From idle time to opportunity: how Bogotá's youth clubs influence crime and education

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From Idle Time to Opportunity: How Bogotá's Youth Clubs Influence Crime and Education*

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Abstract

Youth Clubs could offer adolescents and young adults structured alternatives to unstructured free time, potentially lowering their exposure to crime opportunities and supporting their educational development. This paper evaluates the causal impact of Bogotá's public Youth Clubs on neighborhood-level crime and educational outcomes. Using a difference-in-differences design, I exploit the staggered opening of clubs across the city between 2014 and 2024. The results show that Youth Club openings reduce total crime by 62 offenses per 10,000 inhabitants (28%), driven by a 34% decline in personal theft and a 55% decline in commercial theft. These effects persist beyond the club's operating hours, suggesting that Youth Clubs work not just by keeping youth occupied, but by strengthening community ties and increasing engagement in structured activities. I find no average effects on standardized test scores. However, student-level analysis reveals positive effects for youth from low socioeconomic backgrounds and students in lower-performing schools, suggesting that disadvantaged groups benefit most from access to safe spaces and new opportunities. These findings demonstrate that investments in youth infrastructure can substantially reduce crime while providing targeted educational benefits to those who need them most.

Keywords: Youth programs, crime, education, after-school activities, public infrastructure

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1 Introduction

How adolescents and young adults spend their free time plays a crucial role in shaping their development. Unstructured or unsupervised leisure, such as "hanging out" with peers without adult guidance, is strongly associated with risky behaviors, including delinquency and substance use (Trinidad et al., 2019; Mahoney et al., 2001). In contrast, structured extracurricular activities characterized by regular schedules, clear goals, and adult supervision have been linked to prosocial behavior, higher educational attainment, and lower crime involvement (Bartko and Eccles, 2003; Goldschmidt et al., 2007; Villa, 2024). After-school programs provide an opportunity for youths to learn new skills, develop friendships, and foster healthy habits. However, these activities are often privately provided and costly, creating barriers to participation for lower-income youths.

This paper evaluates the impact of Youth Clubs openings in Bogotá, Colombia, on crime and education. These clubs are community-based centers created by the city's Secretaría Distrital de Integración Social (SDIS) to provide safe and inclusive spaces for young people, particularly those living in vulnerable neighborhoods. Youth Clubs aim to promote participation, cultural expression, and skills development through mainly recreational, artistic and vocational activities, including music, dance, sports, and leadership workshops. Between 2014 and 2021, 14 clubs opened across 13 of Bogotá's 20 localities, generating temporal and spatial variation that allows for causal analysis.

Using neighborhood-level crime records and georeferenced school data on standardized exit exam results, I estimate the effects of Youth Club openings between 2014 and 2021 on both crime rates and educational performance. The empirical strategy combines novel administrative data with a staggered-adoption Difference-in-Differences framework following Callaway and Sant'Anna (2021). This approach allows me to isolate the causal effects of program implementation over time and across neighborhoods and schools exposed to the intervention.

The findings reveal that the opening of Youth Clubs significantly reduces local crime rates. Treated neighborhoods experience a decline of approximately 62 offenses per 10,000 inhabitants, representing a 28% reduction compared to control neighborhoods. This decline is driven primarily by reductions in personal and commercial theft. Specifically, personal thefts fall by roughly 38 incidents per 10,000 inhabitants (a 34% reduction) and commercial

thefts decline by 10 incidents per 10,000 inhabitants (a 55% reduction) following program introduction. These effects remain robust across alternative specifications that vary the spatial definition of treatment exposure and the composition of the sample. Analyses of heterogeneity by time of day further indicate that the reductions persist beyond the club's operating hours, suggesting mechanisms beyond simple incapacitation, such as improvements in community cohesion or increased youth engagement in structured activities.

In contrast, I find no average effects on educational outcomes. However, student-level analysis reveals evidence of positive effects on global test scores for youth from low socioeconomic strata and for students in lower-performing schools. This pattern suggests higher engagement rates among these subgroups and their greater exposure to safe spaces, adult mentorship, and new opportunities that support academic achievement.

This paper makes three contributions to the literature on youth programs and their effects on crime and education. First, I provide, to my knowledge, the first quasi-experimental evidence on the causal impact of youth club openings in Bogotá. While after-school programs have been studied extensively, youth clubs, community centers offering diverse recreational, artistic, and vocational activities, remain understudied. Existing research on youth clubs has been largely descriptive. The only quasi-experimental study I am aware of is Villa (2024), who examines youth club closures in London. My study complements this work by analyzing club openings and by doing so in a developing country context where youth face different risks and may have fewer alternative structured activities.

Second, I contribute to understanding how after-school programs affect crime. A broader literature shows that structured activities can reduce criminal behavior by limiting idle time and providing supervision (Svensson et al., 2023), and by promoting non-cognitive skills and exposing youth to positive role models (O'Donnell et al., 2023; Li and Shao, 2022). However, most studies focus on specific activities like sports programs or tutoring. Youth clubs are different: they bundle multiple activities under one roof and target a general youth population rather than at-risk individuals or specific skill areas. This paper provides evidence on whether this broader, more flexible approach can effectively reduce local crime rates.

Third, I examine effects on educational outcomes, an area where evidence on youth clubs is particularly scarce. While research shows that after-school activities can improve academic performance through tutoring (Goldschmidt et al., 2007), improved cognitive function from

sports and arts (Pan et al., 2025), and better emotional regulation (Gao et al., 2025; Wang et al., 2024), we know little about whether youth clubs, which combine these elements but may offer less intensive academic support, can generate similar benefits. My findings suggest heterogeneous effects: no average impact, but positive effects for disadvantaged students who likely have the most to gain from access to safe spaces and structured opportunities.

The remainder of the paper proceeds as follows. Section 2 provides background on youth policy in Bogotá and describes the implementation of the *Casas de Juventud* program, which forms the city's network of public Youth Clubs. Section 3 describes the data sources and the construction of key variables. Section 4 outlines the empirical strategy and identification approach. Section 5 presents the main results, robustness checks, and heterogeneous effects across neighborhoods and schools. Finally, Section 6 concludes by summarizing the main findings and discussing their policy implications.

2 Context: Bogotá's Youth Clubs program

The institutional foundations of Bogotá's youth policy date back to the mid-2000s, when the city government formally adopted a rights-based approach to youth inclusion and development. The *Decree 482 de 2006* established the Política Pública de Juventud (Youth Public Policy) for the 2006–2016 period (Alcaldía Mayor de Bogotá, 2006; Consejo de Bogotá, 2005). This framework sought to ensure the effective, progressive, and sustainable exercise of young people's rights across the city. It was the outcome of a broad participatory process that engaged more than fifteen thousand young citizens from diverse localities, marking a shift toward viewing youth not merely as beneficiaries of assistance but as rights-holders and agents of social transformation.

Building on this foundation, the city advanced toward a more integrated and institutionalized model of youth governance with the creation of the *Sistema Distrital de Juventud* (SDJ) through the *Decree 499 of 2011* (Alcaldía Mayor de Bogotá, 2011). The SDJ was conceived as an intersectoral coordination platform designed to plan, monitor, and evaluate youth-related initiatives, guided by principles of participation, inclusion, territoriality, and shared responsibility. This institutional reform gave coherence and continuity to the youth policy framework, linking local initiatives with citywide strategies and strengthening mechanisms for youth participation in decision-making.

As part of these youth-oriented initiatives, the *Secretaría Distrital de Integración Social* (SDIS) created the *Casas de Juventud* program, which sought to establish physical spaces (Youth Clubs) designed to strengthen young people's life projects through the development of skills and capacities, as well as by promoting their participation in the social, cultural, and productive spheres of the city (SDIS, 2025). The first Youth Club was opened in 2014 in the locality of Ciudad Bolívar, in the south of Bogotá. Since then, the program has progressively expanded across the city. By 2021, the period covered in this study (2010–2021), there were 14 Youth Clubs operating in 13 of the city's 20 localities. By 2025, this number had increased to 18 clubs across 16 localities. Figure 1 shows both the spatial distribution and the timing of openings of all 18 clubs in the city.

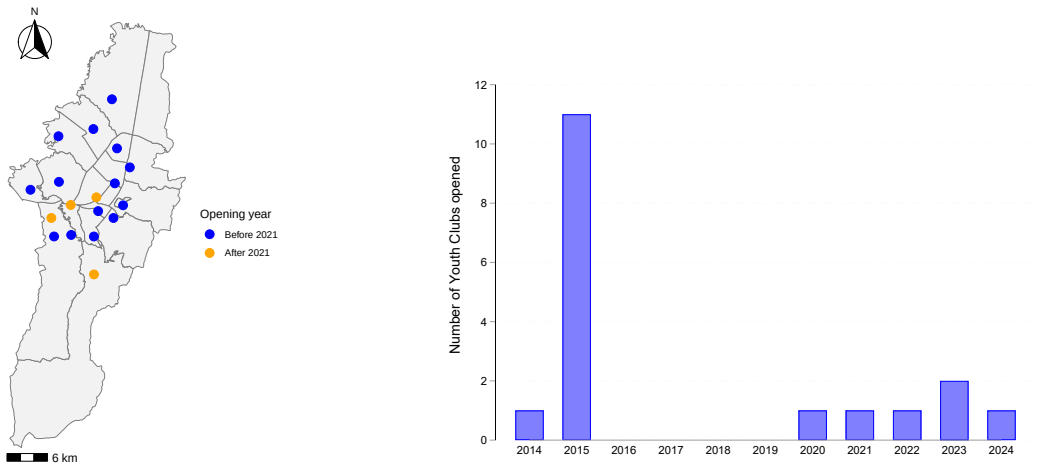
Each Youth Club operates through six key components: (1) *Life orientation and personal development*, which supports young people in defining personal, educational, and professional goals based on informed and autonomous decision-making; (2) *Productive inclusion*, which promotes employability and entrepreneurship through training and institutional partnerships; (3) *Culture, creativity, and recreation*, which encourages artistic expression, innovation, and constructive use of free time; (4) *Digital inclusion*, which provides access to technology and digital-skills training to foster innovation and participation in the digital economy; (5) *Participation and leadership*, which strengthens youth organization, civic engagement, and community leadership; and (6) *Well-being*, which addresses mental health, sexual and reproductive rights, and the prevention of gender-based violence, early parenthood, and substance use (SDIS, 2025).

These components take shape through a wide range of weekly activities offered across the different Youth Clubs, including music, dance, and visual arts workshops; sports and recreation programs; leadership and life-skills training; and employment and entrepreneurship guidance. In addition, many centers provide psychological counseling, health promotion services, and activities focused on gender equality, sexual and reproductive health, and the prevention of risky behaviors.

The Youth Clubs are open to adolescents and young adults between 14 and 28 years old, operating Monday through Saturday from 8:00 a.m. to 8:00 p.m. (SDIS, 2024). They are free of charge and designed to reach diverse segments of the city's youth population, including students, young workers, and those currently outside the education or labor market. Between 2020 and 2024, more than 150,000 young people participated in the activities offered through

these centers. During 2023 and 2024, approximately 7,000 victims of the armed conflict, 2,800 youth with disabilities, and 2,500 participants from ethnic minority communities also took part in the Youth Club programs. Over the same period, most participants were enrolled in educational institutions (82%), while smaller shares were engaged in paid work (13%) or unpaid domestic labor (5%) (SDIS, 2025).

Figure 1: Spatial distribution and opening year of Youth Clubs in Bogotá.



(a) Spatial distribution of Youth Clubs

(b) Opening years of Youth Clubs

Note. Figure shows the spatial distribution and opening years of Youth Clubs in Bogotá. Panel (a) distinguishes Youth Clubs opened before and after 2021, while Panel (b) presents the distribution of opening years for all clubs in the city for the period 2014-2024.

3 Data

To estimate the effect of the opening of Bogotá's Youth Clubs, I rely on three main data sources: (i) administrative information about the opening year and geographic location of each Youth Club, (ii) neighborhood-level crime records reported by the Colombian National Police, and (iii) school-level educational outcomes from the national Saber 11 high school exit examination. Using these sources, I construct a single main panel dataset at the neighborhood level, covering annual crime rates for Bogotá neighborhoods from 2010 to 2021. In addition, the panel includes the weighted average of standardized test scores for high school-level schools in the city over the same period. Each data source and the construction of the main variables are described in detail below.

3.1 Youth Clubs

The geographic coordinates and opening year of each Youth Club were obtained through a formal information request to the SDIS. For a small number of centers the opening year was not present in administrative records; in these cases I identified the inauguration date via a manual search of press releases and official announcements from the Mayor's Office and the SDIS. The resulting dataset contains the location (latitude/longitude) and opening year of all clubs.

3.2 Crime data

Crime data were obtained from the Colombian National Police through a formal request for geolocated incident records in Bogotá covering 2010–2024. Due to confidentiality rules, neighborhood data are not publicly available for incidents after 2021 without a judicial order or special authorization; consequently, for the main analysis I use neighborhood-aggregated counts for the period 2010–2021. Each reported incident includes information on the date, time, offense type, and weapon use. Offense categories used in the analysis include: personal injury, commercial theft, car theft, personal theft, residential theft, motorcycle theft, sexual offenses, and homicide. In addition to examining these categories separately, I also construct a measure of *pooled crime*, defined as the total number of reported incidents across all offense types.

To compute crime rates, I rely on population estimates from the Global Human Settlement Layer (GHSL) 100-meter resolution rasters (Pesaresi et al., 2024), which provide measures of population distribution and density for the year 2010. For each neighborhood and year t, the crime rate is calculated as the total number of crimes reported in that neighborhood in year t divided by the neighborhood population, with all crime rates expressed per 10,000 inhabitants. The same procedure is used to compute pooled crime rates and crime rates for each individual offense category.

3.3 Educational outcomes

Education outcomes are measured using results from the national *Saber 11* examination, a mandatory high-school exit test taken by all students in Colombia as a requirement for graduating from secondary school and applying to higher education. The exam evaluates five

subject areas: mathematics, critical reading, social sciences, natural sciences, and english, and also reports an overall global score. In Bogotá, schools operate under two academic calendars. Public and most private schools follow Calendar A, in which the school year begins in January or February and ends in November. A smaller group of private schools follow Calendar B, which runs from August to June. As a result, the *Saber 11* exam is administered twice a year, with separate testing dates for each calendar.

Individual-level test scores, including both subject-specific and overall results, are publicly available through the ICFES *DataIcfes* platform. To identify the geographic location of schools, I use the *Sistema de Información de la Educación* (SISE) database from the Colombian National Statistics Office (DANE), which provides administrative information and geographic coordinates for both public and private educational institutions in the city.

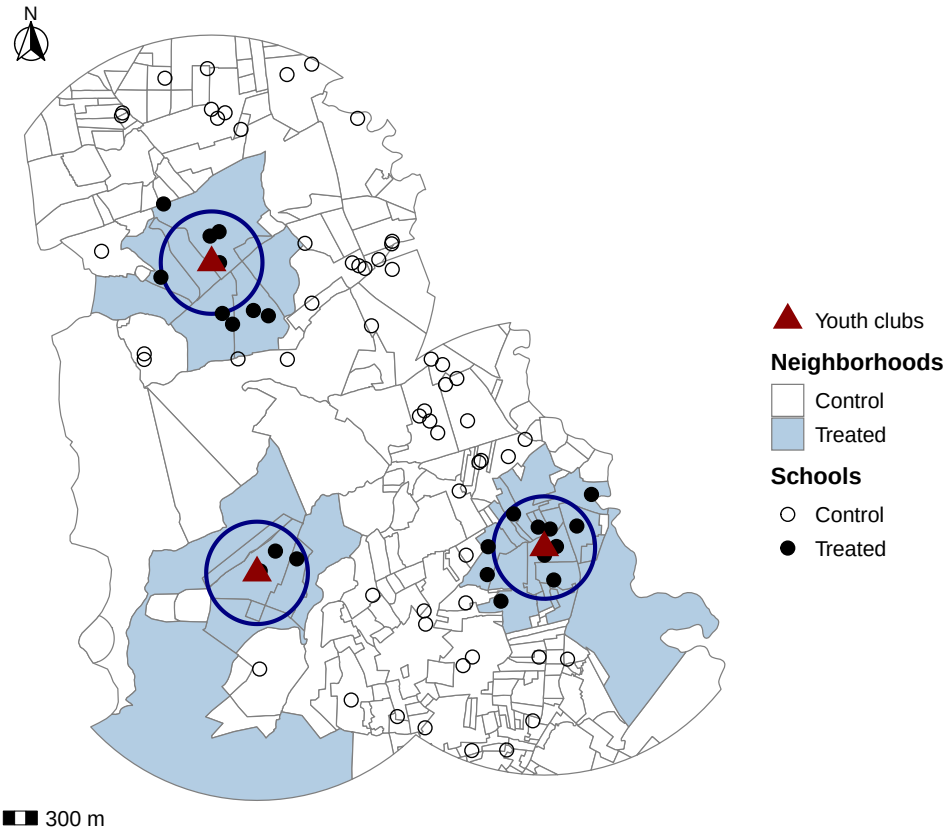
Using these microdata, I assign each school to a neighborhood based on its geographic location. This allows me to construct neighborhood-level measures of academic performance. To maintain consistency over time, I restrict the analysis to schools that have complete test score data for all years in the study period (2010–2021). For each neighborhood and year, I compute the average test score by aggregating school-level results within the neighborhood, weighted by the number of schools in each neighborhood. Finally, to make scores comparable across years, I standardize the neighborhood-level scores by converting them into year-specific z-scores. I do this by subtracting the mean score and dividing by the standard deviation for each year's cohort. This adjustment controls for changes in test difficulty or scoring methods over time, ensuring that educational outcomes are measured on the same scale throughout the study period

3.4 Identifying Treated Neighborhoods

I define treated neighborhoods as those located within one kilometer of an operating Youth Club. The one-kilometer buffer represents roughly a 10–15 minute walk and covers the area most likely to be affected by the Youth Club's services. This distance choice is informed by field visits to Youth Clubs and conversations with club leaders, who reported that most of the young participants live in nearby neighborhoods. Figure 2 shows the one-kilometer treatment area for three Youth Clubs in the locality of Ciudad Bolívar, displaying both treated and control neighborhoods as well as the treated and control schools within these neighborhoods that are used to calculate the weighted average results. As a robustness

check, I also estimate models using different buffer specifications (0.5 and 1.5 kilometers) and alternative definitions of the control group, such as excluding neighborhoods and schools located between one and two kilometers from the Youth Clubs.

Figure 2: Youth Clubs located in Ciudad Bolivar and treatement 1km buffer and schools



Note. Location of Youth Clubs in the locality of Ciudad Bolívar and the 1 km treatment buffer used to define treated neighborhoods. Shaded areas indicate neighborhoods that fall within the 1 km radius of a Youth Club. Schools inside the treated neighborhoods are classified as treated schools (black circles), while those outside are classified as control schools (empty circles).

3.5 Summary Statistics

Table 1 presents summary statistics for the main variables used in the analysis at the neighborhood level for the baseline year 2010. Each column shows the mean of the corresponding variable for a specific group, with standard deviations in parentheses. Column (1) shows averages for the full sample. Column (2) reports statistics for treated neighborhoods located within one kilometer of a Youth Club, while Column (3) shows the control group. Column (4) presents the difference in means between treated and control groups, along with statistical significance from a difference-in-means test.

Panel A reports statistics for neighborhood crime characteristics, which includes 1,501 neighborhoods in total: 262 treated and 1,239 control. On average, neighborhoods have an area of 0.12 km^2 and a population of about 2,639 residents. Treated neighborhoods have significantly larger populations than control neighborhoods, with an average difference of roughly 408 residents. Baseline crime levels also vary slightly across groups. The mean pooled crime rate in 2010 is approximately 72 crimes per 10,000 residents across all neighborhoods. Treated areas tend to have somewhat lower crime rates than control areas, though the differences are not statistically significant for all categories. This pattern suggests that before the Youth Clubs opened, treated and control areas were largely similar in terms of crime, with only minor differences in certain offense categories.

Panel B summarizes neighborhood education characteristics. On average, schools in the sample have 98 students, while schools in treated neighborhoods have 99 students and schools in control neighborhoods have 97 students. Similarly, neighborhoods in the sample have approximately 2 schools with complete Saber 11 exam data for the study period. About 39% of the schools in the sample are public. On average, female students represent about 53% of the student body, and nearly half of the students (51%) belong to low socioeconomic strata. About 21% of students have mothers with only primary education, while 42% have mothers with at least some secondary education. Differences between treated and control schools in these demographic variables are small and statistically insignificant.

The empirical strategy relies on a difference-in-differences design, which controls for any constant differences across neighborhoods and schools through fixed effects. However, to ensure that treated and control units are as similar as possible before treatment, I also use a matching procedure as a robustness check. I estimate a logit model predicting treatment status using neighborhood total population in 2010, which was imbalanced in Table 1. I perform propensity score trimming to ensure common support. Specifically, I trim observations above the 95th percentile for untreated neighborhoods and below the 5th percentile for treated neighborhoods of the propensity score distribution. Table A1 reports summary statistics for the matched sample, showing no imbalances in neighborhood crime characteristics.

Table 1: Summary statistics measured at baseline

	(1)	(2)	(3)	(4)
	All	Treated	Control	Difference
Panel A: Neighborhood Crime Characteristics				
Neighborhood total population (N)	2,638.86	2,933.98	2,525.98	408.00*
	(4,063.41)	(3,767.94)	(4,167.03)	(224.09)
Neighborhood area (km2)	0.12	0.13	0.12	0.00
	(0.36)	(0.17)	(0.41)	(0.02)
Pooled crime rate (per 10,000 inhabitants)	72.13	66.06	74.45	-8.38
	(264.94)	(202.70)	(285.20)	(13.19)
Personal injury crime rate (per 10,000 inhabitants)	21.73	18.18	23.08	-4.91
	(88.05)	(52.98)	(98.19)	(3.95)
Personal theft rate (per 10,000 inhabitants)	24.65	23.90	24.93	-1.04
	(113.91)	(101.34)	(118.40)	(6.14)
Commercial theft rate (per 10,000 inhabitants)	5.36	4.73	5.60	-0.87
	(25.82)	(17.83)	(28.29)	(1.23)
Residential theft rate (per 10,000 inhabitants)	9.00	9.25	8.90	0.35
	(38.50)	(44.51)	(35.97)	(2.44)
Car theft rate (per 10,000 inhabitants)	3.06	2.80	3.16	-0.35
	(26.27)	(14.74)	(29.52)	(1.15)
Motorcycle theft rate (per 10,000 inhabitants)	2.66	2.50	2.71	-0.21
	(23.17)	(13.15)	(26.01)	(1.02)
Sexual offenses rate (per 10,000 inhabitants)	2.29	2.11	2.36	-0.26
	(11.58)	(7.51)	(12.80)	(0.54)
Homicide rate (per 10,000 inhabitants)	3.39	2.60	3.69	-1.09
	(19.08)	(8.62)	(21.79)	(0.79)
N	1,501	262	1,239	1,501
Panel B: Neighborhood Education Characteristics				
Avg. number of students	97.65	99.49	97.32	2.17
	(85.02)	(91.06)	(83.98)	(10.20)
Schools (N)	1.52	1.63	1.50	0.13
	(1.32)	(1.17)	(1.34)	(0.14)
Public school	0.39	0.38	0.39	-0.00
	(0.45)	(0.43)	(0.45)	(0.05)
Female students	0.53	0.55	0.53	0.01
	(0.17)	(0.17)	(0.16)	(0.02)
Low socioeconomic stratum	0.51	0.53	0.51	0.03
	(0.38)	(0.36)	(0.38)	(0.04)
Mother: some primary education	0.21	0.23	0.21	0.02
	(0.17)	(0.17)	(0.17)	(0.02)
Mother: some secondary education	0.42	0.44	0.42	0.02
	(0.17)	(0.15)	(0.17)	(0.02)
N	601	92	509	601

Note. Table reports sample means with standard deviations in parentheses. All crime rates are expressed per 10,000 inhabitants. Panel A presents summary statistics for the neighborhood level crime charactersitics, while Panel B reports them for the educational characteristics. Column (1) shows the full sample. Column (2) includes neighborhoods located within 1 km of a Youth Club, while column (3) refers to neighborhoods not exposed to treatment. Column (4) reports the difference in means between treated and control groups, with statistical significance indicated by standard notation. $^{*} < 0.10$,** $p < 0.05$,*** $p < 0.01$. All variables are measured at baseline (2010).

4 Empirical Strategy

To estimate the causal impact of Bogotá's Youth Clubs on crime and educational outcomes, I use a Difference-in-Differences (DiD) framework that exploits variation in the timing and location of Youth Club openings across neighborhoods and years. All outcomes are measured at the neighborhood level, allowing for a consistent empirical design across both crime and education dimensions.

I begin with a conventional two-way fixed effects (TWFE) specification. For this analysis, I consider the study period from 2010 to 2019, where the treatment consists of neighborhoods in which Youth Clubs opened in late 2014 and 2015. I include neighborhood and year fixed effects and cluster standard errors at the neighborhood level. Additionally, I implement the doubly robust DiD estimator proposed by Callaway and Sant'Anna (2021), which extends the traditional two-period DiD design to settings with multiple time periods and staggered treatment adoption. This estimator allows treatment effects to vary across cohorts g and across periods t, providing consistent estimates of the average treatment effect on the treated (ATT) under the parallel trends assumption. For this analysis, I use the complete study period from 2010 to 2021 with staggered treatment adoption for neighborhoods with Youth Clubs that opened between 2014 and 2021.

As mentioned, treated neighborhoods are defined as those located within one kilometer of a Youth Club. This buffer captures the local area most likely to experience direct exposure to the program's activities and participants. Control neighborhoods are those located outside this buffer.

I estimate the following specification:

$$Y_{nt} = \beta(After_t \times Open_n) + \lambda_n + \theta_t + \varepsilon_{nt} \tag{1}$$

where Y_{nt} denotes the outcome of interest in neighborhood n and year t. Outcomes include neighborhood-level crime rates as well as neighborhood-level educational outcomes, such as standardized test scores and the number of test takers. The variable $(After_t \times Open_n)$ is an indicator equal to one if neighborhood n is located within the buffer of a Youth Club that is operating in year t, and zero otherwise. The coefficient β captures the causal effect of Youth Club exposure. Neighborhood fixed effects λ_n control for time-invariant characteristics such

as location, baseline socioeconomic conditions, and historical crime patterns. Year fixed effects θ_t absorb common shocks and citywide trends affecting all neighborhoods in a given year. Standard errors are clustered at the neighborhood level to account for serial correlation within neighborhoods over time.

5 Results

5.1 Main results

Table 2 reports the estimates from Equation 1 for all crime outcomes. Panel A presents the results using the TWFE estimation, while Panel B shows the estimates using the Callaway and Sant'Anna (2021) estimator. The results show evidence of reductions in pooled crimes, personal theft, commercial theft, and residential theft, while other types of crimes show no significant changes. Using the staggered treatment estimation, the results show that on average, neighborhoods with Youth Clubs experience 62 fewer pooled crimes per 10,000 residents ($p = 0.071$), a decline of about 28% compared to control neighborhoods. This decrease is likely driven by reductions in personal and commercial theft. Specifically, the results show 38 fewer personal thefts ($p = 0.08$), a 34% drop compared to control neighborhoods, and 10 fewer commercial thefts ($p = 0.02$), about a 55% drop.

For the educational outcomes, Table 3 shows that the opening of Youth Clubs has no effects on educational outcomes, including test scores and the number of test takers Panel A, similar to the crime outcomes, presents estimates for the TWFE estimation, while Panel B reports results using the Callaway and Sant'Anna (2021) estimator. The estimated coefficients for the number of students taking the test and the overall performance and subject-specific outcomes are small in magnitude and not statistically significant.

Additionally, Figure A1 and Figure A2 present the event-study analyses for the crime outcomes personal theft, commercial theft, and pooled crimes, and for the educational outcomes, including the number of test takers and the global, math and reading scores. These figures show dynamic ATT estimates with 95% confidence intervals. Prior to the opening of the Youth Clubs, the coefficients are generally not statistically significant across outcomes, supporting the parallel trends assumption. After the opening of the first Youth Clubs, significant reductions appear in pooled crimes and personal theft, while the effects remain statistically

Table 2: Effects of Youth Clubs openings on crime

	(1) Pooled Crimes	(2) Personal Injury	(3) Personal Theft	(4) Commercial Theft	(5) Residential Theft	(6) Car Theft	(7) Motorcycle Theft	(8) Sexual Offenses	(9) Homicides
Panel A: TWFE									
Yclub	-83.08**	-14.1	-48.49*	-8.35**	-3.95*	-2.57	-1.49	-5.04	.45
	(39.83)	(9.33)	(25.11)	(3.84)	(2.18)	(1.92)	(1.49)	(6.17)	(.65)
N Observations	15,010	15,010	15,010	15,010	15,010	15,010	15,010	15,010	15,010
Mean dep. var control	219.71	49.09	106.97	17.81	16.06	6.59	6.99	7.9	4.15
SD dep. var control	1236.56	312.16	736.89	134.05	94.96	121.54	60.18	199.37	23.1
Panel B: Callaway & Sant'Anna (2021)									
Yclub	-62.38*	-9.82	-38.15*	-9.70**	-2.36	2.1	-.06	-3.66	-.73
	(34.55)	(10.41)	(21.79)	(4.16)	(2.22)	(2.08)	(1.39)	(6.5)	(.77)
N Observations	18,012	18,012	18,012	18,012	18,012	18,012	18,012	18,012	18,012
Mean dep. var control	218.25	47.04	112.52	18	15.39	6.21	6.93	8.21	3.95
SD dep. var control	1314.24	380.77	768.66	139.08	91.98	116.57	58.5	228.89	24.47

Note. Table reports treatment effect estimates from a two-way fixed effects (TWFE) model and the estimator proposed by Callaway and Sant'Anna (2021). Crime outcomes are measured as rates per 10,000 inhabitants. Pooled Crimes corresponds to the aggregate crime rate across all offense categories. Panel A presents estimates from the TWFE specification, while Panel B reports estimates from the Callaway and Sant'Anna (2021) estimator. The study period is 2010â2019 for Panel A and 2010–2021 for Panel B. Standard errors are clustered at the neighborhood level.* < 0.10, ** < 0.05, *** < 0.01

insignificant for the educational outcomes.

5.2 Robustness checks

To assess the robustness of the main findings, I estimate several alternative model specifications that vary the spatial definition of treatment exposure, the sample composition, and the use of matching techniques. The first specification changes the size of the treatment buffer, defining treated neighborhoods as those located within 0.5 km and 1.5 km of the Youth Clubs. The second specification excludes from the control group neighborhoods located between 1 km and 2 km from the Youth Clubs, preventing the control group from being "contaminated" by possible indirect effects of the Youth Clubs. Finally, the third specification uses propensity score trimming based on neighborhood total population in 2010 to ensure common support.

For crime outcomes, Table A2 and Table A3 show that the main results remain robust under alternative definitions of the treatment buffer. When the treatment radius is reduced to 0.5 km or expanded to 1.5 km, I continue to find significant declines in pooled crimes under both the TWFE estimation and the staggered treatment estimation. Additionally, in most cases I continue to find reductions similar to the main specification for both personal and

Table 3: Effects of Youth Clubs openings on education

	(1) N. Test Takers	(2) Global Score	(3) Science Score	(4) Reading Score	(5) Math Score	(6) Social Score	(7) English Score
Panel A: TWFE							
Yclub	-6.25	.02	.03	.04	.04	.01	.05
	(3.9)	(.05)	(.05)	(.05)	(.05)	(.05)	(.04)
N Observations	6,010	6,010	6,010	6,010	6,010	6,010	6,010
Mean dep. var control	134.03	.02	.02	.02	.03	.02	.02
SD dep. var control	133.84	1.01	1.01	1.01	1.02	1.01	1.03
Panel B: Callaway & Sant'Anna (2021)							
Yclub	-5.367	.001	.063	.078	.062	.041	.059
	(4.44)	(.09)	(.06)	(.07)	(.06)	(.07)	(.05)
N Observations	7,212	7,212	7,212	7,212	7,212	7,212	7,212
Mean dep. var control	129.11	0.03	0.03	0.03	0.04	0.03	0.04
SD dep. var control	127.45	1.03	1.03	1.02	1.03	1.02	1.06

Note. Table reports treatment effect estimates from a two-way fixed effects (TWFE) model and the estimator proposed by Callaway and Sant'Anna (2021). The sample is restricted to schools for which standardized test score data are available for the entire study period (2010–2021). Test scores are measured as neighborhood-level weighted averages of standardized test scores, where weights correspond to the number of schools in each neighborhood. Panel A presents estimates from the TWFE specification, while Panel B reports estimates from the Callaway and Sant'Anna (2021) estimator. The study period is 2010–2019 for Panel A and 2010–2021 for Panel B. Standard errors are clustered at the neighborhood level $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

commercial theft.

Additionally, Table A4 presents the results when excluding from the control group neighborhoods located within a 1–2 km ring around the Youth Clubs; the coefficients for theft remain negative and statistically significant. Moreover, the estimated crime reduction becomes larger in magnitude when neighborhoods located 1–2 kilometers from Youth Clubs are excluded from the control group. This pattern suggests that nearby neighborhoods may also experience crime reductions, leading to attenuation bias when these areas are included as controls. The results are consistent with positive spatial spillovers and a diffusion of benefits beyond the immediate vicinity of Youth Clubs. Table A5 shows the results for the matched sample constructed using neighborhood total population at baseline. The results remain consistent for the main variables of interest.

For education outcomes, Table A6 and Table A7 show that when the sample is restricted to neighborhoods located within 0.5 km or 1.5 km of a Youth Club, there is no evidence of improvements in the number of test takers or test scores. Similarly, Table A8 shows

that there are no significant effects on standardized test scores when neighborhoods located within 1–2 km of a Youth Club are excluded from the control group.

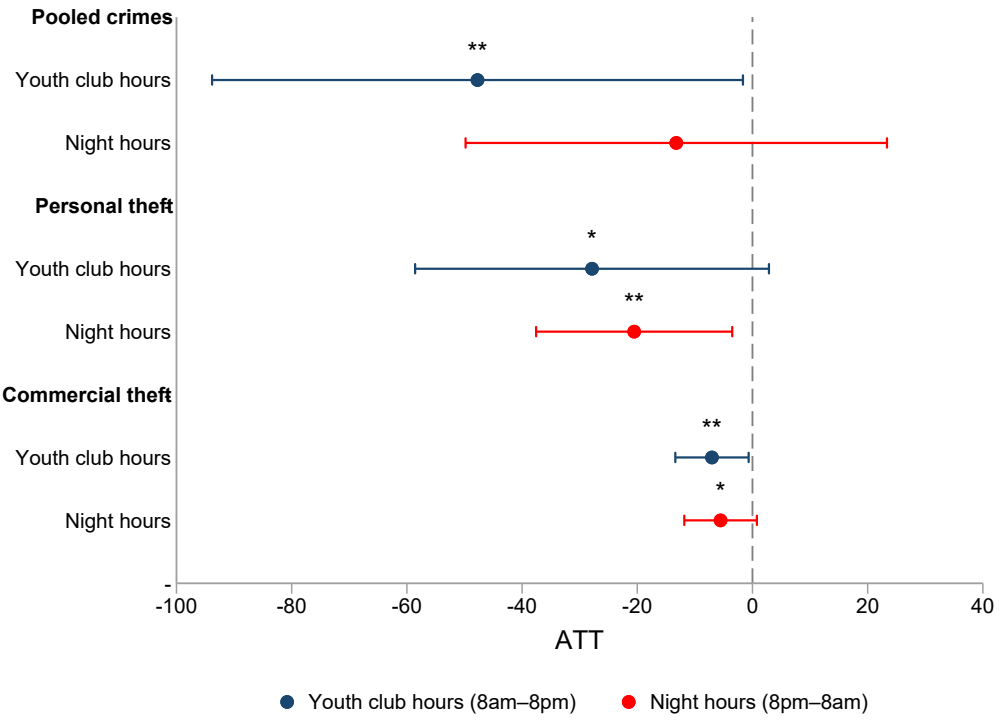
5.3 Heterogeneous effects

The analysis of heterogeneous effects provides additional insights to address two key questions: (i) Through which mechanisms do youth clubs reduce crime: incapacitation alone or through broader behavioral changes? and (ii) Are the effects on educational outcomes different across student subgroups?

For crime outcomes, Figure 3 presents the estimated average treatment effects on the treated (ATT) for offenses committed during Youth Club operating hours (8:00 a.m. to 8:00 p.m.) and during nighttime hours, along with 95% confidence intervals. The results show that both personal theft and commercial theft decrease even during hours when the clubs are closed. This pattern suggests that the program's impact goes beyond a simple incapacitation effect, where youths commit fewer crimes simply because they are occupied inside the Youth Clubs. Instead, these findings point to more lasting behavioral changes or social spillover effects. The presence of Youth Clubs may strengthen community ties or change local peer dynamics in ways that continue to discourage criminal behavior even after the clubs close.

To analyze whether Youth Clubs have different effects across student groups, Table 4 presents student-level estimates using the TWFE model. I find evidence that students attending schools with lower baseline academic performance, defined as schools whose 2010 average standardized test scores were below the median, benefit more from exposure to a Youth Club, showing larger improvements in their standardized test scores compared to the control group. Similarly, students from lower socioeconomic strata experience significant improvements in their test scores. This may be because these students face greater initial barriers to accessing safe spaces and prosocial networks, which could lead to higher engagement and participation in the clubs compared to students from higher socioeconomic backgrounds. This increased engagement may translate into greater academic achievement through the skill-building opportunities provided by the clubs.

Figure 3: Crime heterogeneity: Crime effects by time of day



Note. Figure presents ATT estimates and 95% confidence intervals from the Callaway and Sant'Anna (2021) estimator. The figure reports results for pooled crimes, personal theft, and commercial theft, distinguishing between offenses committed during the hours when the Youth Clubs are open (8:00 a.m.- 8:00 p.m.) and nighttime offenses (8:00 p.m.- 8:00 a.m.) when the clubs are closed. Neighborhood and year fixed effects are included. Standard errors are clustered at the neighborhood level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 4: Education heterogeneity: Effects of Youth Clubs openings on global score

	(1) Low performing	(2) Low strata	(3) Mother some primary education	(4) Female
YClub	0.001	-0.008	0.01	0.02
	(0.015)	(0.020)	(0.018)	(0.018)
YClub x Covariate	0.04*	0.04***	0.01	-0.01
	(0.025)	(0.016)	(0.016)	(0.011)
N Observations	834,921	834,921	834,921	834,921
N Schools	925	925	925	925
N Neighborhoods	601	601	601	601
Mean dep. var control	.0652	.0652	.0652	.0652
SD dep. var control	1.01	1.01	1.01	1.01

Note. The outcome variable is the standardized global test score in all regressions. In Column 1, the covariate is defined at the school level and corresponds to a dummy equal to 1 if the school's standardized average score in 2010 is below the sample median. In Columns 2-5, the covariates are defined at the student level: an indicator for living in a low socioeconomic stratum, an indicator for whether the mother has some primary education, sex, and demeaned age (so the interaction coefficient captures the marginal effect at the mean age). All regressions include fixed effects. Standard errors are clustered at the school level and reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

5.4 Discussion

The decline in property crime documented in this study is consistent with theories emphasizing youth routine activities and opportunity structures. Crime is more likely to occur when motivated offenders encounter suitable targets in the absence of capable guardianship (Cohen and Felson, 1979). By offering structured activities in a supervised setting, Youth Clubs likely change the spatial and temporal patterns of adolescent's daily routines, reducing their exposure to high-risk environments and strengthening informal social control within neighborhoods. This mechanism aligns with prior evidence showing that supervised recreational programs can reduce delinquency and violent behavior by providing productive uses of free time and limiting unsupervised peer interactions (O'Donnell et al., 2023; Li and Shao, 2022; Durlak et al., 2010).

The fact that crime reductions persist beyond the club's operating hours, as shown in Figure 3, suggests that the effects extend beyond simple incapacitation. Community centers can strengthen social cohesion, promote prosocial norms, and build trust among residents (Browning et al., 2017). In addition, Youth Clubs may expand the opportunities available to adolescents by exposing them to new skills, cultural activities, and positive adult role models. A growing literature shows that limited exposure to alternative life paths can suppress aspirations and reinforce disadvantage (Ray, 2006; Genicot and Ray, 2017), while structured programs that broaden horizons can shift expectations and reduce risky behaviors (Dalton et al., 2016; Beaman et al., 2012). These channels are consistent with a more persistent and community-wide reduction in crime, rather than a temporary decline limited only to the hours when the clubs are open.

The absence of average effects on standardized test performance is also consistent with prior evidence. Meta-analyses of youth development interventions find that broad, non-academic extracurricular programs tend to have limited impacts on cognitive outcomes unless they include explicit academic support, tutoring, or strong engagement in their recreational activities (Durlak et al., 2010; Muralidharan, 2017). Bogotá's Youth Clubs do not offer academic enrichment or tutoring services, which may explain the lack of detectable improvements in average test scores. However, the improvements found among disadvantaged adolescents may be explained by their higher engagement in club activities, which exposes them to new opportunities to access safe spaces and adult support, thereby improving academic outcomes (Gao et al., 2025; Wang et al., 2024).

Finally, I acknowledge some limitations of the analysis. Although crime is not exclusively committed by youth, a substantial share of offenses in Colombia is attributable to adolescents and young adults, particularly theft and drug- or weapons-related crimes (UNODC, 2022). Because I do not observe offender's ages and rely on neighborhood-level aggregates, the estimated effects capture changes in overall crime rather than youth-specific offending. In addition, identifying the precise mechanisms behind the observed reductions is challenging. While the evidence is consistent with channels beyond incapacitation, such as changes in aspirations, time use, and community cohesion, the administrative data do not allow these pathways to be directly tested. Future work combining individual-level behavioral data, participation records, or qualitative field evidence would help clarify how Youth Clubs influence criminal activity.

6 Conclusion

This paper evaluates the impact of Bogotá's Youth Clubs on crime and educational outcomes using a Difference-in-Differences framework that exploits variation in the timing and location of program implementation across neighborhoods. Employing the doubly robust estimator of Callaway and Sant'Anna (2021) to account for staggered treatment adoption and potential treatment effect heterogeneity, the analysis combines administrative crime records with standardized test scores from the national Saber 11 examination, spatially matched and aggregated at the neighborhood level.

The findings provide robust evidence that Youth Clubs generate substantial reductions in local crime. Specifically, the opening of a Youth Club in a treated neighborhood leads to a 28% decline in the pooled crime rate relative to control neighborhoods. This effect is primarily driven by reductions in property crime, particularly offenses associated with daily street activity. Importantly, the persistence of these reductions beyond the club's operating hours suggests that the mechanism extends beyond simple incapacitation.

In contrast, the analysis does not detect overall improvements in standardized test performance for schools located near Youth Clubs. This null result is consistent with existing literature indicating that extracurricular programs rarely produce measurable academic gains unless they incorporate explicit curriculum support, intensive tutoring, or sustained high engagement in structured activities. Given that Bogotá's Youth Clubs emphasize cultural

and recreational activities rather than direct academic mentoring, the absence of detectable educational effects is not surprising. However, heterogeneity analysis reveals improvements in test scores among disadvantaged adolescents, which may reflect higher engagement rates among this subgroup and their greater exposure to safe spaces, adult mentorship, and new opportunities that support academic achievement.

These findings contribute to the growing literature on place-based interventions and youth development by demonstrating that community-oriented social infrastructure can meaningfully enhance neighborhood safety. The results underscore the potential of preventive approaches that target youth opportunities and neighborhood environments, particularly in urban contexts characterized by high crime rates and limited access to structured recreational spaces.

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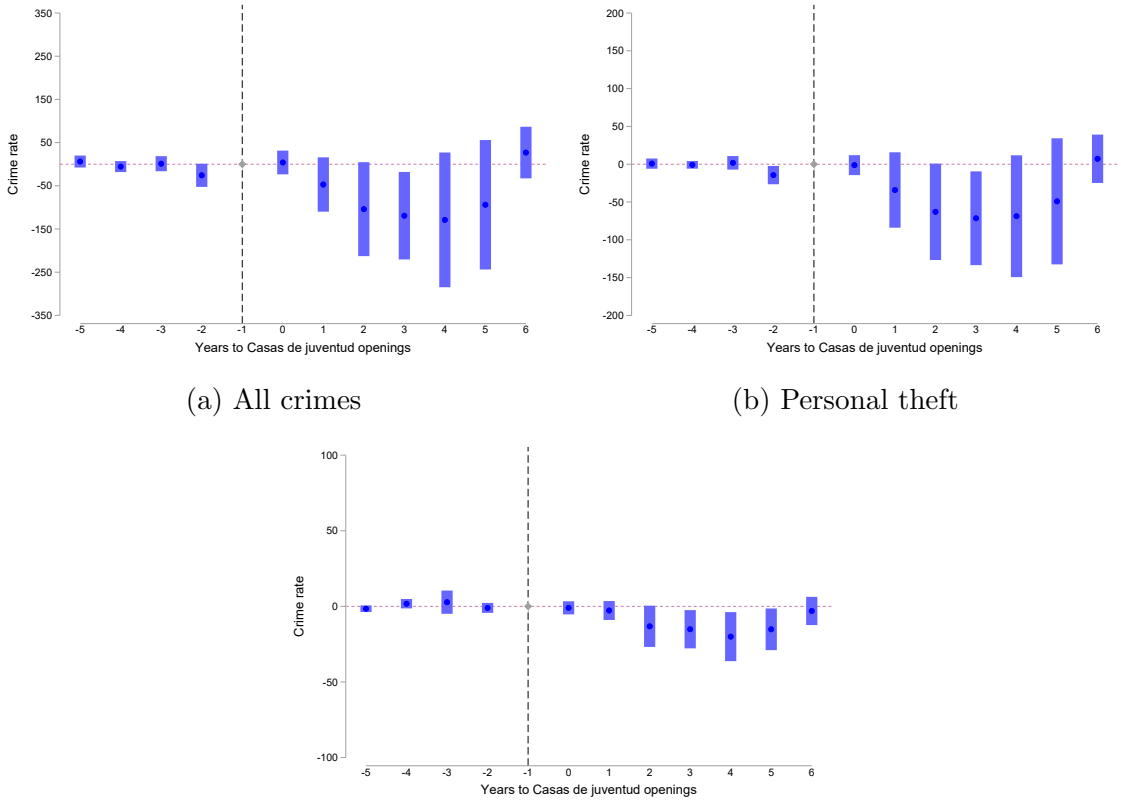
Appendix

Table A1: Summary statistics measured at baseline : Matched sample

	(1) All	(2) Treated	(3) Control	(4) Difference
Neighborhood total population (N)	2,321.14	2,402.83	2,289.89	112.93
	(3,133.10)	(3,023.38)	(3,175.03)	(187.17)
Neighborhood area (km2)	0.10	0.11	0.10	0.00
	(0.16)	(0.15)	(0.16)	(0.01)
Pooled crime rate (per 10,000 inhabitants)	72.74	67.73	74.65	-6.92
	(271.95)	(212.42)	(291.60)	(14.47)
Personal injury crime rate (per 10,000 inhabitants)	20.46	18.67	21.15	-2.47
	(81.09)	(55.19)	(89.05)	(4.05)
Personal theft rate (per 10,000 inhabitants)	25.68	24.83	26.00	-1.17
	(119.05)	(106.54)	(123.55)	(6.81)
Commercial theft rate (per 10,000 inhabitants)	5.47	4.60	5.80	-1.19
	(26.42)	(18.31)	(28.93)	(1.33)
Residential theft rate (per 10,000 inhabitants)	9.28	9.53	9.18	0.35
	(40.29)	(46.88)	(37.49)	(2.72)
Car theft rate (per 10,000 inhabitants)	3.22	2.84	3.36	-0.52
	(27.75)	(15.49)	(31.19)	(1.28)
Motorcycle theft rate (per 10,000 inhabitants)	2.89	2.65	2.98	-0.34
	(24.49)	(13.84)	(27.50)	(1.14)
Sexual offenses rate (per 10,000 inhabitants)	2.33	2.10	2.42	-0.32
	(11.78)	(7.78)	(12.99)	(0.58)
Homicide rate (per 10,000 inhabitants)	3.42	2.51	3.76	-1.26
	(19.51)	(8.70)	(22.30)	(0.85)
N	1,341	224	1,117	1,341

Note. Table reports sample means with standard deviations in parentheses for the matched sample. All crime rates are expressed per 10,000 inhabitants. Column (1) shows the full sample. Column (2) includes neighborhoods located within 1 km of a Youth Club, while column (3) refers to neighborhoods not exposed to treatment. Column (4) reports the difference in means between treated and control groups, with statistical significance indicated by standard notation. $^{*} < 0.10, ^{**} p < 0.05, ^{***} p < 0.01$. All variables are measured at baseline (2010).

Figure A1: Event study for the crime analysis



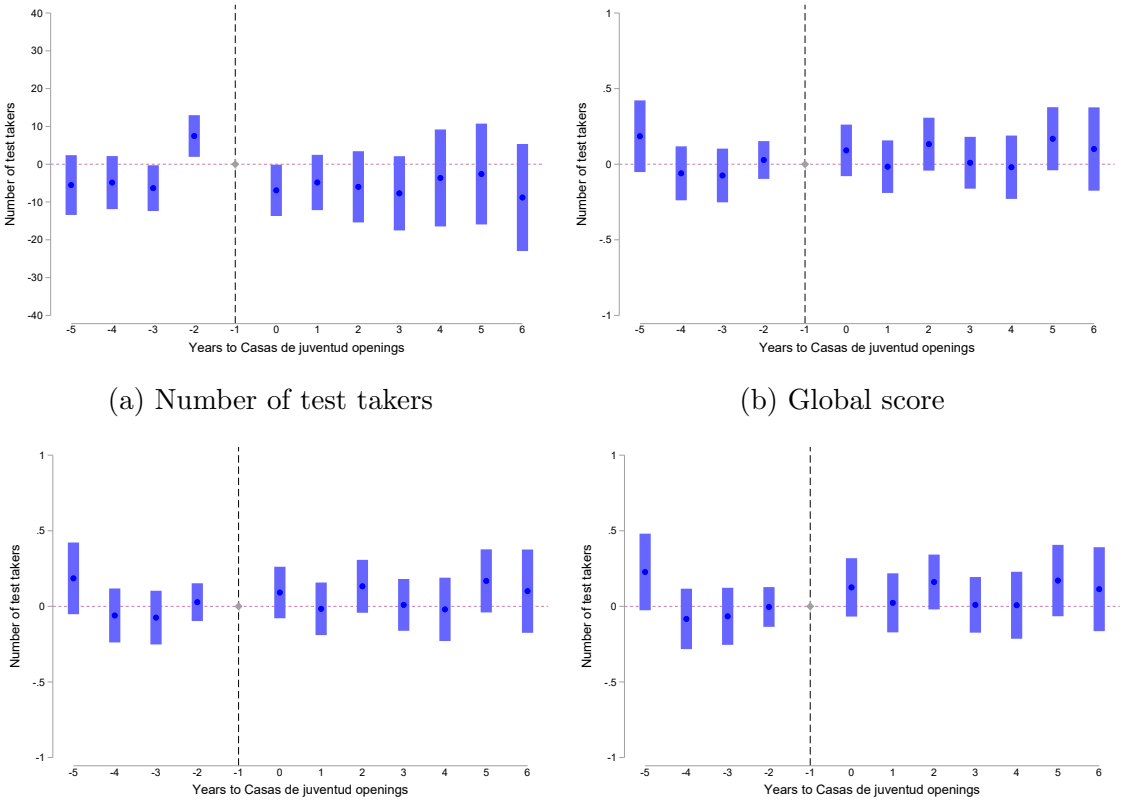
(a) All crimes

(b) Personal theft

(c) Commercial theft

Note. Figure reports dynamic ATT estimates and 95% confidence intervals from (Callaway and Sant'Anna, 2021) estimator. Neighborhood and year fixed effects are included. Standard errors are clustered at the neighborhood level.

Figure A2: Event study for the education analysis



(a) Number of test takers

(b) Global score

(c) Math score

(d) Reading score

Note. Figure reports dynamic ATT estimates and 95% confidence intervals from (Callaway and Sant'Anna, 2021) estimator. School and year fixed effects are included. Standard errors are clustered at the school level.

Table A2: Effects of Youth Clubs openings on crime: 0.5km treatment buffer

	(1) Pooled Crimes	(2) Personal Injury	(3) Personal Theft	(4) Commercial Theft	(5) Residential Theft	(6) Car Theft	(7) Motorcycle Theft	(8) Sexual Offenses	(9) Homicides
Panel A: TWFE									
Yclub	-84.88**	-17.18*	-45.44*	-7.07*	-4.68**	-3.2	-1.95	-4.68	-.34
	(39.99)	(9.1)	(25.33)	(3.91)	(2.15)	(2.15)	(1.44)	(5.88)	(.57)
N Observations	15010	15010	15010	15010	15010	15010	15010	15010	15010
Mean dep. var control	105.69	30.37	37.87	7.4	10.5	4.34	4.03	3.6	3.79
SD dep. var control	394.79	123.52	170.66	52.71	57.06	70.55	26.41	35.03	20.8
Panel B: Callaway & Sant'Anna (2021)									
Yclub	-61.93*	-12.63	-34.35	-10**	-2.7	1.77	.63	-3.78	-.88
	(34.79)	(9.98)	(21.96)	(4.47)	(2.36)	(1.92)	(1.47)	(6.05)	(.84)
N Observations	18,012	18,012	18,012	18,012	18,012	18,012	18,012	18,012	18,012
Mean dep. var control	215.09	47.1	110.51	17.49	15.16	6.07	6.88	7.931	3.95
SD dep. var control	1270.11	369.16	742.31	134.18	89.02	112.31	56.65	220.42	24.03

Note. Table reports treatment effect estimates from a two-way fixed effects (TWFE) model and the estimator proposed by Callaway and Sant'Anna (2021). Crime outcomes are measured as rates per 10,000 inhabitants. Pooled Crimes corresponds to the aggregate crime rate across all offense categories. Panel A presents estimates from the TWFE specification, while Panel B reports estimates from the Callaway and Sant'Anna (2021) estimator. The study period is 2010â-2019 for Panel A and 2010–2021 for Panel B. Standard errors are clustered at the neighborhood level.* < 0.10, ** < 0.05, *** < 0.01

Table A3: Effects of Youth Clubs openings on crime: 1.5km treatment buffer

	(1) Pooled Crimes	(2) Personal Injury	(3) Personal Theft	(4) Commercial Theft	(5) Residential Theft	(6) Car Theft	(7) Motorcycle Theft	(8) Sexual Offenses	(9) Homicides
Panel A: TWFE									
Yclub	-83.8**	-15.96	-43.09	-9.07**	-4.59**	-2.88	-2.54*	-5.7	.02
	(42.06)	(9.81)	(26.92)	(4.07)	(2.28)	(2.1)	(1.43)	(6.89)	(.59)
N Observations	15,010	15,010	15,010	15,010	15,010	15,010	15,010	15,010	15,010
Mean dep. var control	109.69	31.1	39.11	7.81	11.25	4.81	4.16	3.82	3.82
SD dep. var control	418.41	128.04	181.45	56.53	61.16	76.44	28.07	37.74	21.55
Panel B: Callaway & Sant'Anna (2021)									
Yclub	-72.88*	-12.56	-42.1*	-10.46**	-3.16	2.03	-1.04	-5.03	-.56
	(37.79)	(11.8)	(23.98)	(4.2)	(2.23)	(2.41)	(1.33)	(7.64)	(.76)
N Observations	18,012	18,012	18,012	18,012	18,012	18,012	18,012	18,012	18,012
Mean dep. var control	233.47	50.61	118.95	19.36	16.79	6.94	7.51	9.22	4.09
SD dep. var control	1422.27	413.68	827.06	150.54	99.69	126.98	63.44	249.41	25.94

Note. Table reports treatment effect estimates from a two-way fixed effects (TWFE) model and the estimator proposed by Callaway and Sant'Anna (2021). Crime outcomes are measured as rates per 10,000 inhabitants. Pooled Crimes corresponds to the aggregate crime rate across all offense categories. Panel A presents estimates from the TWFE specification, while Panel B reports estimates from the Callaway and Sant'Anna (2021) estimator. The study period is 2010–2019 for Panel A and 2010–2021 for Panel B. Standard errors are clustered at the neighborhood level.* < 0.10, ** < 0.05, *** < 0.01

Table A4: Effects of Youth Clubs openings on crime: Excluding 1-2km neighborhoods

	(1) Pooled Crimes	(2) Personal Injury	(3) Personal Theft	(4) Commercial Theft	(5) Residential Theft	(6) Car Theft	(7) Motorcycle Theft	(8) Sexual Offenses	(9) Homicides
Panel A: TWFE									
Yclub	-124.96**	-20.74	-70.31**	-13.88***	-6.24**	-3.76	-2.63	-7.84	.22
	(53.01)	(15.43)	(33.42)	(5.13)	(2.87)	(2.7)	(1.84)	(8.88)	(.69)
N Observations	11,330	11,330	11,330	11,330	11,330	11,330	11,330	11,330	11,330
Mean dep. var control	114.59	32.18	41.02	7.18	12.29	5.57	4.60	4.13	3.81
SD dep. var control	431.26	127.72	194.94	37.54	64.88	86.55	30.86	41.09	20.12
Panel B: Callaway & Sant'Anna (2021)									
Yclub	-103.59**	-15.08	-61.15**	-15.72***	-5.39*	2.75	-.67	-7.06	-1.29
	(48.19)	(15.04)	(30.15)	(5.06)	(2.77)	(3.06)	(1.67)	(9.77)	(.86)
N Observations	13,596	13,596	13,596	13,596	13,596	13,596	13,596	13,596	13,596
Mean dep. var control	256.37	54.19	131.35	21.1	18.45	8.04	8.23	10.82	4.19
SD dep. var control	1575.48	454.71	920.64	163.39	108.61	143.03	69.77	281.16	26.06

Note. Table reports treatment effect estimates from a two-way fixed effects (TWFE) model and the estimator proposed by Callaway and Sant'Anna (2021). Crime outcomes are measured as rates per 10,000 inhabitants. Pooled Crimes corresponds to the aggregate crime rate across all offense categories. Panel A presents estimates from the TWFE specification, while Panel B reports estimates from the Callaway and Sant'Anna (2021) estimator. The study period is 2010–2019 for Panel A and 2010–2021 for Panel B. Standard errors are clustered at the neighborhood level.* < 0.10, ** < 0.05, *** < 0.01

Table A5: Effects of Youth Clubs openings on crime: Matched sample

	(1) Pooled Crimes	(2) Personal Injury	(3) Personal Theft	(4) Commercial Theft	(5) Residential Theft	(6) Car Theft	(7) Motorcycle Theft	(8) Sexual Offenses	(9) Homicides
Panel A: TWFE									
Yclub	-87.68**	-15.13	-52.06*	-7.46*	-4.09*	-2.64	-1.48	-5.77	.47
	(43.96)	(10.41)	(27.64)	(3.95)	(2.42)	(2.15)	(1.64)	(6.96)	(.69)
N Observations	13,410	13,410	13,410	13,410	13,410	13,410	13,410	13,410	13410
Mean dep. var control	225.79	49.83	110.41	17.61	16.81	6.92	7.37	8.42	4.21
SD dep. var control	1290.61	328.38	767.65	131.8	100.37	129.04	63.72	211.84	23.51
Panel B: Callaway & Sant'Anna (2021)									
Yclub	-62.97*	-9.56	-39.29*	-9.23**	-2.15	2.43	-.06	-4.36	-.75
	(37.92)	(11.59)	(23.84)	(4.43)	(2.43)	(2.34)	(1.52)	(7.28)	(.83)
N Observations	16,092	16,092	16,092	16,092	16,092	16,092	16,092	16,092	16,092
Mean dep. var control	224.23	48.05	115.69	17.84	16.01	6.48	7.29	8.83	4.04
SD dep. var control	1368.65	400.35	798.03	136.5	96.55	123.16	61.63	242.11	24.91

Note. Table reports treatment effect estimates from a two-way fixed effects (TWFE) model and the estimator proposed by Callaway and Sant'Anna (2021). Crime outcomes are measured as rates per 10,000 inhabitants. Pooled Crimes corresponds to the aggregate crime rate across all offense categories. Panel A presents estimates from the TWFE specification, while Panel B reports estimates from the Callaway and Sant'Anna (2021) estimator. The study period is 2010–2019 for Panel A and 2010–2021 for Panel B. Standard errors are clustered at the neighborhood level.* < 0.10, ** < 0.05, *** < 0.01

Table A6: Effects of Youth Clubs openings on education: 0.5km treatment buffer

	(1) N Test Takers	(2) Global Score	(3) Science Score	(4) Reading Score	(5) Math Score	(6) Social Score	(7) English Score
Panel A: TWFE							
Yclub	-6.28	.01	.02	.02	.02	0	.04
	(4.61)	(.05)	(.05)	(.05)	(.05)	(.05)	(.04)
N Observations	6,010	6,010	6,010	6,010	6,010	6,010	6,010
Mean dep. var control	133.54	.02	.02	.02	.03	.02	.03
SD dep. var control	133.45	1.01	1.01	1.01	1.01	1.01	1.03
Panel B: Callaway & Sant'Anna (2021)							
Yclub	-8.463	.048	.094	.11	.082	.071	.081
	(5.23)	(.11)	(.07)	(.07)	(.07)	(.07)	(.05)
N Observations	7,212	7,212	7,212	7,212	7,212	7,212	7,212
Mean dep. var control	129.71	0.03	0.03	0.03	0.04	0.03	0.04
SD dep. var control	128.69	1.02	1.02	1.02	1.03	1.02	1.05

Note. Table reports treatment effect estimates from a two-way fixed effects (TWFE) model and the estimator proposed by Callaway and Sant'Anna (2021). The sample is restricted to schools for which standardized test score data are available for the entire study period (2010–2021). Test scores are measured as neighborhood-level weighted averages of standardized test scores, where weights correspond to the number of schools in each neighborhood. Panel A presents estimates from the TWFE specification, while Panel B reports estimates from the Callaway and Sant'Anna (2021) estimator. The study period is 2010–2019 for Panel A and 2010–2021 for Panel B. Standard errors are clustered at the neighborhood level $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A7: Effects of Youth Clubs openings on education: 1.5km treatment buffer

	(1) N Test Takers	(2) Global Score	(3) Science Score	(4) Reading Score	(5) Math Score	(6) Social Score	(7) English Score
Panel A: TWFE							
Yclub	-4.54	0	.01	.03	.03	0	.04
	(3.8)	(.04)	(.04)	(.04)	(.04)	(.04)	(.03)
N Observations	6,010	6,010	6,010	6,010	6,010	6,010	6,010
Mean dep. var control	133.64	.03	.03	.03	.03	.03	.03
SD dep. var control	134.32	1.02	1.02	1.02	1.02	1.02	1.04
Panel B: Callaway & Sant'Anna (2021)							
Yclub	-6.073	-.094	-.002	.013	.012	-.02	.012
	(4.06)	(.08)	(.06)	(.06)	(.06)	(.06)	(.04)
N Observations	7,212	7,212	7,212	7,212	7,212	7,212	7,212
Mean dep. var control	129.71	0.03	0.03	0.03	0.04	0.03	0.04
SD dep. var control	128.69	1.02	1.02	1.02	1.03	1.02	1.05

Note. Table reports treatment effect estimates from a two-way fixed effects (TWFE) model and the estimator proposed by Callaway and Sant'Anna (2021). The sample is restricted to schools for which standardized test score data are available for the entire study period (2010–2021). Test scores are measured as neighborhood-level weighted averages of standardized test scores, where weights correspond to the number of schools in each neighborhood. Panel A presents estimates from the TWFE specification, while Panel B reports estimates from the Callaway and Sant'Anna (2021) estimator. The study period is 2010â2019 for Panel A and 2010–2021 for Panel B. Standard errors are clustered at the neighborhood level $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table A8: Effects of Youth Clubs openings on education: Excluding 1–2km neighborhoods

	(1) N Test Takers	(2) Global Score	(3) Science Score	(4) Reading Score	(5) Math Score	(6) Social Score	(7) English Score
Panel A: TWFE							
Yclub	-4.93	-.02	.01	.03	.03	-.01	.08**
	(4.12)	(.05)	(.05)	(.05)	(.05)	(.05)	(.04)
N Observations	2767	2767	2767	2767	2767	2767	2767
Mean dep. var control	127.79	.15	.15	.15	.16	.16	.21
SD dep. var control	143.87	1.19	1.18	1.18	1.19	1.18	1.24
Panel B: Callaway & Sant'Anna (2021)							
Yclub	-9.169*	-.168	.032	.056	.047	-.001	.059
	(4.68)	(.12)	(.07)	(.07)	(.07)	(.07)	(.05)
N Observations	3,318	3,318	3,318	3,318	3,318	3,318	3,318
Mean dep. var control	121.35	0.20	0.20	0.19	0.21	0.21	0.27
SD dep. var control	137.86	1.24	1.23	1.22	1.24	1.22	1.3

Note. Table reports treatment effect estimates from a two-way fixed effects (TWFE) model and the estimator proposed by Callaway and Sant'Anna (2021). The sample is restricted to schools for which standardized test score data are available for the entire study period (2010–2021). Test scores are measured as neighborhood-level weighted averages of standardized test scores, where weights correspond to the number of schools in each neighborhood. Panel A presents estimates from the TWFE specification, while Panel B reports estimates from the Callaway and Sant'Anna (2021) estimator. The study period is 2010–2019 for Panel A and 2010–2021 for Panel B. Standard errors are clustered at the neighborhood level $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.