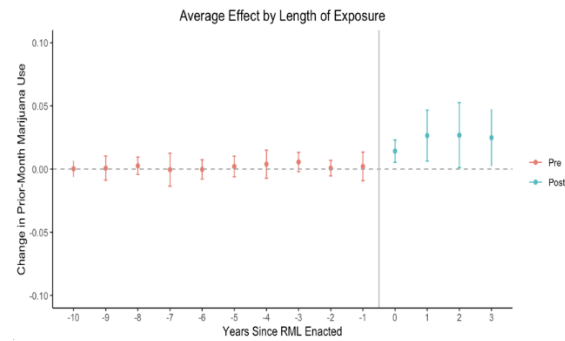


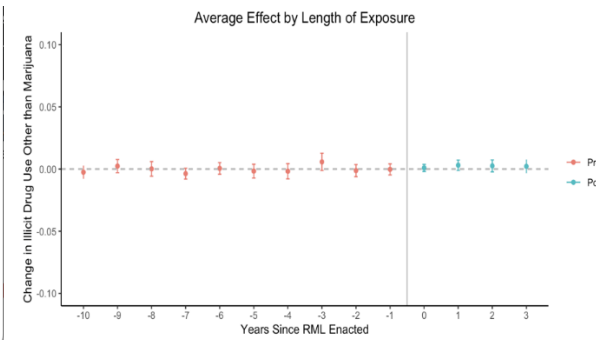
Online Appendix Figures and Tables

Appendix Figure 1. Event-Study Analysis of Recreational Marijuana Laws and Adult Drug Use, Drug Arrests, Property and Violent Crime Arrests, and Drug Treatment Admissions, Using Unweighted Callaway and Sant'Anna (2021) Estimates¹

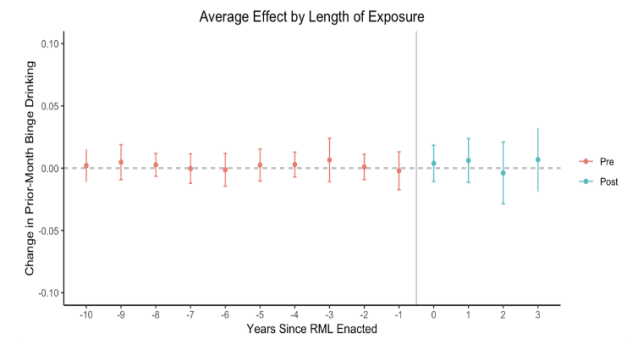
Panel (a): Marijuana Use



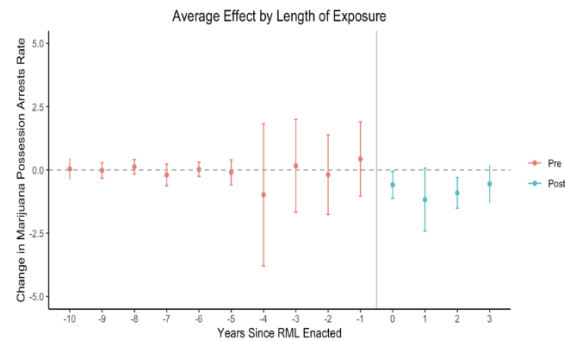
Panel (b): Illicit Drug Use Other than Marijuana



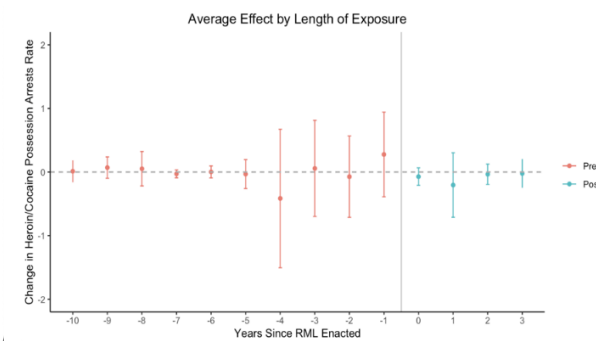
Panel (c): Binge Drinking



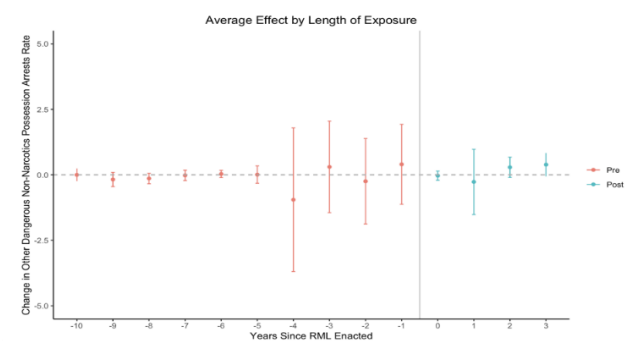
Panel (d): Marijuana Possession Arrest Rate



Panel (e): Heroin/Cocaine Possession Arrest Rate

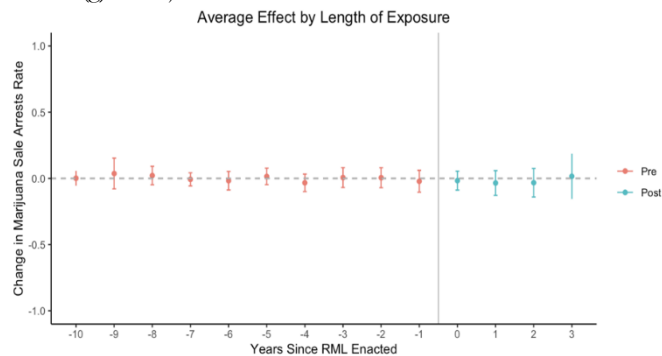


Panel (f): Other Dangerous Non-Narcotics Possession Arrest Rate

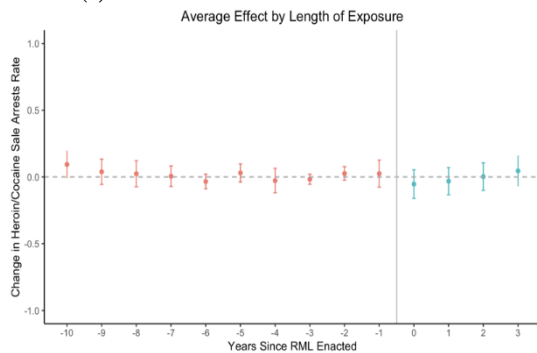


¹ Vertical lines show 95% confidence intervals around Callaway and Sant'Anna (2021) estimates of the effect of an RML at each year relative to RML enactment. Estimates are unweighted and include controls for state and year fixed effects, medical marijuana laws, marijuana decriminalization laws and state macroeconomic controls (unemployment rate and per capita GDP).

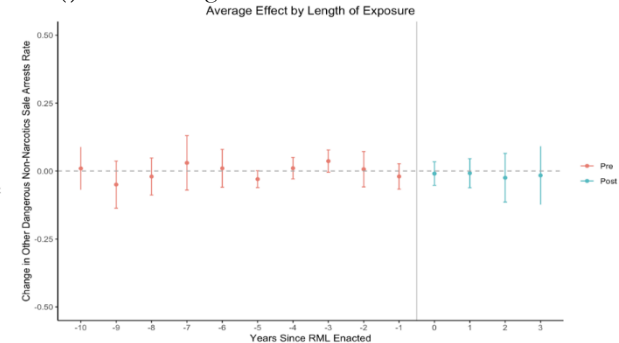
Panel (g): Marijuana Sale Arrest Rate



Panel (h): Heroin/Cocaine Sale Arrest Rate

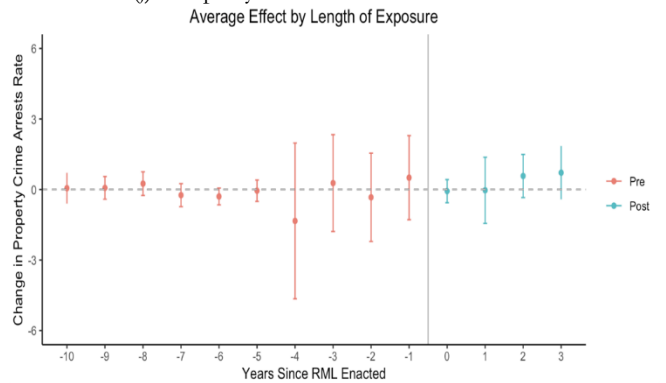


Panel (i): Other Dangerous Non-Narcotics Sale Arrest

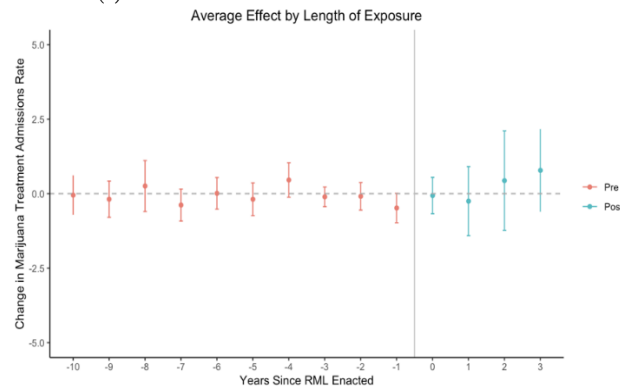


Rate

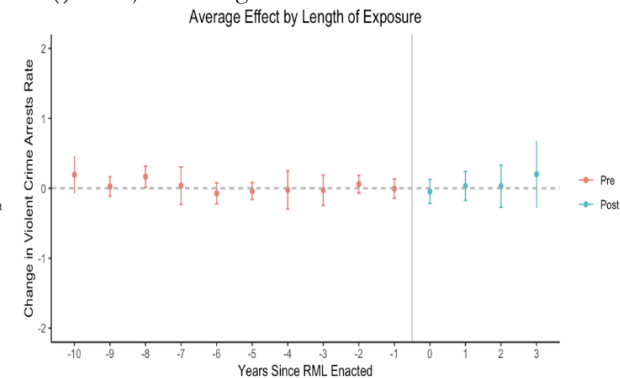
Panel (j): Property Crime Arrest Rate



Panel (k): Violent Crime Arrest Rate



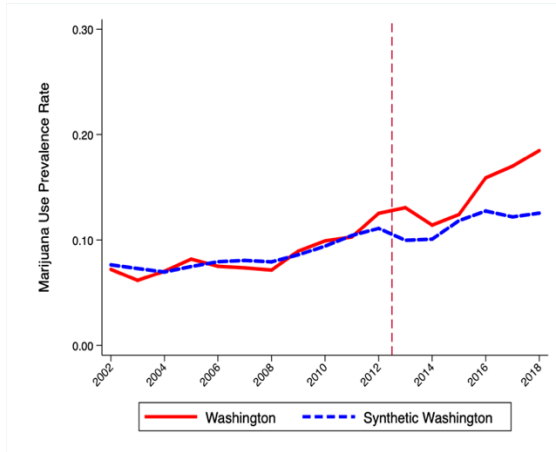
Panel (l): Marijuana Drug Treatment Admission Rate



Appendix Figure 2. Synthetic Control Estimates for Washington

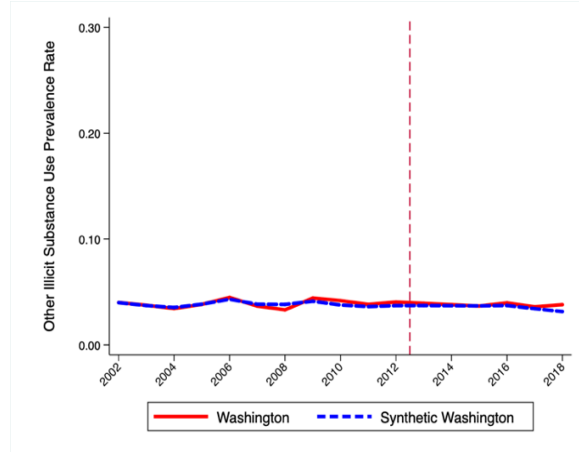
Panel (a): Marijuana Use, NSUDH

RML Effect = 0.032 (p-value = 0.300)



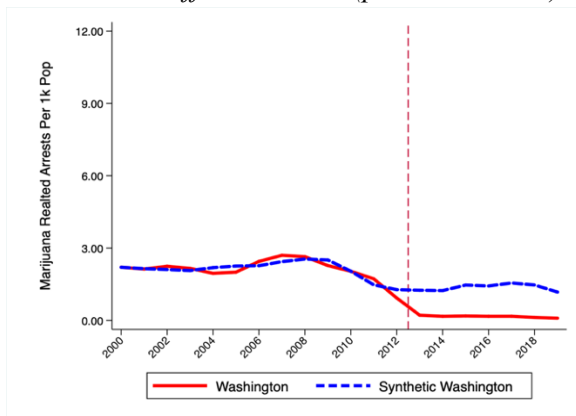
Panel (b): Illicit Drug Use Other than Marijuana, NSUDH

RML Effect = 0.0001 (p-value = 0.750)



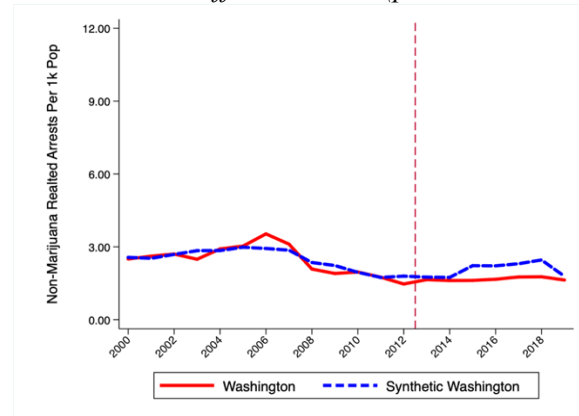
Panel (c): Marijuana Arrests, UCR

RML Effect = -1.207 (p-value = 0.474)



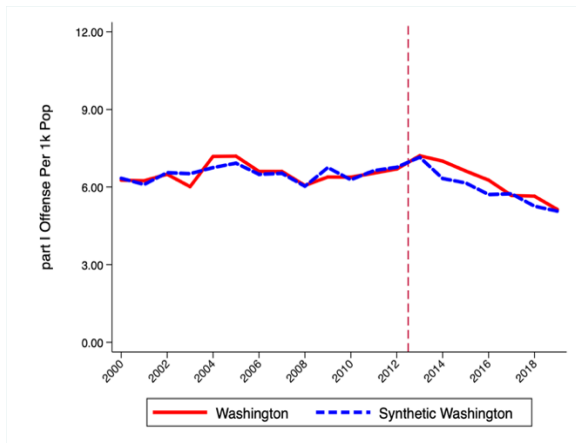
Panel (d): Non-Marijuana Arrests, UCR

RML Effect = -0.398 (p-value = 0.816)



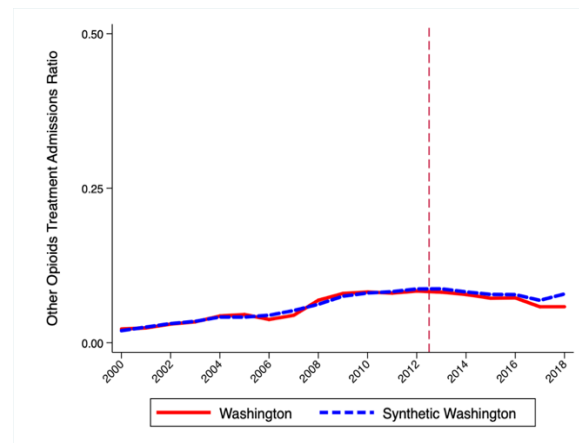
Panel (e): Part I Offense Arrests, UCR

RML Effect = 0.305 (p-value = 0.711)



Panel (f): Other Opioids Treatment Admission Ratio, TEDS

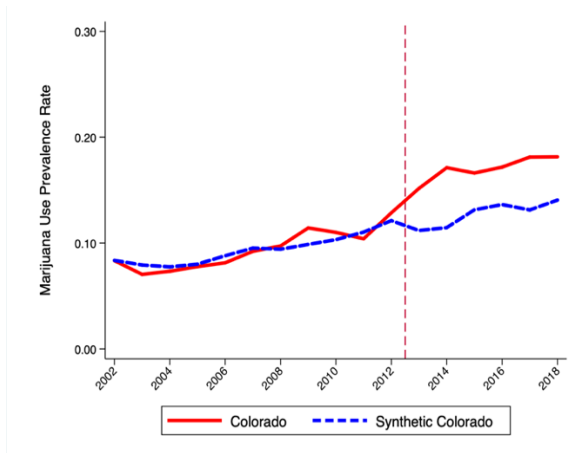
RML Effect = -0.009 (p-value = 0.889)



Appendix Figure 3. Synthetic Control Estimates for Colorado

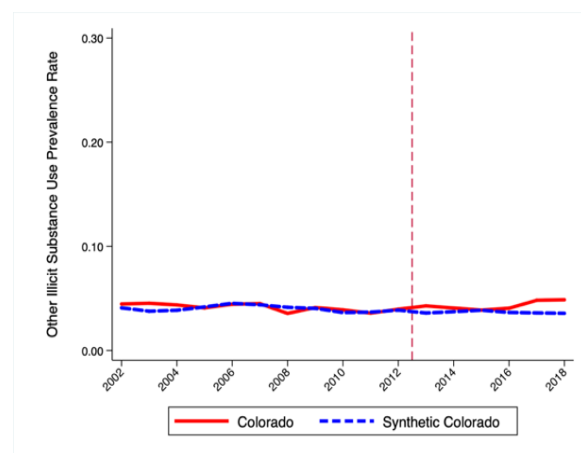
Panel (a): Marijuana Use, NSUDH

$RML\ Effect = 0.043$ ($p\text{-value} = 0.257$)



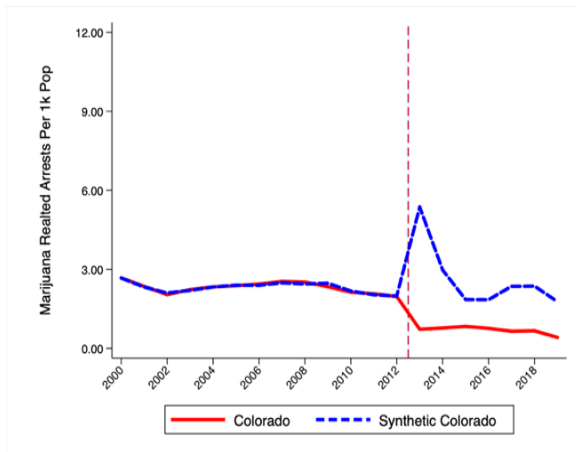
Panel (b): Illicit Drug Use Other than Marijuana, NSUDH

$RML\ Effect = 0.007$ ($p\text{-value} = 0.371$)



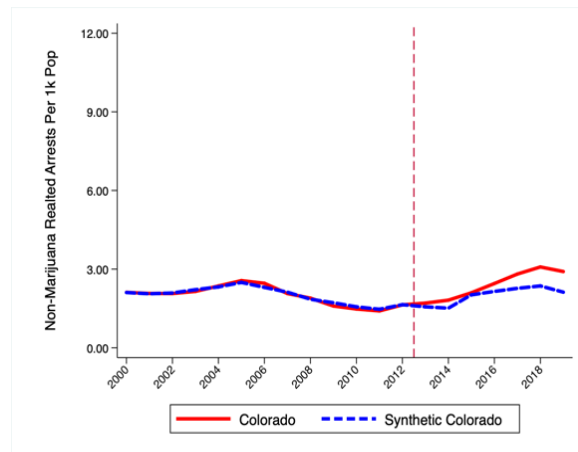
Panel (c): Marijuana Arrests, UCR

$RML\ Effect = -1.959$ ($p\text{-value} = 0.061$)



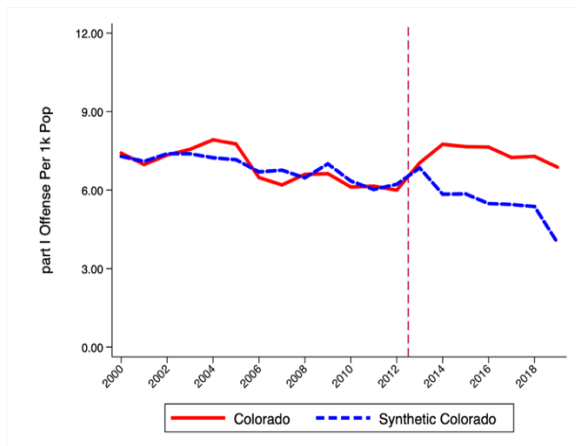
Panel (d): Non-Marijuana Arrests, UCR

$RML\ Effect = 0.411$ ($p\text{-value} = 0.364$)



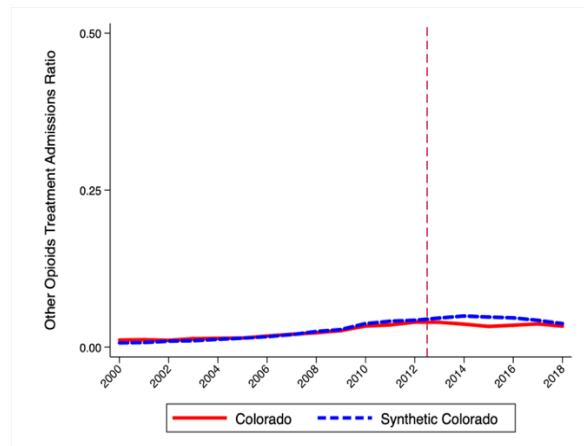
Panel (e): Part I Offense Arrests, UCR

$RML\ Effect = 1.801$ ($p\text{-value} = 0.333$)



Panel (f): Other Opioids Treatment Admission Ratio, TEDS

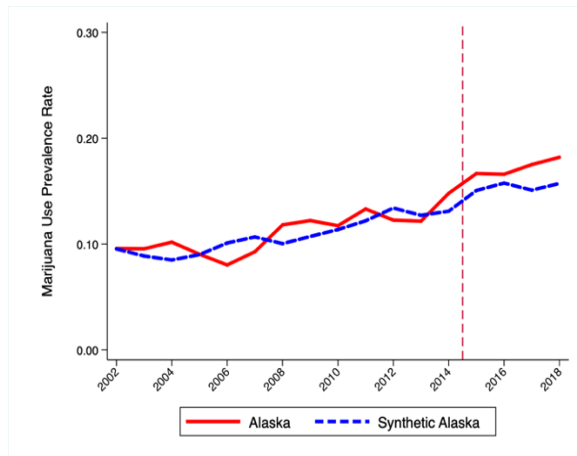
$RML\ Effect = -0.009$ ($p\text{-value} = 0.677$)



Appendix Figure 4. Synthetic Control Estimates for Alaska

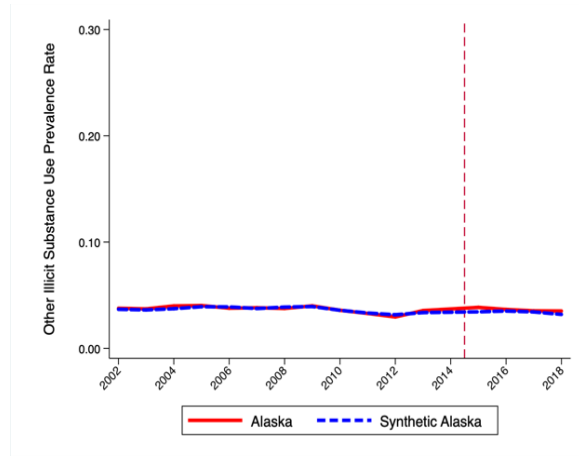
Panel (a): Marijuana Use, NSUDH

$RML\ Effect = 0.018$ ($p\text{-value} = 0.829$)



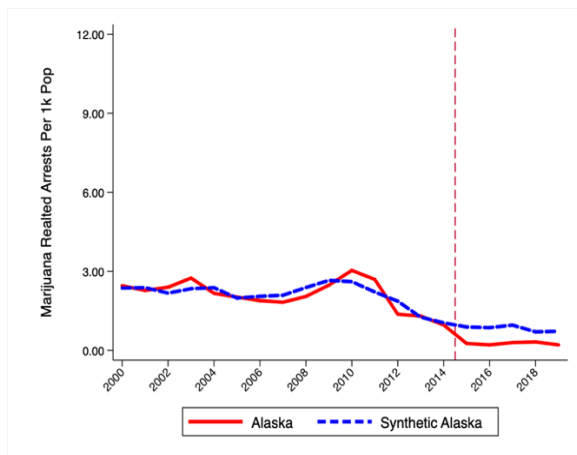
Panel (b): Illicit Drug Use Other than Marijuana, NSUDH

$RML\ Effect = 0.002$ ($p\text{-value} = 0.415$)



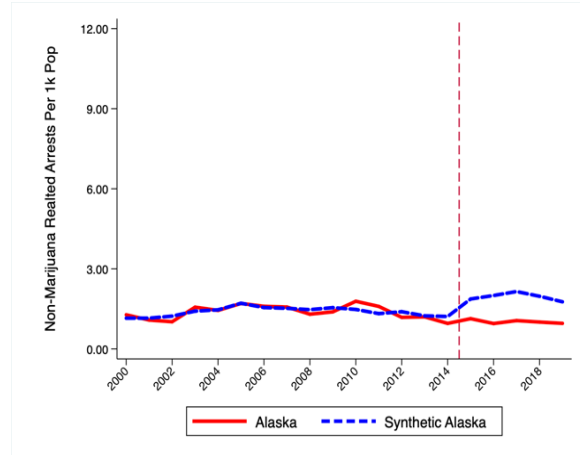
Panel (c): Marijuana Arrests, UCR

$RML\ Effect = -0.569$ ($p\text{-value} = 0.615$)



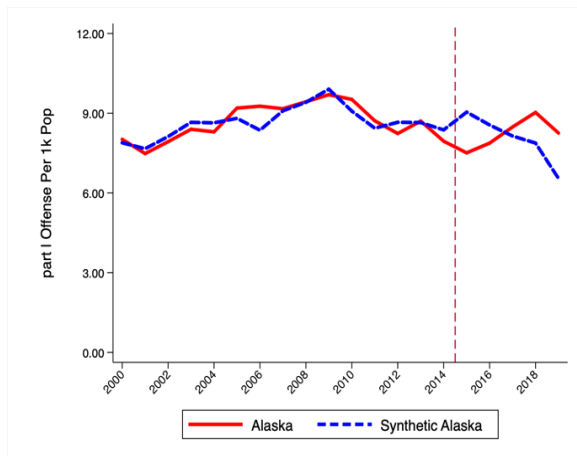
Panel (d): Non-Marijuana Arrests, UCR

$RML\ Effect = -0.930$ ($p\text{-value} = 0.333$)



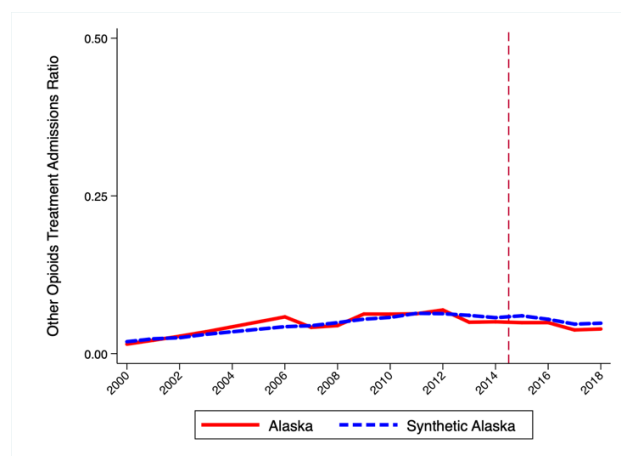
Panel (e): Part I Offense Arrests, UCR

$RML\ Effect = 0.197$ ($p\text{-value} = 0.436$)



Panel (f): Other Opioids Treatment Admission Ratio, TEDS

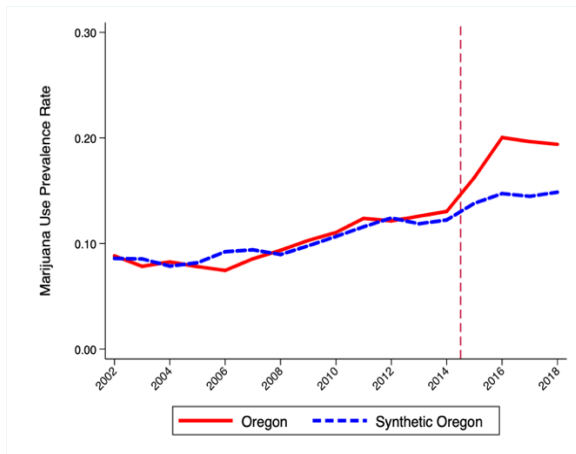
$RML\ Effect = -0.009$ ($p\text{-value} = 0.865$)



Appendix Figure 5. Synthetic Control Estimates for Oregon

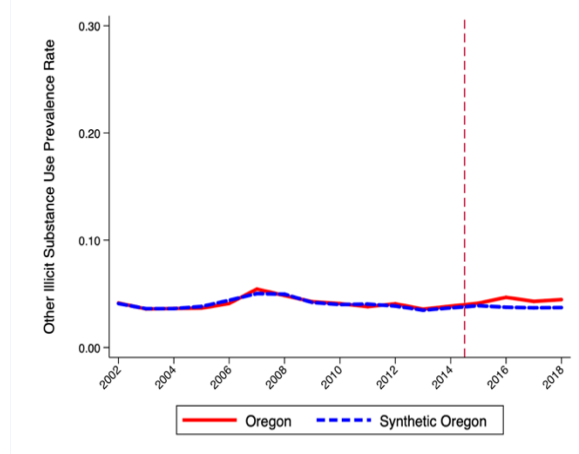
Panel (a): Marijuana Use, NSUDH

$RML\ Effect = 0.044$ ($p\text{-value} = 0.175$)



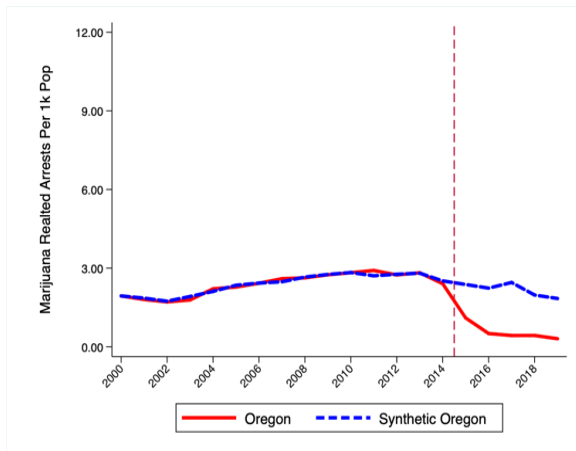
Panel (b): Illicit Drug Use Other than Marijuana, NSUDH

$RML\ Effect = 0.006$ ($p\text{-value} = 0.225$)



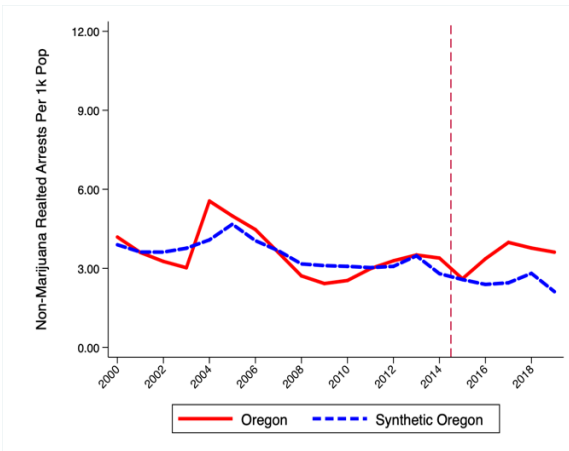
Panel (c): Marijuana Arrests, UCR

$RML\ Effect = -1.622$ ($p\text{-value} = 0.079$)



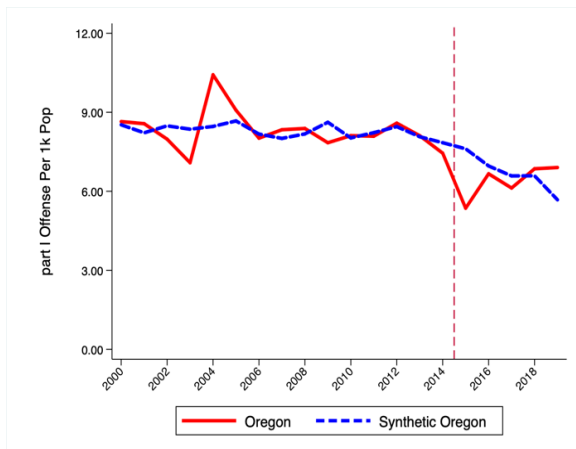
Panel (d): Non-Marijuana Arrests, UCR

$RML\ Effect = 0.999$ ($p\text{-value} = 0.763$)



Panel (e): Part I Offense Arrests, UCR

$RML\ Effect = -0.304$ ($p\text{-value} = 0.632$)

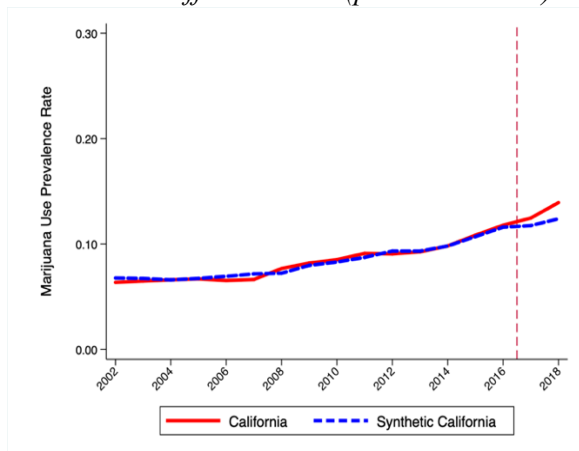


Panel (f): N/A; Data from TEDS on Drug Treatment Admissions in Oregon Not Available in the Post-Treatment Period in Oregon

Appendix Figure 6. Synthetic Control Estimates for California

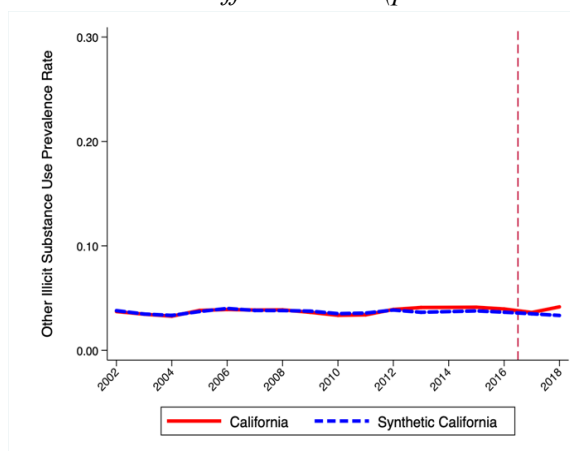
Panel (a): Marijuana Use, NSUDH

$RML\ Effect = 0.011$ ($p\text{-value} = 0.275$)



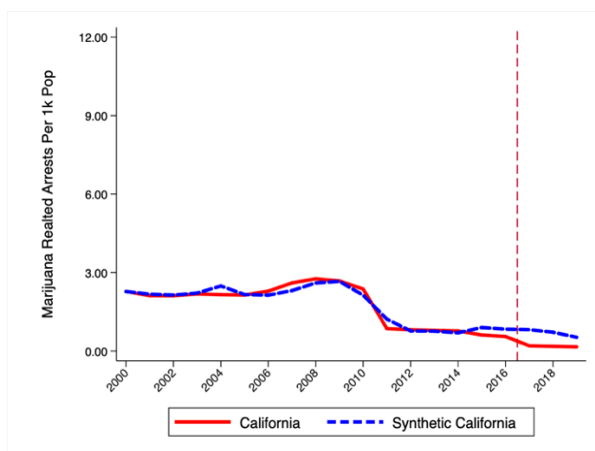
Panel (b): Illicit Drug Use Other than Marijuana, NSUDH

$RML\ Effect = 0.005$ ($p\text{-value} = 0.200$)



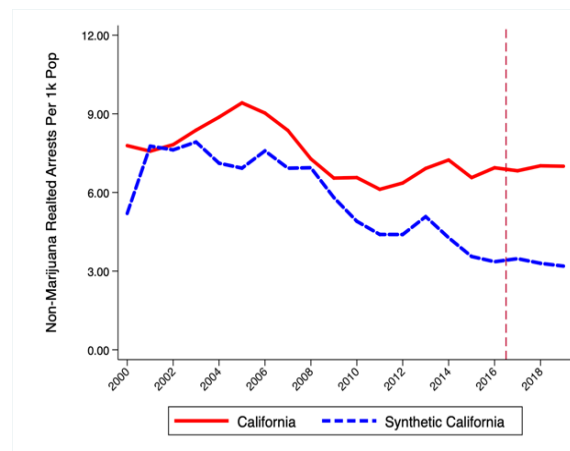
Panel (c): Marijuana Arrests, UCR

$RML\ Effect = -0.507$ ($p\text{-value} = 0.421$)



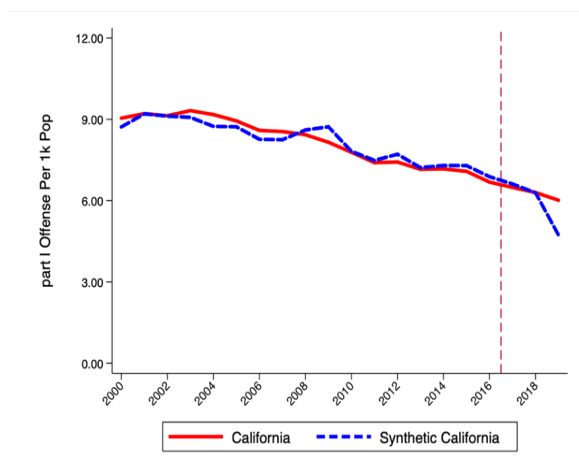
Panel (d): Non-Marijuana Arrests, UCR

$RML\ Effect = 3.626$ ($p\text{-value} = 0.553$)



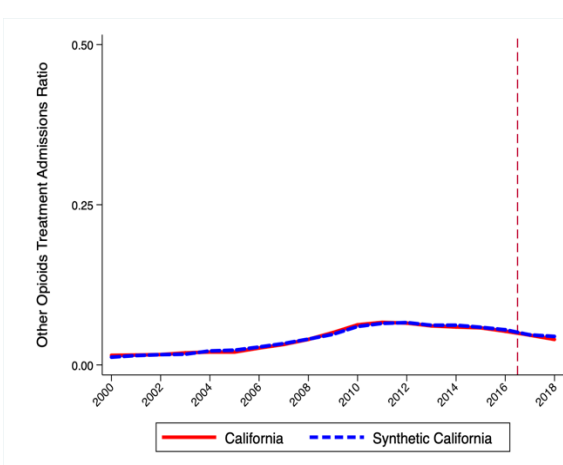
Panel (e): Part I Offense Arrests, UCR

$RML\ Effect = 0.381$ ($p\text{-value} = 0.395$)



Panel (f): Other Opioids Treatment Admission Ratio, TEDS

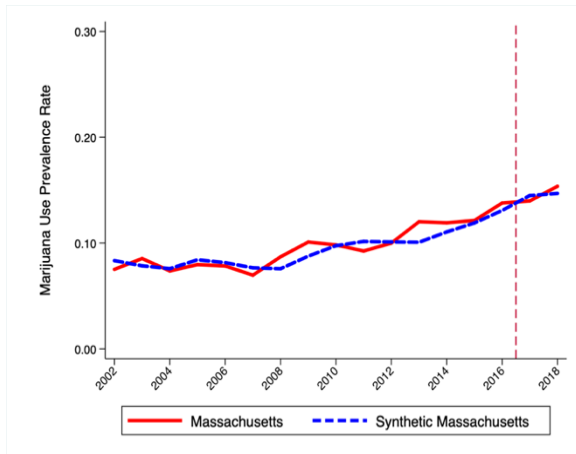
$RML\ Effect = 0.0001$ ($p\text{-value} = 0.639$)



Appendix Figure 7. Synthetic Control Estimates for Massachusetts

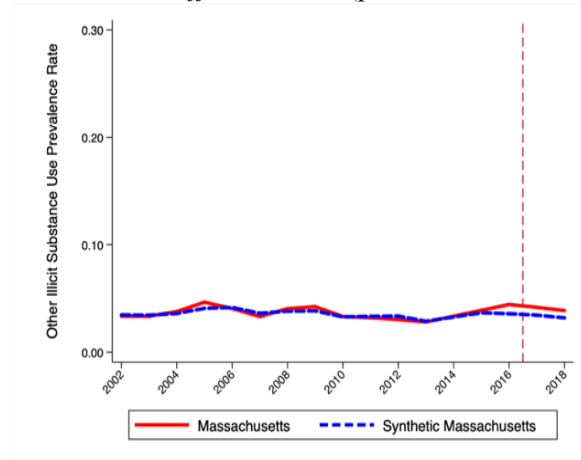
Panel (a): Marijuana Use, NSUDH

$RML\ Effect = 0.0001$ ($p\text{-value} = 0.946$)



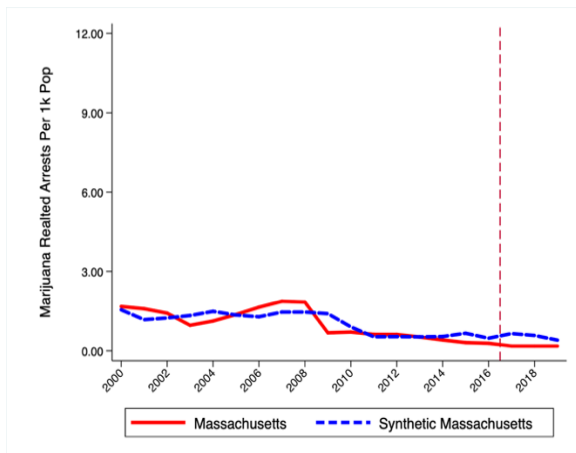
Panel (b): Illicit Drug Use Other than Marijuana, NSUDH

$RML\ Effect = 0.007$ ($p\text{-value} = 0.324$)



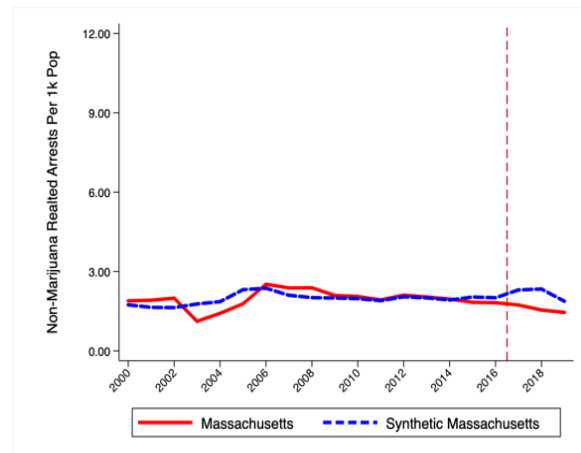
Panel (c): Marijuana Arrests, UCR

$RML\ Effect = -0.369$ ($p\text{-value} = 0.600$)



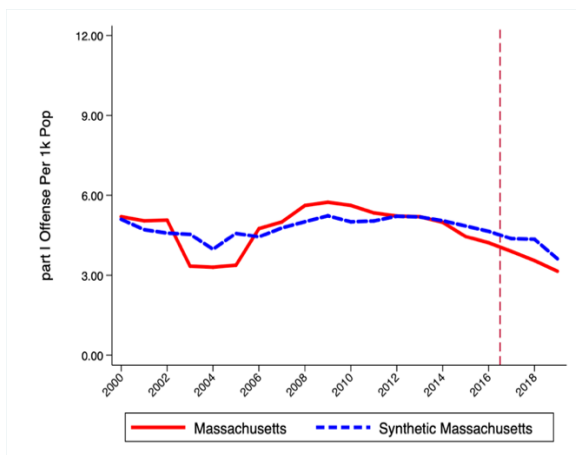
Panel (d): Non-Marijuana Arrests, UCR

$RML\ Effect = -0.596$ ($p\text{-value} = 0.543$)



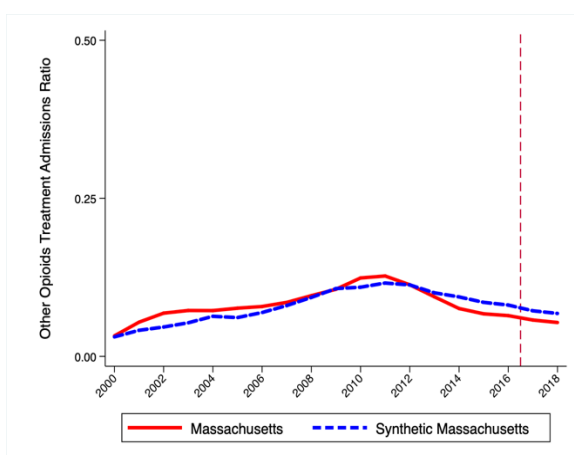
Panel (e): Part I Offense Arrests, UCR

$RML\ Effect = -0.581$ ($p\text{-value} = 0.771$)



Panel (f): Other Opioids Treatment Admission Ratio, TEDS

$RML\ Effect = -0.014$ ($p\text{-value} = 0.818$)



Appendix Table 1. Weighted Means of Dependent Variables

Panel I: National Survey of Drug Use and Health					
	Age 18 and older	Age 18-25	Age 26 and older		
Marijuana Use in Last Month	0.074 (0.025)	0.187(0.042)	0.055(0.023)		
Illicit Drug Use Other than Marijuana in Last Month	0.034 (0.004)	0.077(0.012)	0.027(0.004)		
Cocaine Use in Last Year	0.021 (0.005)	0.056(0.014)	0.015(0.003)		
Non-Medicinal Use of Pain Relievers in Last Year	0.044 (0.006)	0.099(0.027)	0.034(0.005)		
Binge Drinking in Last Month	0.25 (0.027)	0.411(0.054)	0.227(0.027)		
Panel II: Uniform Crime Reports^a					
	Age 18 and older	Age 18-20	Age 21 & older	Males	Females
Drug Possession Arrest Rate	4.42 (2.36)	14.92 (8.75)	3.79 (2.09)	7.16 (3.78)	1.82 (1.10)
Drug Sale Arrest Rate	0.95 (0.56)	2.72 (2.19)	0.84 (0.48)	1.59 (0.99)	0.34 (0.19)
Total Drug Arrest Rate	5.56 (2.46)	18.40 (9.55)	4.80 (2.19)	9.10 (4.00)	2.22 (1.14)
Marijuana Possession Arrest Rate	2.04 (1.28)	10.79 (7.97)	1.52 (0.94)	3.51 (2.22)	0.66 (0.46)
Marijuana Sale Arrest Rate	0.26 (0.19)	1.18 (0.98)	0.20 (0.15)	0.46 (0.34)	0.06 (0.05)
Total Marijuana Arrest Rate	2.30 (1.36)	11.97 (8.29)	1.73 (1.01)	3.97 (2.38)	0.73 (0.48)
Cocaine/Heroin Poss. Arrest Rate	1.13 (0.93)	1.88 (1.60)	1.08 (0.91)	1.78 (1.49)	0.51 (0.42)
Cocaine/Heroin Sales Arrest Rate	0.39 (0.37)	0.97 (1.38)	0.35 (0.32)	2.92 (2.51)	0.77 (0.67)
Total Cocaine/Heroin Arrest Rate	1.52 (1.17)	2.85 (2.66)	1.44 (1.11)	0.67 (0.67)	0.12 (0.10)
Narcotics Possession Arrest Rate	0.21 (0.23)	0.43 (0.43)	0.20 (0.22)	2.46 (1.94)	0.64 (0.48)
Narcotics Sales Arrest Rate	0.09 (0.12)	0.17 (0.25)	0.08 (0.11)	0.31 (0.33)	0.12 (0.13)
Non-Narcotic Possess Arrest Rate	1.02 (1.16)	1.80 (1.51)	0.98 (1.16)	1.55 (1.74)	0.52 (0.64)
Non-Narcotic Sales Arrest Rate	0.20 (0.19)	0.39 (0.41)	0.19 (0.18)	0.32 (0.30)	0.09 (0.09)
Property Arrest Rate	4.50 (1.68)	15.39 (6.40)	3.86 (1.49)	6.02 (2.29)	3.06 (1.22)
Violent Arrest Rate	1.81 (0.99)	4.70 (2.28)	1.64 (0.92)	3.01 (1.62)	0.67 (0.40)
Assault Arrest Rate	1.50 (0.93)	2.81 (1.55)	1.30 (0.83)	2.24 (1.39)	0.58 (0.36)
Robbery Arrest Rate	0.35 (0.16)	1.51 (0.77)	0.23 (0.10)	0.55 (0.25)	0.07 (0.03)
Murder Arrest Rate	0.48 (0.26)	0.15 (0.09)	0.03 (0.01)	0.07 (0.04)	0.009 (0.007)
Larceny Arrest Rate	3.76 (1.60)	11.10 (5.13)	2.97 (1.33)	4.21 (1.85)	2.70 (1.19)
Burglary Arrest Rate	0.84 (0.45)	3.00 (1.70)	0.62 (0.33)	1.30 (0.64)	0.24 (0.21)
Motor Vehicle Theft Arrest Rate	0.32 (0.23)	1.09 (0.87)	0.24 (0.16)	0.48 (0.33)	0.10 (0.08)
Arson Arrest Rate	0.03 (0.02)	0.08 (0.06)	0.02 (0.02)	0.05 (0.03)	0.01 (0.01)
Panel IV: Treatment Episode Data Set^b					
Marijuana Admissions Rate	2.45 (1.67)	5.53 (3.96)	2.27 (1.57)	3.54 (2.64)	1.42 (0.84)
Cocaine Admissions Rate	2.00 (2.05)	1.21 (1.09)	2.05 (2.11)	2.66 (3.03)	1.38 (1.18)
Amphetamine/Meth Admission Rate	0.98 (1.14)	1.12 (1.31)	0.97 (1.14)	1.14 (1.32)	0.83 (0.97)
Alcohol Admission Rate	4.35 (3.65)	4.29 (3.98)	4.35 (3.67)	6.43 (5.80)	2.38 (1.69)
Heroin/Fentanyl Admissions Rate	1.67 (2.24)	1.23 (1.60)	1.70 (2.29)	2.28 (3.18)	1.10 (1.43)
Other Opioids Admissions Rate	0.84 (0.78)	0.91 (1.10)	0.84 (0.78)	0.97 (0.95)	0.73 (0.66)
Panel IV: NVSS Mortality Files^c					
Cocaine Death Rate	2.94 (2.50)	0.94 (0.92)	3.05 (2.61)	4.42 (3.71)	1.54 (1.41)
Methamphetamine Death Rate	1.68 (2.37)	0.60 (0.76)	1.75 (2.47)	2.44 (3.43)	0.97 (1.38)
Heroin Deaths Rate	2.73 (3.01)	1.35 (1.39)	2.81 (3.13)	4.36 (4.65)	1.19 (1.52)
Fentanyl Death Rate	3.41 (6.37)	1.20 (2.19)	3.54 (6.63)	4.79 (9.65)	2.12 (3.35)
Other Opioid Death Rate	6.13 (3.28)	2.74 (2.02)	6.33 (3.41)	7.81 (4.15)	4.55 (2.72)
Alcohol Death Rate	11.51 (4.52)	0.28 (0.41)	12.16 (4.76)	17.46 (6.21)	5.89 (2.97)
Suicide Rate	15.82 (4.19)	11.35 (4.68)	16.09 (4.23)	25.68 (6.59)	6.52 (1.97)

^aArrest rates are calculated per 1,000 relevant state population.

^bTreatment admission rates are calculated per 1,000 relevant state population.

^cMortality rates are calculated per 100,000 relevant state population.

Appendix Table 2. Weighted Means and Sources of Independent Variables, 2000-2019

Variable name	Mean	SD	Source
ACA Medicaid Expansion	0.19	0.39	Kaiser Family Foundation, State Health Facts (Medicaid and Health Reform): https://www.kff.org/statedata/
Beer tax per gallon (nom \$)	0.26	0.24	Urban Institute & Brookings Institution Tax Policy Center: https://www.taxpolicycenter.org/statistics/state-alcoholexcise-taxes
Marijuana Decriminalized	0.36	0.48	NORML Foundation: https://norml.org/laws/decriminalization/
Democrat Governor	0.43	0.49	Anderson and Rees (2011), and authors' own internet searches
EITC refundable rate (nom \$)	0.07	0.16	University of Kentucky Center for Poverty Research, National Welfare Data: https://ukcpr.org/resources/national-welfare-data
Log (law enforcement personnel per 1,000 pop)	0.82	0.23	FBI UCR: https://ucr.fbi.gov/crime-in-the-u.s/2011/crimein-the-u.s.-2011/police-employee-data
Minimum Wage (nom \$)	7.03	1.47	Economic Policy Institute (Ben Zipperer): https://www.epi.org/data/
Medical Marijuana Law	0.32	0.46	Anderson and Rees (2021)
Naloxone Access Law	0.34	0.46	Rees, Sabia, Argys, Dave, and Latshaw (2019); Prescription Drug Abuse Policy System: http://pdaps.org/datasets/good-samaritan-overdose-laws-1501695153 ; and the Network for Public Health Law: https://www.networkforphl.org/wpcontent/uploads/2020/10/Fact-Sheet-Naloxone-Prescription-Mandates.pdf
Number law enforcement agencies reporting arrests	675.85	368.69	FBI UCR
Per capital personal income (nom \$)	42199.31	9911.62	FRED: https://fred.stlouisfed.org/series/A792RC0A052NBEA
Must-access prescription drug monitoring program	0.122	0.317	Dave, Deza, and Horn (2021); Prescription Drug Abuse Policy System: http://pdaps.org/datasets/prescriptionmonitoring-program-laws-1408223416-1502818373 ; and Valant: https://www.valant.io/pdmp/
Share Non-Hispanic Black	0.128	0.08	Calculated using SEER Population Estimates (1990-2019 single-year age groups): https://seer.cancer.gov/popdata/download.html
Share Hispanic	0.15	0.12	Calculated using SEER Population Estimates (1990-2019 single-year age groups): https://seer.cancer.gov/popdata/download.html
Recreational Marijuana Law	0.046	0.20	Anderson and Rees (2021)
Good Samaritan Alcohol Law	0.06	0.23	Rees, Sabia, Argys, Dave, and Latshaw (2019); Prescription Drug Abuse Policy System: http://pdaps.org/datasets/good-samaritan-overdose-laws-1501695153 ; and authors' own searches
Good Samaritan Drug Law	0.19	0.38	Rees, Sabia, Argys, Dave, and Latshaw (2019); Prescription Drug Abuse Policy System: http://pdaps.org/datasets/good-samaritan-overdose-laws-1501695153 ; and authors' own searches
Maximum SNAP benefit for 4-person family (nom \$)	577.40	92.25	University of Kentucky Center for Poverty Research, National Welfare Data: https://ukcpr.org/resources/national-welfare-data
State Unemployment Rate	5.90	2.09	FRED: https://fred.stlouisfed.org/release?rid=112

Appendix Table 3. Marijuana Policies

Panel A: Effective Dates for Recreational Marijuana Laws (RML), Recreational Marijuana Dispensary Openings, Medical Marijuana Laws (MML)

State	RML Effective Date	Recreational Dispensary Opening	MML Effective Date
Alaska	2/24/2015	10/29/2016	3/4/1999
California	11/9/2016	1/1/2018	11/6/1996
Colorado	12/10/2012	1/1/2014	6/1/2001
District of Columbia	2/26/2015	2/26/2015 ^a	7/27/2010
Maine	1/30/2017	1/1/2020	12/22/1999
Massachusetts	12/15/2016	11/20/2018	1/1/2013
Michigan	12/6/2018	12/1/2019	12/4/2008
Nevada	1/1/2017	7/1/2017	10/1/2001
Oregon	7/1/2015	10/1/2015	12/3/1998
Vermont	7/1/2018	2/1/2022	7/1/2004
Washington	12/6/2012	7/8/2014	11/3/1998

Notes: Effective dates obtained: Anderson and Rees 2021; Normal: <https://norml.org> and Procon: <https://marijuana.procon.org/legal-recreational-marijuana-states-and-dc/>.

^aWashington D.C. technically does not allow retail sales of marijuana. However, there is a long system of grey-market dealers in D.C. who are mobile and operate as a deliver service or as gifting shops, and bundle “complimentary” marijuana with token purchases such as t-shirts.

Panel B: Effective Dates of Marijuana Decriminalization or Depenalization Laws

State	Effective Date	Source
Alaska	05/27/1975	https://casetext.com
California	1976	https://www.mpp.org/issues/decriminalization/
Colorado	1975	https://www.mpp.org/issues/decriminalization/
Connecticut	07/01/2011	https://law.justia.com
Delaware	12/18/2015	https://law.justia.com
D.C.	11/04/2014	https://images.procon.org/wp-content/uploads/sites/16/dc-initiative-71-marijuana.pdf
Hawaii	01/11/2020	https://norml.org/laws/
Illinois	06/27/2016	https://www.riverside.il.us/DocumentCenter/View/3389/Recreational-Cannabis-FAQ?bidId=
Maine	05/01/1976	https://books.google.com/books?id=BX9KAQAAMAAJ
Maryland	10/01/2014	https://casetext.com
Massachusetts	12/04/2008	https://casetext.com
Minnesota	03/08/1976 ^a	https://www.revisor.mn.gov/laws/1976/0/Session+Law/Chapter/42/pdf/
Mississippi	1977 ^a	https://www.mpp.org/issues/decriminalization/
Missouri	05/13/2014 ^a	https://www.senate.mo.gov
Nebraska	04/20/1978 ^a	https://nebraskalegislature.gov/laws/statutes.php?statute=28-416
Nevada	10/01/2001	https://norml.org/

New Hampshire	09/16/2017	https://law.justia.com
New Mexico	07/01/2019	https://norml.org/laws/
New York	1977	https://www.mpp.org/issues/decriminalization/
North Carolina	1977 ^a	https://www.mpp.org/issues/decriminalization/
Ohio	1975	https://www.mpp.org/issues/decriminalization/
Oregon	1973	https://www.mpp.org/issues/decriminalization/
Rhode Island	04/01/2013	https://www.mpp.org/states/rhode-island/
Vermont	02/25/2014	https://casetext.com

Notes: ^a Denotes marijuana depenalization law

Appendix Table 4. Heterogeneity in Drug Arrest Rate Effects, by Age, Gender, and Individual Drug Arrest (UCR, 2000-2019)

	All Drugs	Marijuana	Heroin and Cocaine	Truly Addicting Synthetic Narcotics	Other Dangerous Non- Narcotics
	(1)	(2)	(3)	(4)	(5)
Panel I: Ages 18-20					
RML	-3.947** (1.241)	-3.750*** (1.067)	0.8598 (0.4895)	-0.4271* (0.1654)	-0.6299* (0.2400)
Pre-Treatment Mean DepVar	16.58	8.72	3.74	0.310	3.80
Panel II: Ages 21 and older					
RML	-1.080*** (0.2522)	-1.079*** (0.1594)	0.3235 (0.1941)	-0.2293** (0.0761)	-0.0957 (0.1197)
Pre-Treatment Mean DepVar	5.67	1.27	2.01	0.158	2.22
Panel III: Males					
RML	-1.675*** (0.4770)	-1.796*** (0.3107)	0.5773 (0.3394)	-0.3356** (0.1168)	-0.1203 (0.1701)
Pre-Treatment Mean DepVar	10.14	2.99	3.31	0.247	3.59
Panel IV: Females					
RML	-0.7366*** (0.1415)	-0.6128*** (0.0862)	0.1507 (0.0840)	-0.1457** (0.0450)	-0.1288 (0.0763)
Pre-Treatment Mean DepVar	2.59	0.458	0.962	0.089	1.09
N	998	998	998	998	998

***p < .001 **p < .01 *p < .05

Notes: Notes: Estimates are obtained using state-by-year data on drug arrests from the 2000-2019 Uniform Crime Reports. The dependent variable is the number of drug arrests per 1,000 population. All models include state and year fixed effects, control for the number of law enforcement agencies reporting arrests, medical marijuana laws (MMLs), marijuana decriminalization laws (MDLs), state macroeconomic controls (unemployment rate and per capita GDP), naloxone access laws, Good Samaritan laws, must-access prescription drug monitoring program, beer taxes, welfare Policy Controls including the state EITC refundable rate, the maximum Supplemental Nutrition Assistance Program (Food Stamp) benefit level for a 4-person family, an indicator for whether the state has implemented an Affordable Care Act Medicaid expansion, whether the governor is a Democrat, the natural log of law enforcement personnel per 1,000 population, the binding state minimum wage, and the racial composition of the state. Regressions are weighted by adult population ages 18 and older. Standard errors are clustered at the state level.

Appendix Table 5. Heterogeneity in Effects of RMLs on Key Outcomes, by Gender (UCR and TEDS)

	MJ Arrest Rate	Non-MJ Drug Arrest Rate	Property Crime Arrest Rate	Violent Crime Arrest Rate	MJ Admission Rate
	(1)	(2)	(3)	(4)	(5)
Panel I: Adult Males					
RML	-1.796*** (0.3107)	0.1213 (0.3346)	0.1279 (0.3023)	0.1749 (0.1577)	-0.0033 (0.2537)
N	998	998	998	998	953
Pre-Treat Mean DepVar	2.992	7.150	5.87	4.54	3.23
Panel II: Adult Females					
RML	-0.6128*** (0.0862)	-0.1237 (0.0976)	0.0546 (0.1814)	0.0441 (0.0356)	-0.1038 (0.0855)
N	998	998	998	998	953
Pre-Treat Mean DepVar	0.458	2.14	2.91	1.02	1.47

***p < .001 **p < .01 *p < .05

Notes: Estimates are obtained using state-by-year data from the 2000-2019 Uniform Crime Reports (columns 1-4) and the 2000-2018 Treatment Episode Data Set (columns 5-6). The dependent variables in columns (1)-(4) are calculated as number of adult arrests per 1,000 population. In columns (5) and (6), marijuana and non-marijuana drug treatment admissions are calculated as the number of marijuana and non-marijuana-related drug treatment admissions per 1,000 population. All models include state and year fixed effects, control for the number of law enforcement agencies reporting arrests, medical marijuana laws (MMLs), marijuana decriminalization laws (MDLs), state macroeconomic controls (unemployment rate and per capita GDP), naloxone access laws, Good Samaritan laws, must-access prescription drug monitoring program, beer taxes, welfare Policy Controls including the state EITC refundable rate, the maximum Supplemental Nutrition Assistance Program (Food Stamp) benefit level for a 4-person family, an indicator for whether the state has implemented an Affordable Care Act Medicaid expansion, whether the governor is a Democrat, the natural log of law enforcement personnel per 1,000 population, the binding state minimum wage, and the racial composition of the state. Regressions are weighted by adult population ages 18 and older. Standard errors are clustered at the state level.

Appendix Table 6. Heterogeneity in Drug Treatment Admissions Effects, by Age and Gender, (TEDS 2000-2018)

	Marijuana	Cocaine	Methamphetamine/ Amphetamine	Heroin	Other Opioids	Alcohol
	(1)	(2)	(3)	(4)	(5)	(6)
Panel I: Ages 18-20						
RML	0.0278 (0.3284)	0.0979 (0.0806)	0.3496 (0.2815)	0.3191 (0.5145)	-0.4002 (0.2928)	-0.3972 (1.063)
Pre-Treat Mean DepVar	5.30	1.18	2.03	1.62	1.00	4.94
Panel II: Ages 21 and older						
RML	-0.0560 (0.1567)	-0.0374 (0.1996)	0.4391 (0.2900)	-0.4824 (0.3355)	-0.4690** (0.1580)	0.1677 (0.6091)
Pre-Treat Mean DepVar	2.15	1.75	1.79	2.11	0.86	4.78
Panel III: Males						
RML	-0.0033 (0.2537)	0.0055 (0.2416)	0.5331 (0.3479)	-0.6127 (0.4587)	-0.5823** (0.2093)	-0.0101 (1.075)
Pre-Treat Mean DepVar	3.23	2.21	2.09	2.83	0.977	6.90
Panel IV: Females						
RML	-0.1038 (0.0855)	-0.0874 (0.1592)	0.3396 (0.2205)	-0.2710 (0.2220)	-0.3346** (0.1228)	0.2921 (0.2066)
Pre-Treat Mean DepVar	1.47	1.24	1.54	1.35	0.77	2.76
N	953	953	953	953	953	953

***p < .001 **p < .01 *p < .05

Notes: Estimates are obtained using state-by-year data from the 2000-2018 Treatment Episode Dataset from 2000-2018. The dependent variable is the number of primary drug-specific admissions per 1,000 population. All models include state and year fixed effects. Regressions include baseline controls: medical marijuana laws (MMLs), marijuana decriminalization laws (MDLs), state macroeconomic controls (unemployment rate and per capita GDP), the number of total admissions to account for changes in reporting, naloxone access laws, Good Samaritan laws, must-access prescription drug monitoring program, beer taxes, welfare Policy Controls including the state EITC refundable rate, the maximum Supplemental Nutrition Assistance Program (Food Stamp) benefit level for a 4-person family, an indicator for whether the state has implemented an Affordable Care Act Medicaid expansion, whether the governor is a Democrat, the natural log of law enforcement personnel per 1,000 population, the binding state minimum wage, and the racial composition of the state. All regressions are weighted by adult population ages 18 and older. Standard errors are clustered at the state level.

Appendix Table 7. Effect of Recreational Marijuana Laws on Drug-Involved Mortality and Suicides (NVSS 2000-2019)

	Cocaine Deaths	Methamphetamine Deaths	Heroin Deaths	Fentanyl Deaths	Other Opioid Deaths	Suicides
	(1)	(2)	(3)	(4)	(5)	(6)
Panel I: Poisson, Baseline Controls^a						
RML	-0.3113 (0.1788)	-0.3948** (0.1333)	-0.3495* (0.1388)	-0.3941* (0.1601)	-0.3611* (0.1407)	-0.0360* (0.0176)
Panel II: Poisson, Full Controls^b						
RML	-0.3134 (0.1756)	-0.2492** (0.09672)	-0.2526* (0.1239)	-0.4433** (0.1639)	-0.3394* (0.1540)	-0.0048 (0.0099)
Panel III: OLS, Full Controls^b						
RML	-1.336 (0.7417)	0.9975 (0.6110)	-1.055 (0.8577)	-2.690 (2.112)	-3.497 (2.121)	0.4766 (0.3286)
Pre-Treatment Mean DepVar	2.07	1.62	1.94	1.28	7.53	14.77
N	1,020	1,020	1,020	1,020	1,020	1,020

***p < .001 **p < .01 *p < .05

Notes: Estimates obtained using state-by-year data from the National Vital Statistics System Multiple Cause of Death Mortality Files from 2000-2019. In panels I and II, the dependent variable is defined as the number of drug involved deaths among adults (the adult population is used as the exposure variable in Poisson regressions). In panel III, the dependent variable is the number of drug-involved deaths per 100,000 population. All regressions are weighted by adult population ages 18 and older. Standard errors are clustered at the state level.

^aRegressions include baseline controls: the number of law enforcement agencies reporting arrests, medical marijuana laws (MMLs), marijuana decriminalization laws (MDLs), and state macroeconomic controls (unemployment rate and per capita GDP).

^bRegressions include baseline controls plus naloxone access laws, Good Samaritan laws, must-access prescription drug monitoring program, beer taxes, welfare Policy Controls including the state EITC refundable rate, the maximum Supplemental Nutrition Assistance Program (Food Stamp) benefit level for a 4-person family, an indicator for whether the state has implemented an Affordable Care Act Medicaid expansion, whether the governor is a Democrat, the natural log of law enforcement personnel per 1,000 population, the binding state minimum wage, and the racial composition of the state.