A BLUNT LOOK AT THE IMPACTS MARIJUANA HAS ON VIOLENT CRIME

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Abstract

From 1990 to 2017, more than 30 states have passed laws legalizing the use of marijuana. While marijuana remains prohibited at the federal level, these laws provide the opportunity to research the impact that marijuana has on society. This paper exploits the state law variation of medical marijuana and recreational marijuana to examine their impacts on violent crime rates. Results indicate that the legalization of marijuana, both recreational and medical, does not increase violent crime rates. In contrast, marijuana legalization could lead to a decline in violent crime such as homicide, robbery and aggravated assault.

Table of Contents

I. Introduction

Marijuana legalization has been a controversial issue in modern politics, and one of the long-held beliefs of American policymakers is that the usage of marijuana has an adverse impact on violent crime rates. This belief has been used to fuel the anti-marijuana campaign not only in today's political climate but for decades. Marijuana has been illegal in the United States of America for less than a century. The very first piece of formal legislation to criminalize marijuana was not introduced until 1937 with the Marijuana Tax Act of 1937. Prior to this tax act, marijuana had been entirely legal in the United States and commonly found in medicines. It was not until after the end of the Mexican Revolution in 1920 when the United States started to see an influx of Mexican immigrants that policymakers decided to start an anti-marijuana campaign and subsequently criminalize marijuana: “The idea was to have an excuse to search, detain and deport Mexican immigrants” (Burnett 2014). Policymakers used marijuana as a tool to strike fear into the hearts of American citizens. They created a narrative that the marijuana smoking immigrants brought with them a wave of violent crime, and since then, one of the loudest arguments against marijuana legalization has been that legal marijuana will bring with it a rise in violent crime.

Thirty years after the passage and enactment of the Marijuana Tax Act of 1937, the Supreme Court of the United States ruled the act unconstitutional in Leary v. The United States, as it violated the fifth amendment by requiring self-incrimination to enforce (Harlan 1968). Since the ruling of Leary v. The United States, policymakers have created additional laws criminalizing marijuana. The most notable laws around the criminalization of marijuana arose during the Nixon Era, where then President Nixon created the Controlled Substance Act, which then gave way to the War on Drugs. The Controlled Substance Act, among many other policy

shifts, created tiers of “scheduled drugs” that were determined by the level of perceived danger various drugs posed to society. Marijuana was listed as a Schedule I drug, defined by the Drug Enforcement Agency (DEA) as “drugs with no currently accepted medical use and a high potential for abuse,” despite marijuana having been used in many different types of medicines prior to the Controlled Substances Act (Drug n.d.).

Since the War on Drugs began in the early 1970s, states gradually started to shift their views on marijuana and the policies surrounding the drug. States began to roll back enforcement of marijuana criminalization, and as early as 1996, California became the first state to legalize medical marijuana, and in 2012, Colorado and Washington became the first states to legalize recreational marijuana. As of August 2019, a total of 33 states with the addition of the District of Columbia (DC) have legalized medical marijuana, and 12 states with the addition of DC have legalized recreational marijuana.

The purpose of this study is to address the question "Does the legalization of marijuana impact violent crime rates in the United States?” This is an important policy question to investigate as it can provide a more informed insight on the overall cost/benefit analysis of marijuana legalization. Marijuana legalization may increase crime rates as retail storefronts are operated as cash-only businesses, which could increase the rates of robberies and other associated violent crimes. Legalization could also potentially decrease crime as it is legalizing a criminal act, shrinking the black-market demand for marijuana, and reducing gang and drug trafficking organizations activity concerning marijuana. This study will examine the impact of two recent policy changes pursued by different states that could impact violent crime rates in the United States: medical marijuana legalization (MML) and recreational marijuana legalization

(RML). It is hypothesized that there will be a negative trend in violent crime rates when MML and RML policies are introduced.

While there are pre-existing studies that examine MML and RML against violent crime rates in the United States (U.S.), few studies use both variables in their research, fewer studies look at all 50 states with the inclusion of DC, and prior studies have shorter time frames. This study will include both MML and RML variables, all 50 states with the addition of DC and an extended timeline ranging from the years 1990 to 2017, which extends the previous timeline taken from "The Effect of Medical Marijuana Laws on Crime: Evidence From State Panel Data, 1990 – 2006," from 17 years to 28 years. The extension of the timeline from 17 to 28 years allows for the capture of more variation in state laws as 19 additional states have passed medical marijuana laws and nine states plus DC have passed recreational marijuana laws. The results of this study will impact the evolving conversation regarding the continuous legalization of marijuana in all 50 states with the inclusion of DC and the conversation regarding marijuana legalization at the federal level.

II. Literature Review

Since the early 1900s, marijuana has been viewed as a dangerous drug that brings violence and crime, and there is a large body of literature that addresses this claim. Older articles that are pre-legalization tend to support the preconceived notion of marijuana, bringing violence and crime with it. Post-legalization articles, however, are finding that with newer data to analyze, marijuana may not bring violence and crime with it, but rather has no effect on crime or has a negative impact, meaning crime rates decrease with legalization.

Dragone, et al. (2019) discuss the impact recreational marijuana legalization has had on the adjacent states of Washington and Oregon. Washington legalized recreational marijuana two

years prior to Oregon, allowing the authors to explore the effects of legalization on crime rates within a narrow scope. Using county-level data in each state over a 4-year time period, the authors conduct differences-in-differences and spatial regression discontinuity designs (Dragone 2019). They then use the results of their case study to infer that the legalization of recreational marijuana would have an adverse impact on crime across the United States. It would, instead, allow for a decrease in crime for four distinct reasons. The first reason being that marijuana usage causes one to be in "a state of relaxation and euphoria," and with the legalization of marijuana, the "increased consumption of marijuana [would] reduce the likelihood of engaging in violent activities" (Dragone 2019). Secondly, the likely substitution of marijuana for “violence-inducing substances such as alcohol" would reinforce the effect of a decrease in violent activities. Third, legalizing marijuana allows law enforcement to refocus and reallocate their efforts away from marijuana, which would support the reduction of crime. Lastly, legalization of marijuana may lead to a decreased role for gangs and other small criminals as a legal cannabis market would eradicate the need for marijuana trafficking. While the results of their paper are promising, there is not enough data to extrapolate it to a larger scope and apply the results to the United States as a whole. The short four-year timeline, their failure to account for regional differences in crime rates and the impact of the prior legalization of medical marijuana may have also had a negative on their findings.

Chu and Townsend (2018) discuss the effects medical marijuana legalization has had at the city level, the city level not including California cities, individual state level, and the national level. Through rigorous statistical analysis in the form of regression analysis and the synthetic control method Chu and Townsend have determined that while there may have been “no causal effects of medical marijuana laws on violent crime and property crime at the national level” and

“no strong effects within individual states,” there was an exception “for California where the medical marijuana law reduced both violent and property crime by 20%” (Chu 2018). While Chu and Townsend have a wider scope in comparison to Dragone, et al., they fail to address the potential impact that recreational marijuana laws may have on violent and property crime.

Similar to Chu and Townsend, Morris, et al. (2014) focuses their scope on only medical marijuana laws. Using state panel data from 1990 to 2006 to run a fixed-effects panel design with the inclusion of a post-law trend variable, Morris, et al. have found that their results, “did not indicate a crime exacerbating effect of [medical marijuana legalization] on any of the Part 1 offenses” (Morris 2014). Additionally, they determined that "[medical marijuana legalization] may be correlated with a reduction in homicide and assault rates" (Morris 2014).

The impact of marijuana legalization on violent crime rates is an important issue with the growing support for nationwide legalization. Thus it is necessary to look at all forms of legalization across all states to comprehensively understand the implications marijuana legalization may have on violent crime rates. While Morris, et al.'s analysis and findings are encouraging, because the time frame that they used was only from 1990 to 2006, they are missing a notable amount of data that could drastically change their results. Their timeframe was six years prior to the first two states that legalized recreational marijuana. The data on medical marijuana legalization is minimal as the oldest data set they used was California's which was only a 10-year period. This left them with a less than ideal timeline to analyze data to determine the impact of their findings concretely.

Gavrilova, et al., (2017) discuss the impact that medical marijuana legalization has on drug trafficking from Mexico. Through regression analysis Gavrilova, et al., were able to conclude that “decriminalization of the production and distribution of marijuana leads to a

reduction in violent crime in markets that are traditionally controlled by Mexican drug trafficking organizations" (Gavrilova 2017). Gavrilova, et al., uses only medical marijuana laws to run their analysis. Additionally, they focus mainly on border states and violent crimes associated with drug trafficking organizations rather than on violent crime as a whole.

Chang and Jacobson (2017), consider the effect of legal marijuana dispensary closures on neighborhood crime is explored. The scope of this study is narrow as it is only looking at medical marijuana dispensary closures in Los Angeles. Additionally, this study only looks at crime rates trends immediately following dispensary closures and comparing them to pre-closure crime rates. The specific time frame for crime rates and the narrow scope of this study poses complications when trying to apply the results of the study to an alternative area.

In Brinkman and Mok-Lamme's (2017) working paper, the effect of marijuana dispensaries on neighborhood crime is explored similarly to Chang and Jacobson's study. Using regression analysis, the authors of this study were able to conclude that "retail dispensaries lead to reduced crime in the neighborhoods they are located" however, "[the] reductions are highly localized, with no evidence of benefits for adjacent neighborhoods" (Brinkman 2017). The location of Brinkman and Mok-Lamme's study is the neighborhood of Denver, Colorado in comparison to Chang and Jacobson's Los Angeles, California and the crime trends they look at are regarding the operation of dispensaries rather than what happens to crime when a dispensary is closed. The scope of this study lends itself to being more broadly applicable as it is more versatile with all states and cities that have marijuana dispensaries functioning within them.

Friedman, et al. (2001) consider the relationship between the usage of ten types of illicit drugs with eight types of violent crimes within "African-American, inner-city, low SES, [and] young adult study sample" (Friedman 2001). The results of this study indicated that a "greater

frequency of use of marijuana was found unexpectedly to be associated with a greater likelihood to commit weapons offenses" and that "marijuana use was also found associated with the commission of attempted homicide/reckless endangerment offenses" (Friedman 2001). The results of this study were confounding in comparison to other studies, as the results did not match. Many other studies concluded that there was either no relationship between marijuana and crime rates or the relationship was a negative one, meaning crime rates seemed to decrease with marijuana legalization. When looking at the scope of the Friedman, et al., study, however, the sample that is used is targeted towards high poverty, low-income, African American community, and it is expressly stated that this does not apply to other socioeconomic groups. This study can only be applied to a specific population and sample and as controls for factors other than drug use were not used the results may be inflated or provide an inaccurate representation of marijuana's impact on crime rates.

III. Methodology, Data & Measures

A. Marijuana Laws and Data

Between 1990 and 2017, the 32 following states and DC legalized medical marijuana with the year it was legalized in parentheses: Alaska (1998), Arizona (2010), Arkansas (2016), California (1996), Colorado (2000), Connecticut (2012), Delaware (2011), District of Columbia (1998), Florida (2016), Hawaii (2000), Illinois (2014), Iowa (2014), Louisiana (2017), Maine (1999), Maryland (2003), Massachusetts (2012), Michigan (2008), Minnesota (2014), Montana

Table 1
States that Passed Medical Marijuana Laws Between 1990 and 2017

State	Medical Marijuana Legislation (MML)	Year Effective
California	Proposition 215 (1996) SB 420 (2003)	1996
Alaska	Measure 8 (1998) SB 94 (1999) Statute Title 17, Chapter 37	1998
District of Columbia	Initiative 59 (1998) L18-0210 (2010)	1998
Oregon	Oregon Medical Marijuana Act (1998) SB 161 (2007)	1998
Washington	Initiative 692(1998) SB 5798 (2010) SB 5073 (2011)	1998
Maine	Question 2 (1999)LD 611 (2002) Question 5 (2009) LD 1811 (2010) LD 1296 (2011)	1999
Colorado	Amendment 20 (2000)	2000
Hawaii	SB 862 (2000)	2000
Nevada	Question 9 (2000) NRS 453A NAC 453A	2000
Maryland	HB 702 (2003) SB 308 (2011)	2003
Montana	Initiative 148 (2004) SB 423 (2011) Initiative 182 (2016)	2004
Vermont	SB 76 (2004) SB 7 (2007) SB 17 (2011)	2004
New Mexico	SB 523 (2007) Medical Cannabis Program	2007
Rhode Island	SB 791 (2007 SB 185 (2009)	2007
Michigan	Proposal 1 (2008)	2008
New Jersey	SB 119 (2009) Program information	2009
Arizona	Proposition 203 (2010)	2010
Delaware	SB 17 (2011)	2011
Connecticut	HB 5389 (2012)	2012
Massachusetts	Question 3 (2012) Regulations (2013)	2012
New Hampshire	HB 573 (2013)	2013
Illinois	HB 1 (2013) Eff. 1/1/2014	2014
Iowa	SF 2360, Medical Cannabidiol Act of 2014 (Effective 7/1/14 and repealed in 2017 and replaced) HF 524 of 2017 now Section 124E	2014
Minnesota	SF 2471, Chapter 311 (2014)	2014
New York	A6357 (2014)	2014
Arkansas	Issue 6 (2016)	2016
Florida	Amendment 2 (2016)	2016
North Dakota	Measure 5 (2016) Final details pending	2016
Ohio	HB 523 (2016)	2016
Pennsylvania	SB 3 (2016)	2016
Louisiana	SB 271 (2017) (not yet in effect)	2017
West Virginia	SB 386 (2017)	2017

Between 2006 and 2017an additional 19 states passed medical marijuana laws.

Table 2
States that Passed Recreational Marijuana Laws Between 1990 and 2017

State	Recreational Marijuana Legalization (RML)	Year Effective
Colorado	Amendment 64 (2012) Task Force Implementation Recommendations (2013) Analysis of CO Amendment 64 (2013)	2012
Washington	Initiative 502 (2012) WAC Marijuana rules: Chapter 314-55 WAC FAQ about WA cannabis laws by the Seattle Times.	2012
Alaska	Ballot Measure 2 (2014) Marijuana Regulations	2014
District of Columbia	Initiative 71 (2014)	2014
Oregon	Measure 91 (2014)	2014
California	Proposition 64 (2016)	2016
Maine	Question 1 (2016) page 4 Chapter 409 (2018)	2016
Massachusetts	Question 4 (2016)	2016
Nevada	Question 2 (2016) page 25	2016

Between 2006 and 2017nine states with the addition of DC passed recreational marijuana laws.

(2004), Nevada (2000), New Hampshire (2013), New Jersey (2009), New Mexico (2007), New York (2014), North Dakota (2016), Ohio (2016), Oregon (1998), Pennsylvania (2016), Rhode Island (2007), Vermont (2004), Washington (1998), and West Virginia (2017) (Hanson 2019). During the same time frame of 1990 to 2017, the nine following states and DC legalized recreational marijuana, with the year it was legalized in parentheses: Alaska (2014), California (2016), Colorado (2012), District of Columbia (2014), Maine (2016), Massachusetts (2016), Nevada (2016), Oregon (2014), and Washington (2012) (Hanson 2019).

If the argument that legalizing marijuana, both medically and recreationally, will bring a rise in violent crime is correct, one would expect that there would be a positive impact on all violent crime rates over time. This means that violent crime rates would increase due to legalization.

B. Data

Data on violent crime, defined as homicide, rape (legacy rape and revised rape)[1], robbery and assault, for each state and DC between 1990 and 2017 was obtained using the Federal Bureau of Investigation's (FBI) Uniform Crime Reports (UCR). For the years 1990 to 2014, data was obtained by using the "data for analysis" tool, accessible through the Bureau of Justice Statistics (BJS) website. Data for the years 2015 to 2017 was individually accessed from the UCR and manually added to extend the data provided by the BJS. The data gathered for all 50 states and DC over a 28-year time span resulted in a total N=1428 for all variables, with the exception of rape where legacy rape totaled N=1377, and revised rape totaled N=255. All data

[1] Rape was redefined in 2013 as revised rape meaning "penetration, no matter how slight, of the vagina or anus with any body part or object, or oral penetration by a sex organ of another person, without the consent of the victim" (Rape 2017). Prior to 2013, rape was defined as legacy rape, "the carnal knowledge of a female forcibly and against her will" (Rape 2017).

Table 3
Descriptive Statistics

	N	Mean	Std. Deviation
Dependent Variables			
Violent Crime Rate per 100,000 Population	1428	461.281	289.4897
Murder and Nonnegligent Manslaughter Rate per 100,000 Population	1428	5.993	6.6521
Revised Rape Rate per 100,000 Population	255	43.400	16.9152
Legacy Rape Rate per 100,000 Population	1377	35.015	12.8454
Robbery Rate per 100,000 Population	1428	127.594	127.6559
Aggravated Assault Rate per 100,000 Population	1428	290.631	171.1304
Control Variable			
Unemployment Rate	1428	5.617	1.8416

available in the UCR is voluntarily submitted by law enforcement agencies and as a result reported crime rates may differ from actual crime rates. Homicide is the least sensitive to this problem. This poses a limitation on research using the data as it may not be fully represented.

I use this data to test whether MML and RML have a statistically significant impact on violent crime rates in the United States. For the scope of this research, I focus on four violent criminal offenses, and the overall rate of the four offenses combined. The first is homicide, which is defined by the FBI as "murder and nonnegligent manslaughter, the willful (nonnegligent) killing of one human being by another" (Murder 2017). The second is rape, defined by the FBI before 2013 as, "the carnal knowledge of a female forcibly and against her will," this definition of rape is referred to as legacy rape (Rape 2017). Post 2013, the FBI redefined rape as, "penetration, no matter how slight, of the vagina or anus with any body part or object, or oral penetration by a sex organ of another person, without the consent of the victim" (Rape 2017). Third is robbery, defined as, "the taking or attempting to take anything of value from the care, custody, or control of a person or persons by force or threat of force or violence and/or by putting the victim in fear" (Robbery 2017). Fourth is aggravated assault, defined as, “an unlawful attack by one person upon another for the purpose of inflicting severe or aggravated bodily injury" and is usually accompanied by the use of a weapon (Aggravated Assault 2017). Lastly, I also analyze the combined rate of homicide, rape, robbery, and aggravated assault referred to throughout the study as violent crime rates (VCR). A single sociodemographic variable of unemployment rates by state from 1990 to 2017 is included in this study and is used as a proxy for overall economic conditions that are known to affect crime rates. This use of unemployment rates accounts for time-varying influences that may have a potential bias on violent crime rate trends.

IV. Identification

To determine the impact of MML and RML from irregular factors, I use the within-state variation created by the 32 states and DC, which passed and adopted MML or both MML and RML between 1990 and 2017. I use a differences-in-differences research design that inquires whether the legalization of marijuana has an impact on violent crime rates. I estimate fixed effects ordinary least squares (OLS) panel data models, where I use the log of the outcome per 100,000 population as the dependent variables. OLS models are estimated with and without weighted populations. The OLS model estimated is

$$Outcome_{it} = \beta_0(MML_{it} + RML_{it}) + \beta_1 X_{it} + c_i + u_t + \varepsilon_{it}$$

where $(MML_{it} + RML_{it})$ is the treatment variable that equals the proportion of year t in which state i has an effective MML or both MML and RML law, X_{it} is the vector of the control variable, and c_i and u_t control for state and year fixed effects, respectively. I also include region-by-year fixed effects using census regions (West, Midwest, Northeast, and South), to allow for potential regional trends over time.

Since this study includes state fixed effects and region-by-year fixed effects, the preconceived notion is that in the absence of MML or both MML and RML, adopting states would have experienced changes in VCR similar to states that have not adopted MML or both MML and RML in the same region of the U.S. A time-varying determinant of unemployment rates was used as the sociodemographic control of MML and RML laws. This study also allows for state-specific linear time trends, allowing each state to follow a distinct trend.

V. Results

I examine whether MML and RML impact violent crime rates. I examine four types of violent crime: homicide, rape (legacy rape and revised rape), robbery and aggravated assault. I

additionally examine all four types of violent crime together as violent crime rates. With regard to, the conclusions of previous studies on this issue, I would expect that violent crime rates to be unaffected or decline once marijuana legalization has been adopted.

The results for the impact of MML and RML on violent crime overall, homicide, rape (legacy and revised), robbery and aggravated assault are shown in Table 4, 5, 6, 7, and 8 respectively. The first four columns of each table show estimates from an OLS regression not weighted by state population and the last four columns show estimates from an OLS regression weighted by state population. Results in Column 1 represent the impacts MML and RML had on VCR without any additional controls. Column 2 adds in region-by-year fixed effects. Column 3 adds the time-varying control of the unemployment rate, and Column 4 makes the addition of state-specific linear time trends. Columns 5 through 8 represent the same information as Column 1 through 4 respectively but with weighted state populations.

For Table 4, all violent crimes combined had between a 1% to 10% decline in all columns except for RML in Column 4 and Column 8, where there was an estimated 1% increase. For Table 5, homicides experienced a decline estimated between 3% and 15% apart from RML in Columns 6, 7, and 8 where there was an increase of 2%, 3.3% and .3% respectively. For Table 6, Panel A experienced an estimated 2% to 7% decline in all columns for MML except Column 4 and 8 with increases of .5% and 2.8% respectively. For RML, Columns 1 through 4 experienced an estimated 1% to 5% increase and Columns 5 through 8 experienced an estimated decline between 1% and 5%. For Panel B, there was an estimated increase in both MML and RML between 1% and 7%, except for Columns 2 and 8 for RML which experienced a .4% and 1.7% decline respectively. In Table 7, Columns 1 through 4 for both MML and RML experienced an estimated 1% to 10% decline. For Columns 5 through 8 for MML, there was an estimated 7% to

14% decline. For RML in Columns 5 through 8, there was an estimated 0% to 7% increase. Lastly, for Table 8, all Columns experienced an estimated decline between 2% and 11%, with the exception of Columns 4 and 8 for RML which experienced a 5.5% and 1.4% increase, respectively.

Table 4
The Impacts of MML and RML on all Violent Crime

	OLS - Unweighted				OLS - Weighted By State Population			
	1	2	3	4	5	6	7	8
	Log (Violent Crime)				Log (Violent Crime)			
MML	-0.035*	-0.074***	-0.062***	-0.069***	-0.091***	-0.095***	-0.094***	-0.038***
	(0.019)	(0.022)	(0.021)	(0.013)	(0.014)	(0.018)	(0.018)	(0.011)
RML	-0.043	-0.059	-0.087**	0.015	-0.013	-0.007	-0.012	0.006
	(0.037)	(0.039)	(0.038)	(0.024)	(0.029)	(0.038)	(0.038)	(0.023)

Notes: Each column in each table represents a separate regression. The unit of observation is state year. The time-varying control is unemployment rate. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level. Results in Column 1 represent the impacts MML and RML had on VCR without any additional controls. Column 2 adds in region-by-year fixed effects. Column 3 adds the time-varying control of the unemployment rate, and Column 4 makes the addition of state-specific linear time trends. Columns 5 through 8 represent the same information as Column 1 through 4 respectively but with weighted state populations.

Table 5
The Impacts of MML and RML on Homicide

	OLS - Unweighted				OLS - Weighted By State Population			
	1	2	3	4	5	6	7	8
	Log (Homicide)				Log (Homicide)			
MML	-0.062***	-0.047*	-0.044	-0.037	-0.061***	-0.040*	-0.044**	-0.074***
	(0.023)	(0.026)	(0.026)	(0.026)	(0.017)	(0.021)	(0.021)	(0.018)
RML	-0.150***	-0.114**	-0.123***	-0.036	-0.116***	0.020	0.033	0.003
	(0.043)	(0.046)	(0.046)	(0.049)	(0.035)	(0.044)	(0.044)	(0.038)

Notes: Results in Column 1 represent the impacts MML and RML had on VCR without any additional controls. Column 2 adds in region-by-year fixed effects. Column 3 adds the time-varying control of the unemployment rate, and Column 4 makes the addition of state-specific linear time trends. Columns 5 through 8 represent the same information as Column 1 through 4 respectively but with weighted state populations.

Table 6
The Impacts of MML and RML on Rape (Legacy and Revised)

	OLS - Unweighted				OLS - Weighted By State Population			
	1	2	3	4	5	6	7	8
Panel A	Log (Legacy Rape)				Log (Legacy Rape)			
MML	-0.034*	-0.065***	-0.057***	0.005	-0.029**	-0.072***	-0.069***	0.028*
	(0.017)	(0.020)	(0.019)	(0.016)	(0.014)	(0.018)	(0.018)	(0.015)
RML	0.047	0.025	0.005	0.053	-0.014	-0.041	-0.050	-0.030
	(0.035)	(0.038)	(0.037)	(0.032)	(0.032)	(0.040)	(0.040)	(0.032)
Panel B	Log (Revised Rape)				Log (Revised Rape)			
MML	0.053*	0.066**	0.068**	0.036	0.045*	0.042	0.043	0.003
	(0.030)	(0.033)	(0.033)	(0.043)	(0.025)	(0.026)	(0.026)	(0.003)
RML	0.007	-0.004	-0.013	0.020	0.060**	0.019	0.016	-0.017
	(0.038)	(0.041)	(0.042)	(0.060)	(0.030)	(0.037)	(0.039)	(0.054)

Notes: Results in Column 1 represent the impacts MML and RML had on VCR without any additional controls. Column 2 adds in region-by-year fixed effects. Column 3 adds the time-varying control of the unemployment rate, and Column 4 makes the addition of state-specific linear time trends. Columns 5 through 8 represent the same information as Column 1 through 4 respectively but with weighted state populations.

Table 7
The Impacts of MML and RML on Robbery

	OLS - Unweighted				OLS - Weighted By State Population			
	1	2	3	4	5	6	7	8
	Log (Robbery)				Log (Robbery)			
MML	-0.049**	-0.082***	-0.079***	-0.093***	-0.115***	-0.127***	-0.132***	-0.074***
	(0.019)	(0.022)	(0.022)	(0.016)	(0.017)	(0.021)	(0.021)	(0.015)
RML	-0.019	-0.026	-0.032	-0.029	0.064*	0.024	0.041	0.000
	(0.037)	(0.039)	(0.039)	(0.030)	(0.033)	(0.044)	(0.044)	(0.031)

Notes: Results in Column 1 represent the impacts MML and RML had on VCR without any additional controls. Column 2 adds in region-by-year fixed effects. Column 3 adds the time-varying control of the unemployment rate, and Column 4 makes the addition of state-specific linear time trends. Columns 5 through 8 represent the same information as Column 1 through 4 respectively but with weighted state populations.

Table 8
The Impacts of MML and RML on Aggravated Assault

	OLS - Unweighted				OLS - Weighted By State Population			
	1	2	3	4	5	6	7	8
	Log (Aggravated Assault)				Log (Aggravated Assault)			
MML	-0.023	-0.070***	-0.055**	-0.073***	-0.082***	-0.086***	-0.082***	-0.028**
	(0.023)	(0.026)	(0.025)	(0.017)	(0.016)	(0.021)	(0.021)	(0.014)
RML	-0.061	-0.066	-0.101**	0.055*	-0.049	-0.025	-0.038	0.014
	(0.044)	(0.047)	(0.046)	(0.032)	(0.033)	(0.043)	(0.044)	(0.029)

Notes: Results in Column 1 represent the impacts MML and RML had on VCR without any additional controls. Column 2 adds in region-by-year fixed effects. Column 3 adds the time-varying control of the unemployment rate, and Column 4 makes the addition of state-specific linear time trends. Columns 5 through 8 represent the same information as Column 1 through 4 respectively but with weighted state populations.

VI. Limitations and Future Research

In this study, specific dates for the passage and enactments of MML and RML laws were not used and a more general year was used instead due to time constraints and delay with locating and verification in addition to the specificity of enactment dates only one time-varying control was used for this research. Additionally, the FBI's UCR relies on voluntary information from law enforcement agencies and underreporting provides a limitation in data collecting. For further research, I would include more controls, such as decriminalization laws and police force size per 100,000 residents. I would also address what possible factors may have caused the reporting of rapes to increase when the definition was changed in 2013, and I would further address those constraints within the analysis to provide a more rigorous analysis.

VII. Discussion and Conclusion

Since the early 1900s, marijuana has been viewed as bringing violence and crime, and because of this fear, it became officially prohibited in the U.S. during the 1970's War on Drugs.

In the last three decades, 32 states plus DC have legalized medical marijuana, and nine states plus DC have legalized recreational marijuana and based on results presented in this study, violent crime continues to decline despite the MML and RML. More significantly, robbery, aggravated assault and homicide have seen statistically significant declines at the 1 percent level. This could be interpreted as the passage of MML and RML helping to decrease violent crime. With over half the states in the U.S. legalizing medical marijuana and one-fifth legalizing recreational marijuana, it is time to revisit current marijuana policy that is rooted in fear and hatred for immigrants because the argument that legalizing will increase violence and crime is no longer supported.

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