Hours
Aabenraa	3	485
Aalborg	2	744
Aarhus	15	7094
Albertslund	4	1993
Ballerup	18	7914
Brondby	3	404
Esbjerg	13	5239
Faxe	1	24
Fredensborg	9	3473.5
Frederica	2	672
Frederiksberg	14	4784
Fureso	1	528
Gladsaxe	26	9079
Greve	3	1110
Guldborgsund	7	2245.5
Helsingor	2	1344
Herlev	24	9119
Hillerod	3	775
Hoje Taastrup	4	2412
Holbaek	3	1232
Horsens	2	864
Horsholm	9	3473.5
Hvidovre	3	1080
Ishoj	4	2330
Kobenhavn	88	37199
Koge	4	2379
Kolding	1	624
Lolland	5	1378
Naestved	3	696
Nyborg	1	168
Odense	29	9769
Rodovre	11	3446
Roskilde	1	672
Slagelse	2	336
Svendborg	1	12
Total	321	115905

Parallel trends- Tables

TABLE 2: S&S vs No S&S- Baseline Year 2006

VARIABLES	(1) 2005	(2) 2004	(3) 2003	(4) 2002	(5) 2001	(6) 2000
S&S	0.042	-0.044	-0.010	0.033	0.065	0.039
	(0.106)	(0.173)	(0.141)	(0.098)	(0.070)	(0.080)
Year dummy	-0.106**	-0.047	-0.077	-0.034	-0.131	-0.145
	(0.007)	(0.020)	(0.048)	(0.047)	(0.158)	(0.184)
S&S x Year dummy	0.076	0.048	0.114	-0.038	0.028	0.014
	(0.019)	(0.025)	(0.024)	(0.030)	(0.023)	(0.022)
Population	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Socioeconomic status	0.871	1.261	1.117	0.895	0.994	1.080
	(0.290)	(0.647)	(0.494)	(0.255)	(0.387)	(0.421)
Social expenditure	0.067	0.053	0.071	0.050	0.025	0.046
	(0.035)	(0.038)	(0.036)	(0.040)	(0.067)	(0.040)
University education share	-0.014	-0.011	-0.009	-0.018	-0.017	-0.012
	(0.007)	(0.006)	(0.007)	(0.008)	(0.007)	(0.005)
Total expenditure	0.000	0.000	-0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	0.251	0.078	0.412	0.284	0.674	0.640
	(0.386)	(0.467)	(0.184)	(0.384)	(0.410)	(0.345)
Observations	190	190	190	190	190	190
R-squared	0.466	0.475	0.450	0.472	0.443	0.465

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 3: S&S vs No S&S Within High Violent crime rates group- Baseline Year 2006

VARIABLES	(1) 2005	(2) 2004	(3) 2003	(4) 2002	(5) 2001	(6) 2000
S&S	-0.058	-0.192	-0.242	-0.149	-0.148	-0.112
	(0.022)	(0.146)	(0.194)	(0.092)	(0.069)	(0.040)
Year dummy	-0.056	-0.013	-0.070	-0.093	-0.257	-0.348
	(0.054)	(0.052)	(0.098)	(0.124)	(0.247)	(0.374)
S&S x Year dummy	0.013	-0.018	0.075	-0.112	0.080	-0.006
	(0.026)	(0.023)	(0.034)	(0.066)	(0.033)	(0.076)
Population	0.000	0.000	-0.000	0.000	0.000	0.000

	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Socioeconomic status	0.377	1.115	1.156	0.749	0.897	1.007
	(0.121)	(0.885)	(0.894)	(0.417)	(0.613)	(0.630)
Social expenditure	-0.078	-0.096	-0.068	-0.121	-0.117	-0.097
	(0.028)	(0.044)	(0.022)	(0.080)	(0.064)	(0.043)
University education share	-0.006	0.008	0.035	0.001	-0.006	-0.002
	(0.021)	(0.010)	(0.022)	(0.020)	(0.024)	(0.023)
Total expenditure	0.000	0.000	0.000	0.000	0.000*	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	0.565*	0.456	0.308	0.502*	0.799	1.303
	(0.055)	(0.289)	(0.221)	(0.070)	(0.533)	(0.806)
Observations	84	84	84	84	84	84
R-squared	0.301	0.330	0.379	0.324	0.403	0.376

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 4: High S&S vs Low S&S- Baseline Year 2006

VARIABLES	(1) 2005	(2) 2004	(3) 2003	(4) 2002	(5) 2001	(6) 2000
High S&S	-0.214	-0.227	-0.333	-0.178	-0.205	-0.188
	(0.079)	(0.068)	(0.193)	(0.061)	(0.070)	(0.073)
Year dummy	-0.083	-0.070	-0.127	-0.254	-0.066	-0.076
	(0.013)	(0.113)	(0.166)	(0.256)	(0.404)	(0.414)
High S&S x Year dummy	0.136	0.174	0.287	0.258**	0.073	0.091
	(0.031)	(0.030)	(0.152)	(0.018)	(0.021)	(0.051)
Population	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Socioeconomic status	0.437	1.231	1.493	0.791	0.877	0.967
	(0.534)	(1.204)	(1.231)	(0.653)	(0.838)	(0.728)
Social expenditure	-0.002	-0.092	-0.004	-0.064	-0.079	-0.043
	(0.050)	(0.068)	(0.056)	(0.048)	(0.069)	(0.023)
University education share	-0.025	-0.031	-0.010	-0.034	-0.030	-0.027
	(0.008)	(0.013)	(0.028)	(0.008)	(0.010)	(0.007)
Total expenditure	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-0.229	-0.155	0.342	0.558	0.272	0.414
	(0.598)	(0.515)	(0.570)	(1.095)	(1.117)	(0.910)
Observations	66	66	66	66	66	66

R-squared	0.524	0.561	0.457	0.529	0.490	0.520

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 5: Early S&S vs No S&S- Baseline Year 2006

VARIABLES	(1) 2005	(2) 2004	(3) 2003	(4) 2002	(5) 2001	(6) 2000
Early S&S	0.226	0.177	0.209	0.207	0.246	0.206
	(0.113)	(0.151)	(0.127)	(0.104)	(0.081)	(0.102)
Year	-0.104**	-0.006	-0.044	0.050	-0.129	-0.106
	(0.007)	(0.038)	(0.039)	(0.100)	(0.201)	(0.202)
Early S&S x Year	-0.032	0.010	0.174	0.017	-0.014	-0.077
	(0.033)	(0.036)	(0.038)	(0.048)	(0.021)	(0.024)
Population	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Socioeconomic status	0.598	0.634	0.552	0.510	0.432	0.633
	(0.391)	(0.446)	(0.380)	(0.314)	(0.304)	(0.410)
Social expenditure	0.100	0.146	0.137	0.107	0.105	0.103
	(0.058)	(0.041)	(0.046)	(0.047)	(0.051)	(0.050)
University education share	-0.012	-0.002	-0.006	-0.015	-0.010	-0.007
	(0.010)	(0.009)	(0.007)	(0.010)	(0.005)	(0.006)
Total expenditure	0.000	-0.000	-0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	0.579	0.191	0.802	0.302	1.199	0.921
	(0.455)	(0.740)	(0.195)	(0.796)	(0.699)	(0.443)
Observations	154	154	154	154	154	154
R-squared	0.393	0.429	0.405	0.437	0.385	0.390

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 6: S&S vs No S&S- Baseline Year (-1)

VARIABLES	(1) Year -2	(2) Year -3	(3) Year -4	(4) Year -5	(5) Year -6	(6) Year -7
S&S	0.284**	0.345***	0.379***	0.386***	0.379***	0.348***
	(0.113)	(0.109)	(0.112)	(0.117)	(0.116)	(0.115)
Year dummy	0.064	0.055	0.140	0.182*	0.336***	0.156
	(0.081)	(0.081)	(0.088)	(0.099)	(0.103)	(0.108)
S&S x Year	-0.138	-0.260**	-0.248*	-0.303**	-0.403***	-0.300**

dummy						
	(0.134)	(0.130)	(0.134)	(0.140)	(0.139)	(0.139)
Population	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Socioeconomic status	1.379***	1.092***	0.973***	0.944***	1.076***	1.212***
	(0.236)	(0.225)	(0.232)	(0.239)	(0.242)	(0.241)
Social expenditure	-0.012	-0.009	0.001	0.005	0.007	-0.003
	(0.015)	(0.014)	(0.015)	(0.016)	(0.016)	(0.016)
University education share	-0.019***	-0.019***	-0.018***	-0.016***	-0.017***	-0.019***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Total expenditure	-0.000*	-0.000***	-0.000***	-0.000**	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	0.914**	1.305***	1.199***	1.279***	1.007**	0.974***
	(0.389)	(0.316)	(0.354)	(0.371)	(0.407)	(0.271)
Observations	193	193	193	193	191	191
R-squared	0.563	0.567	0.533	0.515	0.486	0.506

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 7: High S&S vs Low S&S- Baseline Year (-1)

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Year -2	Year -3	Year -4	Year -5	Year -6	Year -7
High S&S	-0.031	-0.063	-0.047	-0.043	-0.067	-0.055
	(0.201)	(0.188)	(0.212)	(0.216)	(0.246)	(0.213)
Year dummy	-0.137	-0.273**	-0.165	-0.211	-0.130	-0.224
	(0.145)	(0.099)	(0.104)	(0.142)	(0.265)	(0.221)
High S&S x Year dummy	0.222	0.158	0.087	0.081	0.116	0.116
	(0.182)	(0.213)	(0.163)	(0.193)	(0.273)	(0.222)
Population	0.000**	0.000	0.000	0.000	0.000**	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Socioeconomic status	0.983**	1.152**	0.992**	1.094***	0.982**	0.996***
	(0.396)	(0.488)	(0.329)	(0.347)	(0.421)	(0.260)
Social expenditure	0.066**	0.072*	0.051	0.052	0.022	0.011
	(0.026)	(0.037)	(0.035)	(0.039)	(0.035)	(0.041)
University education share	-0.025	-0.017	-0.022	-0.023	-0.027*	-0.033***
	(0.015)	(0.018)	(0.014)	(0.015)	(0.014)	(0.010)
Total expenditure	-0.000**	-0.000**	-0.000*	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	2.005***	2.032***	2.023***	1.926***	1.625**	1.723***

	(0.518)	(0.520)	(0.452)	(0.437)	(0.712)	(0.382)
Observations	67	67	67	67	66	66
R-squared	0.615	0.652	0.589	0.571	0.490	0.537

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Robustness checks

Within Police Districts

TABLE 8: S&S vs No S&S robustness check for Police Districts

VARIABLES	(1) S&S	(2) S&S with controls	(3) S&S High Violence areas	(4) (3) with controls
S&S	0.496042***	0.059554	0.198161*	-0.059972
	(0.113)	(0.090)	(0.101)	(0.115)
Post 2006	0.004337	-0.171669	-0.084523	-0.470675*
	(0.064)	(0.178)	(0.093)	(0.238)
S&S x Post 2006	0.029554	0.172431***	0.153306**	0.296942***
	(0.051)	(0.059)	(0.071)	(0.078)
Population		0.000003***		0.000001*
		(0.000)		(0.000)
Socioeconomic status		1.003636***		0.958310***
		(0.177)		(0.253)
Social expenditure		0.043115*		0.006481
		(0.024)		(0.023)
University education share		-0.015019**		-0.002806
		(0.006)		(0.010)
Total Expenditure		-0.000005		0.000007
		(0.000)		(0.000)
PD1	0.717962***	0.285059**	0.481957***	0.510996***
	(0.088)	(0.106)	(0.083)	(0.103)
PD2	0.166476	0.173695	0.268514	0.418657***
	(0.118)	(0.116)	(0.170)	(0.145)
PD3	0.074160	0.205945	0.407050**	0.345634*
	(0.237)	(0.134)	(0.194)	(0.197)
PD4	0.384307**	0.350853***	0.537477***	0.435805***
	(0.165)	(0.108)	(0.146)	(0.120)
PD5	0.154650	0.161278*	0.206957***	0.506057***
	(0.098)	(0.093)	(0.065)	(0.141)
PD6	-0.039937	0.115340	0.047783	0.255763***
	(0.090)	(0.069)	(0.053)	(0.089)
PD7	0.016149	0.025193	0.151693***	0.314066**
	(0.124)	(0.108)	(0.047)	(0.116)
PD8	-0.086474	0.445170***	0.403479***	0.687121***
	(0.146)	(0.100)	(0.111)	(0.090)
PD9	0.406491***	0.448434***	0.427300***	0.597696***

	(0.102)	(0.076)	(0.094)	(0.112)
PD10	0.167855	0.083191	0.444596***	0.446755***
	(0.156)	(0.102)	(0.091)	(0.104)
PD11	0.074039	0.217950***	0.241667***	0.472834***
	(0.090)	(0.071)	(0.070)	(0.076)
PD12	0.414886**	0.385779***	0.545396***	0.592678***
	(0.151)	(0.086)	(0.074)	(0.118)
Constant	1.329870***	0.510678*	1.610304***	0.332187
	(0.102)	(0.248)	(0.107)	(0.378)
Observations	2,739	2,314	1,230	1,032
R-squared	0.246	0.489	0.156	0.304

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 9: High S&S vs Low S&S robustness check for Police Districts

VARIABLES	(1) High S&S	(2) High S&S with controls	(3) High S&S	(4) High S&S with controls
High S&S	-0.094444	-0.152060	-0.109395	-0.189944
	(0.226)	(0.156)	(0.224)	(0.156)
Post 2006	0.042584	-0.258609		
	(0.096)	(0.236)		
High S&S x Post 2006	-0.023508	0.104664		
	(0.080)	(0.083)		
Population		0.000003***		0.000003***
		(0.000)		(0.000)
Socioeconomic status		1.250432***		1.308075***
		(0.305)		(0.285)
Social expenditure		0.011321		0.035288*
		(0.023)		(0.020)
University education share		-0.018334		-0.010441
		(0.013)		(0.013)
Total Expenditure		0.000013		0.000004
		(0.000)		(0.000)
Normalized time			0.002350	-0.321985**
			(0.124)	(0.135)
High S&S x Normalized time			0.011205	0.122685
			(0.115)	(0.092)
o.PD1	0.000000	0.000000	0.000000	0.000000

	(0.000)	(0.000)	(0.000)	(0.000)
PD2	0.231582	0.470529**	0.231747	0.344814*
	(0.297)	(0.177)	(0.296)	(0.191)
PD3	0.123214	-0.003313	0.122730	-0.222959
	(0.391)	(0.360)	(0.389)	(0.348)
PD4	0.281394	0.166749*	0.282384	0.128025
	(0.264)	(0.094)	(0.266)	(0.095)
o.PD5	0.000000	0.000000	0.000000	0.000000
	(0.000)	(0.000)	(0.000)	(0.000)
PD6	-0.204152	0.223845	-0.206160	0.160043
	(0.218)	(0.167)	(0.219)	(0.160)
PD7	0.036659	0.087620	0.037632	-0.100019
	(0.216)	(0.217)	(0.216)	(0.235)
PD8	-0.358004	0.473320	-0.357050	0.363064
	(0.234)	(0.276)	(0.235)	(0.277)
PD9	0.466544**	0.667651***	0.467272**	0.598071***
	(0.219)	(0.113)	(0.220)	(0.105)
PD10	0.084414	0.188226	0.085907	0.089474
	(0.258)	(0.167)	(0.261)	(0.165)
PD11	0.135469	0.406313***	0.136441	0.299763**
	(0.219)	(0.135)	(0.221)	(0.143)
PD12	0.621429***	0.347598*	0.625301***	0.047543
	(0.035)	(0.199)	(0.027)	(0.238)
Constant	1.927763***	-0.028776	1.947411***	-0.073240
	(0.223)	(0.463)	(0.223)	(0.429)
Observations	979	817	979	817
R-squared	0.161	0.513	0.160	0.525

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 10: Early S&S vs No S&S robustness check for Police Districts

VARIABLES	(1) Early S&S vs No S&S	(2) (1) With controls
Early S&S	0.422920***	0.095670
	(0.128)	(0.116)
Mid	-0.27105***	-1.09072***
	(0.053)	(0.123)
Early S&S x Mid	-0.16243***	0.064450
	(0.046)	(0.099)
Population		0.000004***
		(0.000)

Socioeconomic status		0.497024*
		(0.239)
Social expenditure		0.077408**
		(0.032)
University education share		-0.018050**
		(0.006)
Total Expenditure		0.000010
		(0.000)
PD1	0.665116***	0.196427
	(0.065)	(0.150)
PD2	-0.068905	0.051794
	(0.107)	(0.138)
PD3	-0.062839	0.425015***
	(0.163)	(0.097)
PD4	0.203827	0.478670*
	(0.313)	(0.250)
PD5	-0.031475	0.095338
	(0.084)	(0.139)
PD6	-0.068350	0.157891
	(0.120)	(0.116)
PD7	-0.072046	0.002122
	(0.120)	(0.158)
PD8	-0.144688	0.388326***
	(0.150)	(0.126)
PD9	0.225304**	0.394643***
	(0.094)	(0.088)
PD10	-0.075509	-0.106237
	(0.221)	(0.161)
PD11	-0.062791	0.125542
	(0.089)	(0.099)
PD12	0.327242**	0.317933**
	(0.138)	(0.125)
Constant	1.462515***	0.333844
	(0.090)	(0.303)
Observations	1,260	1,001
R-squared	0.204	0.493

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Without Copenhagen

TABLE 11: S&S vs Not robustness check without Copenhagen

VARIABLES	(1) S&S	(2) S&S with controls	(3) S&S high violence areas	(4) S&S with controls
S&S	0.495349***	0.004015	0.174390*	-0.135416
	(0.093)	(0.092)	(0.091)	(0.088)
Post 2006	0.004528	-0.200245	-0.084724	-0.459307*
	(0.063)	(0.179)	(0.090)	(0.229)
S&S x Post 2006	0.016750	0.190372***	0.138296*	0.292919***
	(0.048)	(0.061)	(0.068)	(0.074)
Population		0.000003***		0.000002
		(0.000)		(0.000)
Socioeconomic status		1.189053***		0.965814***
		(0.199)		(0.255)
Social expenditure		0.030538		0.004264
		(0.021)		(0.022)
University education share		-0.007572		-0.000776
		(0.005)		(0.011)
Total expenditure		-0.000003		0.000007
		(0.000)		(0.000)
Constant	1.476651***	0.490732**	1.982203***	0.798989***
	(0.060)	(0.181)	(0.081)	(0.262)
Observations	2,711	2,301	1,202	1,019
R-squared	0.152	0.442	0.053	0.234

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 12: High S&S vs Low S&S robustness check without Copenhagen

VARIABLES	(1) High S&S	(2) High S&S with controls	(3) High S&S	(4) High S&S with controls
High S&S	-0.003960	-0.126315	-0.022185	-0.165084
	(0.198)	(0.115)	(0.207)	(0.115)
Post 2006	0.062106	-0.220035		
	(0.096)	(0.222)		
High x Post 2006	-0.115688	0.060798		
	(0.085)	(0.086)		
Population		0.000003***		0.000003***
		(0.000)		(0.000)
Socioeconomic status		1.060740***		1.120410***
		(0.276)		(0.252)
Social expenditure		0.022778		0.037051*
		(0.022)		(0.020)
University education share		-0.016820**		-0.013074*
		(0.006)		(0.007)
Total expenditure		0.000008		0.000003
		(0.000)		(0.000)
Normalized Time			0.002537	-0.287905**
			(0.122)	(0.132)
High S&S x Normalized Time			-0.134402	0.154624*
			(0.114)	(0.087)
Constant	1.973284***	0.501050	2.001109***	0.438341
	(0.088)	(0.337)	(0.089)	(0.317)
Observations	951	804	951	804
R-squared	0.004	0.459	0.005	0.470

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

2004 as base year

TABLE 13: S&S vs Not robustness check with 2004 as base year

VARIABLES	(1) S&S	(2) S&S with controls	(3) S&S High Violence areas	(4) (3) with controls
S&S	0.548693***	0.040870	0.281243***	-0.047132
	(0.093)	(0.091)	(0.093)	(0.087)
Post 2004	0.117896**	0.220670**	0.149881*	0.279792*
	(0.054)	(0.095)	(0.085)	(0.137)
S&S x Post 2004	-0.058665	0.138986**	-0.048980	0.118208
	(0.066)	(0.064)	(0.095)	(0.085)
Population		0.000002***		0.000001
		(0.000)		(0.000)
Socioeconomic status		1.328809***		1.191872***
		(0.186)		(0.224)
Social expenditure		0.031247*		0.009889
		(0.017)		(0.021)
University education share		-0.007090		0.005096
		(0.005)		(0.010)
Total Expenditure		-0.000015**		-0.000013*
		(0.000)		(0.000)
Constant	1.407178***	0.649940***	1.848279***	0.955445***
	(0.056)	(0.155)	(0.082)	(0.240)
Observations	2,739	2,314	1,230	1,032
R-squared	0.167	0.451	0.066	0.238

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 14: High S&S vs Low S&S, respectively Early S&S vs No S&S S&S vs Not robustness check with 2004 as base year

VARIABLES	(1) High S&S	(2) (1) With controls	(3) Early S&S x Mid period	(4) (3) With controls
High S&S	0.393441**	-0.215939*		
	(0.174)	(0.106)		
Post 2006	0.105126*	0.226240**		
	(0.058)	(0.093)		
High x Post 2006	-0.042674	0.168288**		
	(0.058)	(0.078)		

Population		0.000002***		0.000003***
		(0.000)		(0.000)
Socioeconomic status		1.530335***		0.642855**
		(0.141)		(0.250)
Social expenditure		0.032605*		0.044803
		(0.017)		(0.029)
University education share		-0.002969		-0.010558**
		(0.005)		(0.005)
Total expenditure		-0.000016***		0.000014
		(0.000)		(0.000)
Early S&S			0.392638***	0.054308
			(0.100)	(0.119)
Mid			-0.219989***	-1.039371***
			(0.037)	(0.159)
Early S&S x Mid			-0.145068***	0.085251
			(0.013)	(0.093)
Constant	1.555140***	0.446698***	1.425544***	0.346168
	(0.055)	(0.146)	(0.056)	(0.203)
Observations	2,739	2,314	1,023	770
R-squared	0.045	0.447	0.109	0.394

Robust standard errors in parentheses

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