The Impact of Marijuana Decriminalization on Crime: Evidence From Atlanta.

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Abstract

In 2017, Atlanta decriminalized misdemeanor amounts of marijuana. Previously, possession of an ounce or less could result in a fine of up to \$1,500 and a year in jail under Georgia state law. After decriminalization, the penalty in Atlanta was reduced to a maximum \$75 fine with no jail time. We employ traditional difference-in-difference and synthetic difference-in-difference methods to analyze the impact on Atlanta's crime rates, using other Georgia cities still enforcing state law as a control group. Our findings suggest that decriminalization led to a reduction in violent crime, likely due to police reallocating resources from marijuana enforcement to violent crime prevention—aligning with claims by the Atlanta Police Department.

1. Introduction:

Since 1970, marijuana has been a Schedule I substance under the U.S. Controlled Substances Act, with federal penalties for possession remaining severe—first-time offenders face up to one year in prison and a \$1,000 fine, while repeat offenses escalate to felonies (Pirius, 2021). Despite federal law, many U.S. cities and states have decriminalized marijuana in recent years. Before 2017, Georgia imposed strict penalties, with fines up to \$1,500 and jail time for possession of an ounce or less. That year, Atlanta reduced penalties to a \$75 fine with no jail time (Reform Georgia).

These policy changes allow researchers to examine marijuana decriminalization's effects. Using monthly agency-level crime data (2015–2018) and applying difference-in-differences (DID) and synthetic DID (SDID) methods, we find Atlanta's 2017 reform significantly reduced violent crime but had no impact on property crime.

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Some argue marijuana liberalization increases crime (Evans, 2019), while others suggest it reduces violence by replacing black-market conflicts with legal resolution mechanisms (Miron et al., 1995). It may also improve policing efficiency, allowing law enforcement to shift resources toward more serious crimes. Benson et al. (2001) found that increased drug enforcement in Florida (1984–1989) correlated with higher property crime, likely due to shifts in police focus. Wu et al. (2022) reported that marijuana legalization in Oregon improved violent crime clearance rates.



Anecdotal evidence from Atlanta supports this mechanism. Figure 1 presents annual traffic violations per patrol unit for the Atlanta Police Department and Kennesaw Police Department (2012–2019). While Kennesaw's rate remains stable, Atlanta experiences a notable decline after decriminalization, despite an increase in patrol units (355 to 420).

Traffic stops are a primary means of enforcing marijuana laws. In Dallas, Texas, 48% of marijuana citations were issued during traffic stops.² The decline in Atlanta's traffic stop rate suggests a possible resource reallocation by APD following decriminalization.³

Our findings align with broader research suggesting marijuana liberalization does not increase crime and may, in some cases, reduce violent offenses. Lu et al. (2019) found that recreational marijuana legalization in Colorado and Washington led to a short-term property crime increase, but no long-term impact on overall crime. ⁴ Gavrilova et al. (2019) linked medical marijuana legalization to declines in cartel-related violent and property crime along the U.S.-Mexico border, a pattern extended by Meehan et al. (2023) to recreational legalization. In

² https://www.keranews.org/texas-news/2018-08-14/dallas-police-use-cite-and-release-in-fraction-of-marijuana-possession-cases
³ In Figure A.1 we also include synthetic control analysis of traffic stops, as opposed to actual traffic citations, these results should be interpreted with caution. We had a total of 12 agencies that provided reports of traffic stop data to us via freedom of information act requests, but these reports were incomplete. We had to extrapolate the traffic stop numbers in 5 of those 12 cities to execute this analysis, and the pre-treatment fit is very poor. With these caveats stated, this analysis supports the drop in traffic related activities in Atlanta relative to other cities.

⁴ See also Dills et al. (2021)

London, Adda et al. (2014) found decriminalization of small marijuana amounts reduced overall crime.

This study provides more granular evidence than previous work by examining agencylevel data within a state where marijuana remains illegal. Prior research has largely focused on statewide liberalization. Additionally, this study incorporates direct statements from law enforcement, confirming resource reallocation to violent crime enforcement following decriminalization—consistent with our empirical findings.

2. Data and Empirical Framework:

With marijuana decriminalization, the Atlanta P.D. could reallocate police resources to alternative uses, like crime deterrence for non-marijuana crimes. As mentioned in the introduction, prior research has measured the impact of marijuana liberalization on city level crime (See Adda et al. 2014 for evidence from London). We examine the impact of decriminalization on violent and property crimes with this in mind.

To do so, we collected monthly agency-level crime data (2015–2018) from the FBI's Uniform Crime Reports (UCR). Our sample includes all Georgia cities with populations over 25,000, except for:

- Augusta and Savannah, which adopted different marijuana policies during this period.
- Fulton County PD, as it has jurisdiction inside and outside Atlanta, making the policy's application inconsistent.
- Cities with missing monthly crime data, indicating non-reporting agencies.⁵

We omit post-2018 data due to incomplete FBI crime reporting. Starting in 2019, many agencies—including many in Georgia—transitioned from UCR to the National Incident-Based Reporting System (NIBRS). NIBRS differs structurally from UCR, making comparisons difficult, and its voluntary reporting process has led to significant underreporting. ⁶ As Jeff Asher (The Atlantic, 2022) observed:

"....of the nation's nearly 19,000 law-enforcement agencies, more than 7,000 are not yet reporting data to NIBRS. Though they have had years to prepare for this switch—the FBI announced the change in 2015 and gave out more than \$120 million to help agencies make the transition—only 62 percent, covering just 65 percent of the U.S. population, are reporting to NIBRS for 2021, according to the FBI."⁷

We estimate the following difference-in-differences (DID) model to isolate the impact of Atlanta's policy change on crime rates:

$$Y_{it} = \beta_0 + \beta_1 (ATL_i) + \beta_2 (Post_t) + \beta_3 (ATL_i * Post_t) + X_{it} + \epsilon_{it}$$
(1)

⁵ Macon, Stockbridge, Colquitt, Bartow, Forsyth, and Harris County all had missing monthly data during the period.
⁶ The transition away from UCR summary reports, combined with underreporting issues for both UCR and NIBRS caused criminologist Jacob Kaplan to pull files that included 2019 crime data from public use on Inter-university Consortium for Political and Social Research (ICPSR) network. For years, Kaplan has provided concatenated merged UCR data to researchers via ICPSR, which the authors of this study have used in previous versions.

⁷ https://www.theatlantic.com/ideas/archive/2022/05/fbi-crime-data-nibrs-2021/629797/

Where Y_{it} represents the crime rate per 100,000 population, estimated separately for property crime (burglary, larceny, motor vehicle theft) and violent crime (homicide, rape, robbery, aggravated assault).

The treatment indicator ATL_i equals 1 for Atlanta and 0 for control agencies.⁸ We define *Post_t* equal to 1 after Atlanta's decriminalization (November 2017 onward). The control group consists of 55 agencies across Georgia with populations over 25,000 and consistent crime reporting.⁹ While many of these agencies are located in and around the Atlanta metropolitan area, we do include agencies across Georgia. X_{it} is a vector of control variables that includes a dummy variable equal to one if the agency is a city level department (core city), a dummy variable equal to one if the policy agency is a sheriff's department, and the county unemployment rate.¹⁰

Our coefficient of interest (β_3) is the causal average treatment effect of decriminalization. To interpret β_3 as the causal effect of decriminalization, the DID model requires parallel pretreatment trends across the treated and control groups. That is, in the absence of treatment, the difference between treated and control countries would remain constant at pre-treatment levels. Parallel trends figures for property and violent crime are included in the appendix (Figure A.4).¹¹

While the pre-treatment trends appear close to parallel for property crime rates, the data for violent crime rates are less convincing. Recent advances in synthetic control methods (SCM), however, do not require this assumption to hold (Abadie et al., 2010 & 2021). Moreover, these methods have been shown to lead to more robust inference relative to the traditional DID framework (Arkhangelsky et al., 2021). With this in mind, we augment our traditional DID analysis with synthetic difference-in-difference models (SDID). SDID combines the attractive features of both traditional DID and synthetic control methods (Arkhangelsky et al., 2021). Like synthetic control, SDID chooses control units through re-weighting and matching pre-treatment trends. SDID, however, makes use of both unit and time weights when balancing control outcomes in the pretreatment period, providing a more robust synthetic counterfactual. Moreover, SDID is robust in settings with multiple treated units, which is important for the tests of potential spillover effects later in the paper. Thus, SDID is our preferred estimation strategy.

3. Impact of Decriminalization on Crime:

3.1. Main Results

⁸ Data from the Fulton County Police Department were dropped, as this department has jurisdiction within the city of Atlanta and outside the city. Thus, they cannot be included in the pure treatment or control categories.

⁹ Baldwin county, Macon-Bibb county, Statesboro, Carrollton PD, Caroll County, Canton PD, Cherokee County, Clayton County, Cobb County, Marietta PD, Smyrna PD, Kennesaw PD, Coffee County, Newnan PD, Coweta County, DeKalb County, Albany PD, Douglasville, Effingham PD, Fayette County, Floyd County, Sandy Springs PD, Alpharetta PD, Roswell PD, East Point PD, John's Creek PD, Gilmer County, Glynn County, Gwinnett County, Duluth PD, Habersham County, Gainesville PD, Hall County, Henry County, Houston County, Warner Robins PD, Jones County, Laurens County, Hinesville PD, Lowndes County, Valdosta PD, Madison PD, Murray County, Columbus PD, Newton County, Oconee County, Paulding County, Polk County, Rockdale County, Spalding County, Troup County, LaGrange PD, Walker County, Walton County, Dalton PD, and Whitfield County.

¹⁰ Pre-treatment summary statistics for all variables are provided in Table A.1.

¹¹ Figure A.4 plots average violent crime rates (Panel A) and property crime rates (Panel B) for Atlanta and the control group

Table 1 presents the estimated average treatment effect on the treated (ATT) using traditional DID (Panel A) and SDID (Panel B). Columns (1) and (2) report estimates for violent crime rates, without and with control variables, respectively, while Columns (3) and (4) provide the same for property crime rates.

Consistent with Adda et al. (2014), results indicate that violent crime declines in Atlanta relative to control cities post-decriminalization. The estimated effect—about 20 fewer violent crimes per 100,000 people per month—corresponds to a 19.7% reduction from the pre-treatment average. In contrast, property crime rates remain unaffected. These findings are robust to alternative estimation methods and the inclusion of control variables.

,	Table 1: Estim	ated ATT			
	Violent Crime Rate		Property Crime Rate		
	(1)	(2)	(3)	(4)	
Panel A: DID					
ATT	-21.05***	-19.54***	-9.55	-6.28	
	(5.94)	(5.94)	(32.71)	(32.60)	
Panel B: SDID					
ATT	-19.39***	-18.65***	0.754	0.502	
	(6.47)	(6.29)	(33.59)	(33.51)	
Panel C: SDID, Residualized Crime Rates					
ATT	-19.42***	-17.79***	-2.68	0.858	
	(6.28)	(6.43)	(36.85)	(36.85)	
Includes Controls	No	Yes	No	Yes	
1. Each panel presents the estimated ATT using different methodologies: traditional DID					
(Panel A), and Synthetic DID (Panel B). Columns vary by definition of outcome					
variable and the inclusion of controls. Columns (1) and (2) present results for violent					
crime rates, excluding and including controls respectively. Columns (3) and (4) present					
the same results for property cr	ime rates.				
2. All models are estimated using the <i>sdid</i> command in Stata using the placebo inference					
procedure. Estimation is performed using 100 replications. Standard errors reported in					

parentheses (p < .01 ***, p < .05 **, p < .10 *)

Monthly crime data may be subject to reporting inconsistencies, as some departments may "data dump" in December to meet annual FBI reporting requirements. To address potential seasonal variation in crime or reporting practices, Panel C presents estimates using residualized crime rates. The results remain consistent with prior findings in Table 1.¹²

¹² For each outcome (Y_{ijt}) , we estimate individual OLS regressions of the form $Y_{ijt} = \beta_{ijt} + \theta_j + \varepsilon_{ijt}$, estimated separately for each agency *i*. β_{ijt} is the local intercept and θ_j are month fixed effects. The dependent variable in equation (1) is then the measure of crime rates absent the local intercept and any monthly variation. We also estimated all models using the raw values of crime. Thes results, which are available upon request, are qualitatively similar to those reported in the paper.

Several factors could explain the observed decline in violent crime postdecriminalization. One possibility is that marijuana users altered their behavior, engaging in less criminal activity by no longer needing to be clandestine. However, the strongest evidence suggests a deliberate police strategy to refocus resources on violent crime.

Shortly after decriminalization, APD Public Affairs Director Carlos Campos stated:

"At the Atlanta Police Department, the focus is on violent crime and crimes that truly affect people—things that endanger lives...We're not out there looking to drag people to jail for smoking a joint or having a small bag of weed. We want to fill jails with armed robbers, rapists, burglars, home invaders—we do not want to fill the jails with pot smokers. That's the bottom line."¹³

Richard Elliot of Atlanta local news affiliate WSB-TV interviewed police leaders and city council members after the rule change and stated:

"Atlanta Police Chief Erika Shields said this new ordinance will allow her officers to concentrate on eliminating violent crime instead of focusing on petty ones... 'We're focused on violent crimes,' Shields said. 'I'm not interested, a dime bag of weed is not going to change crime in this city."¹⁴

In regard to violent crime in Atlanta, our results lend support to the idea that these efforts to reduce violent crime were successful in the 15 months post marijuana decriminalization.

3.2. Geographic Crime Displacement

To determine whether the observed crime reductions reflect actual declines rather than displacement, we conduct placebo tests in areas bordering Atlanta. Crime displacement occurs when law enforcement reallocations shift criminal activity to nearby, less-policed areas rather than reducing it overall. This phenomenon is a key concern in evaluating the effectiveness of crime reduction policies—if crime simply relocates, the intervention may not achieve its intended goal and could strain resources in adjacent areas.

By testing for displacement effects, we assess whether Atlanta's decriminalization led to genuine crime reductions or merely redistributed criminal activity to neighboring jurisdictions.

 ¹³ https://www.atlantamagazine.com/news-culture-articles/what-to-know-atlanta-new-marijuanalaw/#:~:text=The%20Atlanta%20City%20Council%20voted,and%20Killer%20Mike%20singing%20praises.
 ¹⁴ https://www.wsbtv.com/news/local/atlanta/atlanta-police-chief-on-new-pot-law-marijuana-is-still-illegal/619018630/

	Table 2: Border Ag	ency Placebo			
	Violent C	Violent Crime Rate		Property Crime Rate	
	(1)	(2)	(3)	(4)	
	Panel A:	DID			
ATT	-3.94	-3.80	-7.23	-8.04	
	(3.16)	(3.08)	(24.80)	(24.46)	
	Panel B: S	SDID			
ATT	-5.16	-5.07	-15.07	-14.71	
	(3.47)	(3.50)	(20.18)	(20.23)	
Р	anel C: SDID, Residua	lized Crime Ra	ites		
ATT	-4.73	-4.70	-23.15	-23.03	
	(3.75)	(3.92)	(20.18)	(20.62)	
Includes Controls	No	Yes	No	Yes	
1. For each specifications, treated	departments are those most p	roximal to Atlanta a	nd are located in the	e following	

1. For each specifications, treated departments are those most proximal to Atlanta and are located in the following counties: Clayton, Cobb, DeKalb, and Douglas. Atlanta is removed from the estimating sample to allow for a comparison of nearest neighbors to the rest of the donor pool.

Columns vary by definition of outcome variable and the inclusion of controls. Columns (1) and (2) present results for violent crime rates, excluding and including controls respectively. Columns (3) and (4) present the same results for property crime rates.

3. All models are estimated using the *sdid* command in Stata using the placebo inference procedure. Estimation is performed using 100 replications. Standard errors reported in parentheses (p < .01 ***, p < .05 **, p < .10 *)

Table 2 empirically tests for geographic crime displacement by examining spatial crime patterns before and after Atlanta's decriminalization in bordering jurisdictions (Clayton, Cobb, DeKalb, and Douglas counties). Using the same DID and SDID estimation, we treat these departments as placebo-treated units to assess whether crime shifted outside Atlanta.

If Atlanta's crime decline coincided with significant increases in neighboring areas, it would indicate displacement. However, we find no evidence of increased crime in these jurisdictions. If anything, crime shows a slight decline, though the effect is not statistically significant at conventional levels.

3.3. Robustness Checks

While Tables 1 and 2 provide average treatment effects over the post-period, these estimates do not capture the timing of crime changes relative to decriminalization. To better visualize the treatment effect dynamics and assess robustness, we estimate an event study and an additional placebo test using our preferred SDID model. ¹⁵ Figure 2 presents event study estimates for violent crime rates, illustrating how crime trends evolve before and after decriminalization.¹⁶

The event study estimates confirm the decline in violent crime observed in Table 1. Atlanta and the control group exhibit similar trends before decriminalization, with pre-treatment

¹⁵ Figure A.5 included in the appendix also provides more granular evidence that supports the above findings. Figure A.5 panel A and panel B plot Atlanta (black line) against "synthetic" Atlanta (grey line) from the violent and property crime models, respectively. The grey weights at the bottom of the graph reflect the SDID generated time weights. In both cases, the drop in violent crime is apparent immediately following the passage of the law.

¹⁶ The figures were generated using the baseline SDID model without controls. Estimates with controls are quantitatively and qualitatively similar and available upon request. The event study for property crime rates is included in the appendix (Figure A.6).

estimates indistinguishable from zero. However, violent crime drops sharply post-policy change and remains consistently lower throughout the post-period. In contrast, property crime rates (Figure A.6) remain largely unchanged.

Placebo tests further validate our findings and empirical framework. For both crime measures, we conduct placebo SDID regressions, treating each donor pool department as a false treatment unit. Figure 3 presents these results for violent crime rates, reinforcing the robustness of our estimates.¹⁷ The grey lines show the results of the placebo regressions, while the black line presents the true results where Atlanta is considered treated. Two important results emerge. The pre-treatment period is consistent with Atlanta falling in the middle of the placebo estimates with an estimated pre-treatment treatment effect of zero. Following decriminalization, we observe a sharp decline in violent crime rates in Atlanta (Figure 3) that did not occur in the placebo regressions. The placebo test for property crime rates (Figure A.7) confirm the null result in Table 1.



¹⁷ Property crime placebo results are included in the appendix as Figure A.7



4. Conclusion

Since 2012, 120 U.S. municipalities have adopted policies reducing punishments for marijuana possession (NORML). ¹⁸ These decriminalization and legalization efforts have allowed researchers to examine their impact on drug use, crime, and policing. Prior studies find mixed effects—ranging from no impact (Lu et al., 2019) to crime reductions and improved police performance (Adda et al., 2014; We et al., 2022).

Our analysis finds that violent crime in Atlanta declined relative to control agencies following marijuana decriminalization, with results robust to alternative estimation methods, event studies, and placebo tests. Importantly, this decline was not offset by crime displacement in neighboring counties. The findings align with APD's stated policy shift, as department leaders emphasized reallocating resources to violent crime enforcement. Our estimates suggest that decriminalization led to a 20% reduction in violent crime rates relative to pre-policy levels.

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Appendix

Table A.1: Pre-Decriminalization Summary Statistics				
	(1)	(2)		
VARIABLES	Atlanta	Control		
Violent Crimes Committed	415.118	25.943		
	(52.430)	(46.548)		
Property Crimes Committed	2,034.765	218.747		
	(259.305)	(342.956)		
Violent Crime Rate (per 100,000 population)	94.367	27.004		
	(12.465)	(25.791)		
Property Crime Rate (per 100,000 population)	462.547	232.337		
	(61.611)	(177.670)		
Total Population	440,271.824	95,366.445		
	(5,831.552)	(135,464.793)		
Core City (indicator)	1.000	0.196		
	(0.000)	(0.397)		
Sheriff's Department (indicator)	0.000	0.464		
	(0.000)	(0.499)		
Full-time Police per 100,000 population	383.481	189.944		

Unemployment Rate	(5.788) 5.535 (0.547)	(55.954) 5.542 (0.982)
Observations	34	1904















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