

The Opioid Crisis and Drug Policy: Does Local Context Shape Public Opinion?

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Abstract

How does exposure to the opioid crisis affect public opinion about drug policy? I use numerous public opinion surveys to test the relationship between state and county exposure to the opioid crisis and support for public health or criminal justice-oriented approaches to drug policy. Next, I use two Massachusetts ballot questions to test how local overdose death rates predict support for marijuana legalization over time. I find that there is no clear evidence of a strong relationship between the local context of the opioid crisis and an individual's support for public health or punitive drug policies. I also find evidence that state context predicts perceptions that the opioid crisis is severe and that politicians should prioritize it. Despite being a nationally salient issue with high local variation, local context does not appear to be a major factor in public opinion about the opioid crisis.

The opioid crisis is one of the biggest public health crises in the past decade in the United States. From 1999-2018, opioid overdoses claimed the lives of nearly 450,000 Americans (CDC, 2020). Over this time period, opioid-related overdose death rates have risen almost six times, to reach a toll of nearly 15 deaths per 100,000 Americans. While the opioid crisis is

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far-reaching, impacting every region and demographic in the country, overdose deaths have also been highly locally concentrated. In 2018, the age-adjusted overdose death rate ranged from 6.9 per 100,000 in South Dakota to 51.5 in West Virginia.

In the wake of this crisis, policymakers across the country have enacted a wide variety of policies aimed at reducing the crisis. Compared to past drug crises, these policies have been more geared at using public health strategies, rather than focusing on criminal prosecution of illegal drugs (El-Sabawi, 2018). Some police departments have even begun to emphasize treatment over arrest when responding to overdoses, among other reforms (PERF, 2017). Media outlets are increasingly likely to use sympathetic portrayals of addiction that focus on public health (McGinty et al., 2019). The context of the opioid crisis seems to have led to less punitive solutions and media narratives, but how has it impacted the public? Does exposure to the opioid crisis lead to changes in support for drug policy?

In this paper, I investigate how the opioid crisis has affected public opinion. More specifically, how does local exposure to the opioid crisis shape opinions on the severity of the crisis, the importance of the crisis for policymakers, and what kinds of public policies should be enacted? To answer these questions, I first use a number of surveys along with state and county data on overdose death rates to test the relationship between local context and public opinion around the opioid crisis and drug policy. Then, I use two Massachusetts ballot questions about marijuana policy and municipal-level opioid overdose death rates to test how this relationship has changed over time. Ultimately, I find that local context predicts perceiving the opioid crisis as severe and preferring politicians emphasize the issue, but the effects on policy are much less clear.

The Opioid Crisis and Political Behavior

Background: The Opioid Crisis

The opioid crisis refers to the large increase of opioid use, addiction, overdoses, and overdose deaths, starting in the 1990s and continuing today. The CDC identifies three specific waves of the overdose crisis: prescription opioid prescribing and later overdoses began to rise in the 1990s and continued over the next decade, heroin overdoses increased sharply beginning in 2010, and overdoses involving fentanyl and other synthetic opioids grew dramatically starting in 2013 (CDC, 2020). The initial surge in opioid prescriptions resulted from a change in medical approaches to treating pain based on fairly weak evidence, with a new emphasis on opioid-derived drugs, such as Purdue's Oxycontin (Quinones, 2016; Meldrum, 2016). Opioid addiction spread through the Midwest, Appalachia, and the Southwest, when the opioid crisis intersected with a new supply of heroin and later fentanyl in many suburbs and towns. Some experts also point to the role of economic and social conditions in causing more addiction and overdose deaths. Dasgupta, Beletsky, and Ciccarone (2017) point to evidence that counties in the Midwest, Appalachia, and New England with higher economic distress also see increased mortality rates for deaths of despair (drug and alcohol-related deaths and suicides). On the other hand, there is also some evidence that overdose death risk is more closely linked to the availability of different kinds of opioids, rather than economic conditions (Ruhm, 2019).

Local Context and Political Behavior

The question of whether an individual’s local context affects their policy positions and voting behavior has received study in a number of different areas. In the economic sphere, Ansolabehere, Meredith, and Snowberg (2014) find that noisy economic signals from daily life, such as gas prices, as well as group-based economic measures, predict vote choice. Charles and Stephens (2013) argue that higher local wages and employment lead to lower turnout for non-presidential elections, while Burden and Wichowsky (2014) find an opposite effect, that higher county and state unemployment rates lead to higher turnout and a higher rate of punishment for Republican incumbent governors.

Outside of economics, Sinclair, Hall, and Alvarez (2011) find that flooding from Hurricane Katrina reduced turnout in the 2006 New Orleans mayoral election, except for those who were flooded more than six feet, who were more likely to vote. Vavreck and Warshaw (2020) show that increases in deaths from the COVID-19 pandemic reduce support for Republicans. Numerous studies show how racial context affects voting, usually by increasing white support for conservative candidates and positions (Key, 1949; Enos, 2016).

The Influence of the Opioid Crisis on Public Opinion and Voting

Hopkins (2018) provides a useful framework for understanding what kinds of issues are likely to show the impact of local context by proposing the “politicized places” hypothesis, which claims that local conditions only become relevant for public opinion when the corresponding political issue is salient nationally. Individuals receive too many different kinds of stimuli for most of them to make a difference, so, in most cases, local context does not affect political

behavior. When issues become nationally important, however, then individuals can connect their local experiences to broader political ideas and begin to form opinions.

Following this framework, there are several reasons why the opioid crisis should be considered to be a nationally salient issue. For example, according to a STAT-Harvard poll fielded in March 2016, 51% of Americans “say the abuse of strong prescription painkillers such as Percocet, OxyContin or Vicodin are an extremely or very serious problem in the state where they live” (STAT-Harvard, 2016). A similar proportion (53%) identify heroin as an extremely or very serious problem in their state. Additionally, a Pew poll from October 2017 found that 76% of Americans view prescription drug abuse as a serious public health problem, up from 63% in November 2013 (Oliphant, 2017). Similarly, a WMUR New Hampshire poll fielded in July 2016 found that 43% of respondents view drug abuse as the most important issue, compared to only 21% saying jobs and the economy (DiStaso, 2016). A 2018 survey of rural Americans also showed that the opioid crisis and the economy were the top two issues (Findling et al., 2020).

Further, some research has suggest that the opioid crisis has impacted presidential election returns. Monnat (2016) asserts that areas that saw increased support for Trump in 2016 had disproportionately high levels of “deaths of despair,” which includes drug overdose deaths, alcohol-related deaths, and suicides. Similarly, Goodwin et al. (2018) argue, that cultural indicators associated with opioid use predicted Trump support in 2016. Kaufman and Hersh (2020) find that family and friends of opioid crisis victims are less likely to vote and are more likely to defect from the Republican party.

The Opioid Crisis and Drug Policy Preferences

The opioid crisis is a nationally salient phenomenon with sufficient local variation to lead us to expect that it may have a localized impact on public opinion. While most current research focuses on how the opioid crisis impacts party identification and voting in partisan elections, I focus on policy views. Does living in an area with a larger concentration of opioid overdoses affect views about drug policy? The literature on local context and drug policy leads to three hypotheses about how the opioid crisis might affect public opinion about drug policy.

Hypothesis 1: Public Health Approach

The first hypothesis is that local exposure to the opioid crisis might encourage support for less punitive policies that focus more on providing treatment and in reducing harm, rather than strict enforcement of drug laws. A growing body of research shows that the opioid crisis has been treated differently in the media than prior drug epidemics. A number of studies show that opioid abuse was initially framed as a criminal justice issue, but increasingly became framed as a public health issue by 2010 (McGinty et al., 2015, 2019). This public health framing differs sharply from the criminalization focus of media during the crack cocaine epidemic (Shachar et al., 2020). This transition from criminal justice to public health media framing is linked to race. Netherland and Hansen (2016) find that white prescription opioid users consistently received sympathetic treatment in the 2000s media as compared to Black and Latino heroin users who were criminalized. Similarly, In a qualitative analysis articles in Western Pennsylvania, McLean (2017) finds that reports of opioid victims shifted over

time toward sympathetic narratives focused on addiction that emphasized the inability of the criminal justice system to solve this problem, notably as the victims themselves shifted from being disproportionately Black to White.

Legislative responses to the opioid crisis follow similar patterns to media framings. Congressional legislation is more likely to focus on public health than on criminal justice during the opioid crisis, as compared to the crack cocaine epidemic when lawmakers focused on punitive policy solutions, and legislators in higher overdose death districts are more likely to co-sponsor public health-oriented legislation (Kim, Morgan, and Nyhan, 2020). Evidence also exists that individuals support treatment for opioid addiction, but do not want these treatment options to be located near them (de Benedictis-Kessner and Hankinson, 2018).

Since the media and politicians tend to frame the opioid crisis as requiring public health solutions, individuals who are in high-overdose locations should be more likely to support these kinds of reforms. First, local variation in the opioid crisis generates variation in media coverage. Hswen et al. (2020) find that overdose death rates are associated with news reporting on opioid-related events at the county level, though they also find overrepresentation of higher educated, urban, and Northeast counties. People in these areas should be more exposed to the public health framing, which could shape how they consider policy questions (Iyengar and Kinder, 1987). A slightly different possibility is that people in high-overdose areas might not see more public health-oriented news, but the attention paid to the crisis, in addition to possible personal experience with the crisis, could make the opioid crisis a more salient consideration. This salience will bring the opioid crisis and its public health framing to the top of people’s minds when considering policy in relevant domains, such as drug policy, leading to more support for public health approaches (Zaller, 1992).

Hypothesis 2: Criminal Justice Approach

A second, alternative hypothesis is that local exposure to the opioid crisis might encourage support for punitive policies that seek to address drug abuse through law enforcement and tough sentencing of drug offenders. This would follow the pattern of many past drug epidemics in US history. For example, Meier (1994), finds that increased drug usage in a state is correlated with stronger implementation of strict drug laws. During the 1960s heroin crisis in Harlem and increasing drug addiction in 1970s Washington, D.C., many Black residents supported stricter sentencing and other criminal justice measures to fight drug abuse and crime, though there was also strong support for economic improvement (Fortner, 2015; Forman, 2017). While most research has suggested a change in media framing of drug abuse during the opioid crisis, Orsini (2017) finds that 2000s and 2010s depictions of heroin and cocaine have not substantially differed from the 1980s and 1990s. Similarly, the American public historically views those addicted to drugs negatively, approving discriminatory practices and preferring not to associate with them (Barry et al., 2014).

Hypothesis 3: No Effect

The third hypothesis is that local exposure to the opioid crisis has no clear effects, either because individuals are not aware of their local conditions, are more concerned about the national-level crisis, or that drug policies views are already sufficiently driven by race and partisanship that little can move them. There are a few reasons to think that the opioid crisis might not affect public opinion about drug policy. First, many views about drug policy have been historically and currently driven by racial, ethnic, and religious prejudice.

19th-century laws against opium use and the initial criminalization of marijuana in the 20th century were targeted at Chinese and Mexican immigrants, respectively (Meier, 1994; Bonnie and Whitebread, 1999). Support for Prohibition was also partially driven by anti-Irish, anti-German, and anti-black sentiment (Andrews and Seguin, 2015; Provine, 2011). Much of the literature on contemporary drug policy focuses on the role of racial, ethnic and religious prejudice in preferences for drug policy, and numerous studies have shown how anti-black prejudice is a major contributor to attitudes toward crime, prisons and policing in the contemporary context (Hutchings, 2015; Green, Staerklé, and Sears, 2006; Provine, 2011; Alexander, 2012).

Other studies find that the link between racial prejudice and drug policy support is less consistent, however. Hurwitz and Peffley (1997) show that, for whites, negative stereotypes toward African Americans increase support for punitive policies that would increase levels of incarceration, but prejudice does not reduce support for government-funded drug rehabilitation programs. Bobo and Johnson (2004) find that racial attitudes are somewhat more flexible when it comes to drug policy, compared with the death penalty. While racial attitudes may be a dominant predictor of attitudes toward drug policy, there is still room for other factors and local conditions to come into play.

These three potential hypotheses lead to a series of questions about the political effects of the opioid crisis. First, does living in a state with higher overdose death rates lead individuals to say the crisis is more serious? This is likely a first-order question; if there is no difference in perceptions of crisis severity between people in varying opioid crisis contexts, then context should not matter at all. Next, I look at whether local context affects the belief that politicians should give the opioid crisis more attention. Finally, I move on to the key

part of this study: policy views. Does living in an area more exposed to the opioid crisis lead individuals to change positions on different kinds of drug policy? Does this crisis cause voters to take a criminalization approach or a public health-focused approach to the issue of drug addiction?

To answer these questions, I will begin by using a variety of surveys to assess how individuals' state-level context predicts perceptions of severity of the opioid epidemic, priority it should be given, and relevant policy views. I then use the CCES to use contextual data from the county level to explore views about mandatory minimum sentences. Finally, I use two ballot measures in Massachusetts regarding marijuana legalization and municipal-level overdose death data to get a more fine-grained and over-time measurement of local exposure to the opioid crisis.

State-Level Overdose Death Rates and Public Opinion

In this section, I use a wide variety of public opinion surveys to test whether individuals in states with higher overdose death rates are more likely to consider the opioid crisis as important, are more likely to support prioritization of this issue by politicians and policymakers, and are more or less likely to support different drug policies. To select surveys, I searched Roper iPoll for the following terms: opioid, painkiller, heroin, overdose and marijuana. I then limited surveys to those that had available data and a state variable to measure context and merged in state-level age-adjusted overdose death rates by year from the CDC Wonder database, including the following drug/alcohol-induced death codes: X40-44 (Drug poisonings, overdose, unintentional), X60-X64 (Drug poisonings, overdose, suicide), and Y10-14

(Drug poisonings, overdose, undetermined).¹ In the following analyses, I use OLS regression to predict different outcomes, with the main independent variable of interest being state overdose death rates. I include demographic covariates and cluster standard errors by state. All dependent variables are Likert scale outcomes rescaled to 0-1.

Opioid Crisis Severity

First, I use six surveys that ask respondents a total of ten questions to rate the severity of the opioid crisis². I use these severity questions to test whether individuals who live in states with higher overdose death rates are more likely to rate the opioid crisis as a serious problem. These survey questions vary in how they describe the opioid crisis and what geography they use. The surveys used here refer to the opioid crisis by describing the use or abuse of opioids, prescription painkillers, heroin, or drugs. The surveys ask respondents to consider their neighborhood, community, or the country³.

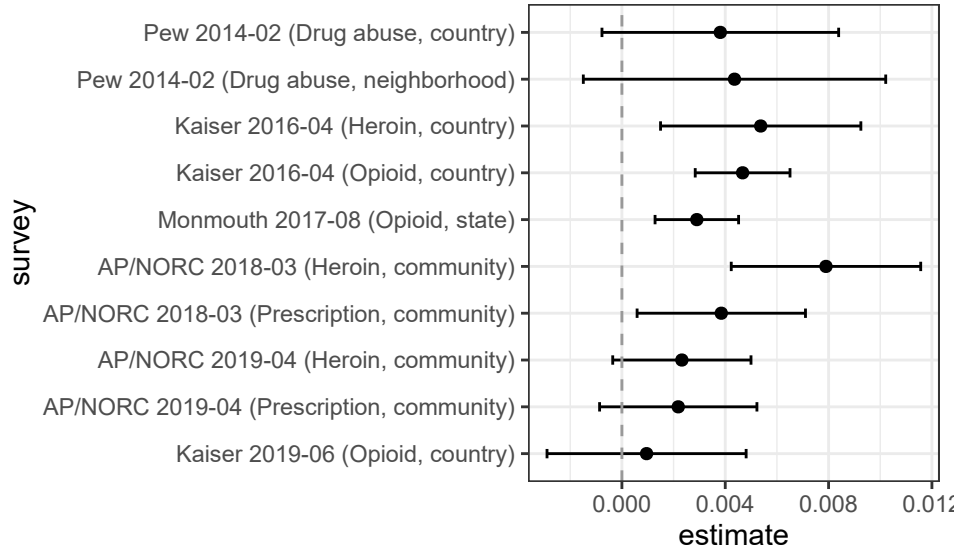
Figure 1 displays the results for a regression of perceptions of severity on state overdose death rates by individual survey question. Results are labeled by survey, date, word used to describe the opioid crisis, and geography asked. For all ten questions, respondents in high-overdose states were more likely to consider the opioid crisis to be a serious problem, though the coefficient is only significant at the $p < 0.05$ level for four of the ten analyses. The effect size is relatively small but notable. For example, the Kaiser 2016-04 survey results suggest a standard deviation increase in overdose death rates (8.64) is associated with an increase in

¹2019 surveys were matched with 2018 death rate data due to the unavailability of 2019 data.

²These surveys were fielded by Pew Research Center, Kaiser Family Foundation, Monmouth University Polling Institute, and the AP-NORC Center for Public Affairs Research. For more details on these surveys see Appendix Table A1.

³Full question wording is available in Appendix Table A2.

Figure 1: Overdose Death Rates Associated with Perceptions of Crisis Severity



severity perception by about four percentage points. It also appears that neither the words used to describe the opioid crisis nor the region under consideration in the question affect respondents' perceptions of severity. A problem for an individual's community or state is perhaps seen as similar to a problem for the country. More detailed regression results are available in Appendix Section 1.2.

Opioid Crisis Priority

Next, I consider nine surveys from the Kaiser Family Foundation that ask respondents how high of a priority the opioid crisis should be for Congress and the President or how much presidential or congressional campaigns should talk about the opioid crisis⁴. I use these priority questions to test whether individuals from high-overdose states are more likely to want politicians and policymakers to focus on the opioid crisis. These survey questions vary

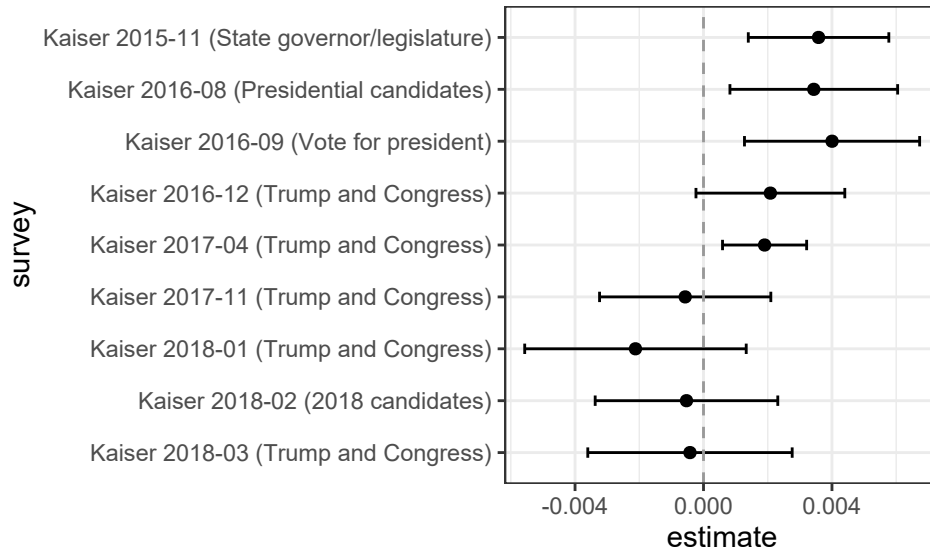
⁴Here, I use one question per survey. More information about the surveys is available in Appendix Table A1.

on the type of crisis mentioned and what kind of politician is under consideration. The surveys use heroin, prescription painkillers, or both to describe the opioid crisis. Questions ask respondents to consider state governments, presidential candidates, voting for president, President Trump and Congress, and 2018 candidates⁵.

Figure 2 shows results from regressions for each question, labeled by survey and the relevant political figure under consideration. Here, respondents in earlier surveys are more likely to prioritize the opioid crisis, but this effect decreases over time to result in no relationship. The results seem to vary more over time than by the politician or elected official that is the target of the question. In the first five surveys, state death rates are associated with higher priority given to the opioid crisis, significant in all but one case, though the effect is relatively small. In the 2015-11 survey, for example, a standard deviation increase in overdose death rates (5.99) is associated with an increase in severity perception by about two percentage points. For the final four surveys, however, this relationship disappears. It is possible that as the opioid crisis grew in national political prominence, the impact of local context became less pronounced. In other words, the whole country began to see this as a priority. Alternatively, other issues could have been increasingly deemed important. Research suggests that this support for politicians talking about and acting on the opioid crisis has borne out, as members of Congress representing counties with higher overdose death rates are more likely to talk about the issue (Weiss and Zoorob, 2020).

⁵Full question wording is available in Appendix Table A3.

Figure 2: Overdose Death Rates Associated with Higher Priority for Opioid Crisis



Drug Policy

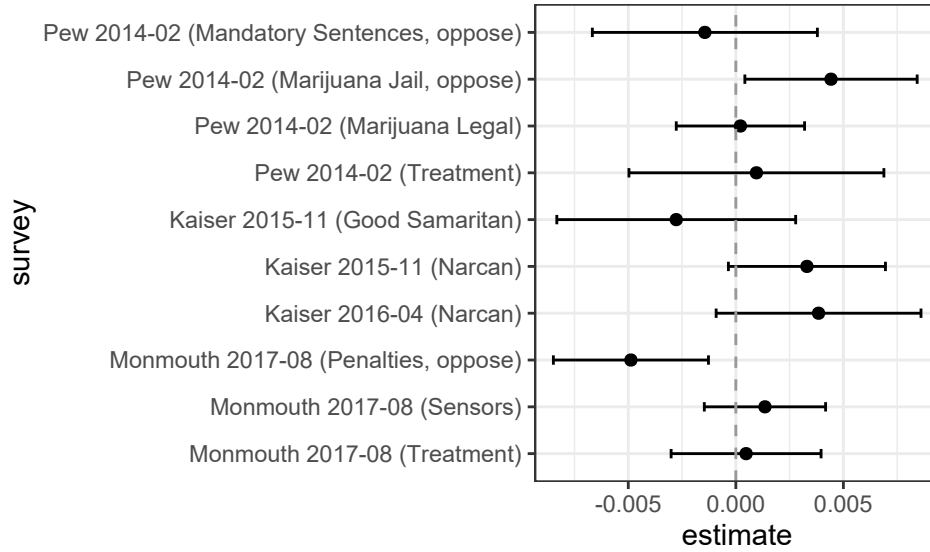
In this section, I use four surveys that ask ten questions related to drug policy to explore the relationship between living in a higher overdose death state and more liberal or conservative drug policy views. First, in a 2014 survey, Pew asked questions about mandatory sentences for drug offenses, jail sentences for marijuana users, marijuana legalization, and increasing drug treatment access. In two surveys in 2015 and 2016, the Kaiser Foundation asked about increasing Narcan access to prevent overdose deaths and about policies where people who call for emergency help for a drug overdose cannot face a drug arrest, also known as Good Samaritan policies. Finally, in 2017, the Monmouth University Polling Institute asked about stricter criminal penalties for illegal opioid use, opioid detection sensors at U.S. ports, and making addiction treatment more available using federal funding. In these models, the more public health-oriented policy response is coded in a positive direction, and opioid sensors, with less clear ideological valence, is coded as positive for support.

Results in Figure 3 indicate a positive relationship between living in a high-overdose death rate state and support for making Narcan available without a prescription. While individuals in high-overdose states are more likely to oppose jail sentences for marijuana use, they are actually less likely to oppose stricter penalties for illegal opioid use and less likely to support Good Samaritan policies, though the latter result is fairly imprecise. There appears to be little relationship between state-level overdose death rates and support for marijuana legalization, increasing drug treatment access, and installing opioid detection sensors. As before the effects are somewhat moderate. In the Pew survey, a standard deviation increase in overdose death rates (4.7) is associated with a two percentage point increase in opposition to jail sentences for marijuana possession. Conversely, in the Monmouth survey, a standard deviation increase in overdose death rates (10.3) is associated with a five percentage point decline in opposition to penalties for opioid users. There appears to be no consistent pattern in the relationship between state opioid crisis context and support for public health or punitive policies, as most results here are either null or pointing in opposite directions.

Personal Experience: A Potential Alternate Explanation

One alternate explanation that could describe the relationship between living in a high-overdose state and public opinion is that people in these states are more likely to personally know individuals who have struggled with addiction, used legal or illegal opioid-based painkillers, or died of overdoses. Three of the surveys I use in the earlier section contain both state variables and questions about personal experience with the opioid crisis. In Appendix Table A14, I first present evidence suggesting that individuals in states with more overdose

Figure 3: Overdose Death Rates and Policy Questions



deaths are more likely to know someone who has dealt with addiction in some way. Then, in Appendix Table A15, I find that the effects of state context remain even while controlling for this personal experience. Notably, personal experience is also predictive of perceptions of the severity of the opioid crisis and preferring state government give more attention to it. The results ultimately suggest, though, that local context matters beyond knowing people affected by the opioid crisis ⁶.

Discussion: State-Level Overdose Death Rates and Public Opinion

By analyzing a series of pools, I find evidence that state-level exposure to the opioid crisis is associated with a variety of views about public health and public policies. First, individuals who live in states with higher overdose death rates are more likely to say that the opioid crisis is a serious problem, both locally and nationally. Next, these individuals were more

⁶To different levels, these surveys provide an opportunity to explore many different kinds of experience with addiction. The questions vary based on who the known person is, what kind of substance, and what kind of experience they have had.

likely to call on politicians to prioritize the opioid crisis, though this effect faded over time. Finally, state-level exposure to the opioid crisis is associated with support for some public health interventions, such as Narcan availability and opposing jail time for marijuana use, but context is also associated with stricter criminal penalties for opioid use and is not related to support for a number of other drug policies. These results may be limited, however, due to the use of state-level context. The following sections will use an additional survey and election returns to use a more local measure of exposure to the opioid crisis.

CCES: County-Level Context and Public Opinion

In this section, I use the Cooperative Congressional Election Study (CCES) to test the relationship between county-level context and public opinion. To measure exposure to the opioid crisis, I use 2016 county-level age-adjusted overdose death rates from the National Center for Health Statistics.⁷ Overdose death rates include the following CDC WONDER UCD drug/alcohol-induced deaths codes: X40-44 (Drug poisonings, overdose, unintentional), X60-X64 (Drug poisonings, overdose, suicide), and Y10-14 (Drug poisonings, overdose, undetermined). I then match individuals in the 2016 CCES to their county's overdose death rate. Figure 4 shows the distribution of these county-level overdose death rates in the 2016 CCES. Next, to measure attitudes about drug policy, I use a question that asks respondents whether they support eliminating mandatory minimum sentences for non-violent drug

⁷This data is provided in ranges of rates, where the range is equivalent to 2 units per 100,000 population. The CDC WONDER database, used in the state-level analysis, provides more exact overdose death rate data, rather than binned rates. For many counties, however, the number of overdose deaths and/or the county population is too small to obtain an estimate of the overdose death rate, leaving a lot of missing data. For this reason, I use the NCHS binned rates instead. The rate ranges are 0-1.9, 2-3.9, and so on, up to 30+. For this analysis, I code the overdose death rate variable to be the midpoint of these ranges.

offenders.

Figure 5 displays the relationship between a respondent's county overdose death rate and support for eliminating mandatory minimum sentences. Excluding a few counties with low overdose death rates, as rates increase, there is no change in support for eliminating mandatory minimum sentences. These descriptive results suggest that there is no relationship between a respondent's county drug overdose death rate and support for eliminating mandatory minimum sentences.

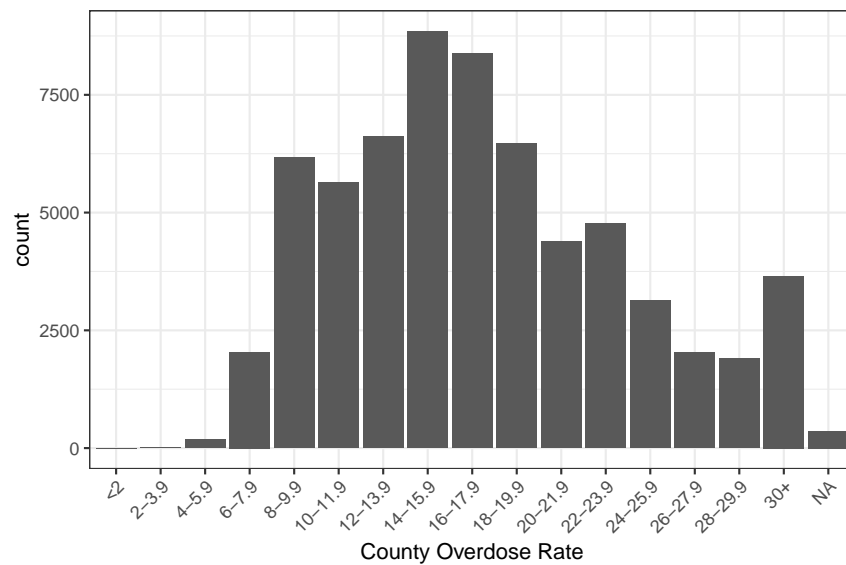


Figure 4: County Overdose Death Rates, 2016, CCES Respondents

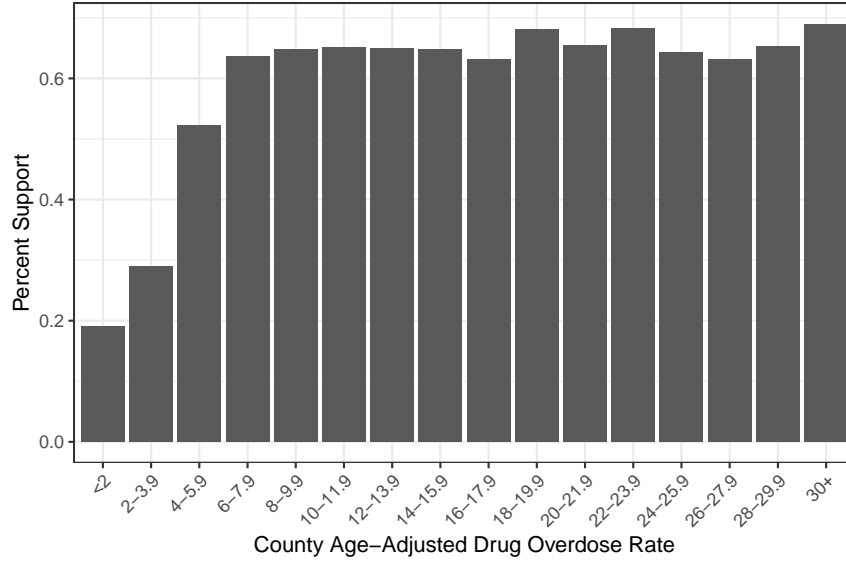


Figure 5: Support for Eliminating Mandatory Minimums by County Overdose Death Rates

Next, I conduct a simple OLS regression of support for eliminating mandatory minimums on an individual’s county overdose death rate, using survey weights. The lack of a relationship in the descriptive data is confirmed in this regression analysis in Table 1. Column 1 shows the simple bivariate relationship. Column 2 adds individual controls, including party ID, ideology, gender, age, education, race, religion, and news interest. Column 3 adds contextual controls at the county level, including percent black, percent Latinx, percent under 25, percent over 64, and log median income. In each specification, opioid overdose rates are positively associated with support for eliminating mandatory minimums, but the effect size is very small. In Column 3, a standard deviation increase in overdose death rates (13.6) is associated with a 0.8 percentage point increase in support for repealing mandatory minimums. Going from the county with smallest to the highest overdose death rate is associated with only a 1.6 percentage point increase in support for eliminating mandatory minimums. Columns 4 and 5 show that this relationship is not substantially moderated by political party or by news interest. While state overdose death context is associated with both opposition

to jail sentences for marijuana use and stricter penalties for opioid use, here county-level context only very slightly predicts support for repealing mandatory minimum sentences for non-violent drug offenses. This different finding could be because county-level context is less important or less known than state-level context. Alternatively, the broad category of drug offenses considered here is less specific than either opioid or marijuana use, perhaps prompting an association somewhere in between the effects seen in other surveys. This finding at least does not provide evidence for a strong, consistent relationship between local context of the opioid crisis and support for drug sentencing policy.

MA: Municipal-Level Context and Marijuana Legalization Ballot Questions

In this section, I focus on how opioid overdose deaths affect support for marijuana legalization, using the 2012 medical marijuana and 2016 marijuana legalization ballot questions in Massachusetts. While the prior sections use survey data, measuring context at the state or county level, a series of ballot questions in Massachusetts permits the use of election returns and municipal-level measures of exposure to the opioid crisis. I use Massachusetts because the Massachusetts Department of Health provides overdose death rates at the municipal level. For many states, the only data available is from the CDC, which is gathered at the county level, or other kinds of public health districts that do not easily map onto geographical units used for surveys or election returns. Municipal-level data enables provides the benefits of increased statistical power; Massachusetts has 351 municipalities and only 14 counties.

Table 1: Association between County Overdose Death Rates and Support for Eliminating Mandatory Minimums, OLS

	Support for Repealing Mandatory Minimums				
	(1)	(2)	(3)	(4)	(5)
County overdose death rate	0.001*** (0.0003)	0.001*** (0.0003)	0.001*** (0.0003)	0.002*** (0.001)	0.001** (0.001)
Republican		-0.145*** (0.006)	-0.146*** (0.006)	-0.146*** (0.006)	-0.148*** (0.015)
Political ideology		-0.090*** (0.002)	-0.090*** (0.002)	-0.090*** (0.002)	-0.090*** (0.002)
Female		-0.046*** (0.004)	-0.046*** (0.004)	-0.046*** (0.004)	-0.046*** (0.004)
Birth year		0.002*** (0.0001)	0.002*** (0.0001)	0.002*** (0.0001)	0.002*** (0.0001)
Black		0.048*** (0.007)	0.041*** (0.007)	0.041*** (0.007)	0.042*** (0.007)
Hispanic		-0.082*** (0.008)	-0.068*** (0.009)	-0.068*** (0.009)	-0.067*** (0.009)
Asian		-0.100*** (0.011)	-0.096*** (0.011)	-0.096*** (0.011)	-0.096*** (0.011)
Born-Again Christian		0.047*** (0.005)	0.047*** (0.005)	0.047*** (0.005)	0.047*** (0.005)
News interest		-0.053*** (0.003)	-0.053*** (0.003)	-0.045*** (0.007)	-0.053*** (0.003)
Log median income			0.014 (0.015)	0.014 (0.015)	0.014 (0.015)
County percent black			0.053*** (0.019)	0.053*** (0.019)	0.053*** (0.019)
County percent Hispanic			-0.061*** (0.017)	-0.062*** (0.017)	-0.060*** (0.017)
County percent Bachelor's degree or more			0.255 (0.379)	0.253 (0.379)	0.262 (0.379)
County percent under 25			0.087 (0.100)	0.087 (0.100)	0.086 (0.100)
County percent 65 and over			-0.040 (0.111)	-0.041 (0.111)	-0.040 (0.111)
County OD death rate \times News interest				-0.0004 (0.0004)	
County OD death rate \times Republican					0.0002 (0.001)
Observations	64,206	58,413	58,413	58,413	58,413
Adjusted R ²	0.0003	0.117	0.118	0.118	0.118

Note: Additional controls: Independent/other/not sure party ID, education, Native American, mixed race, Middle Eastern, other race/ethnicity. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

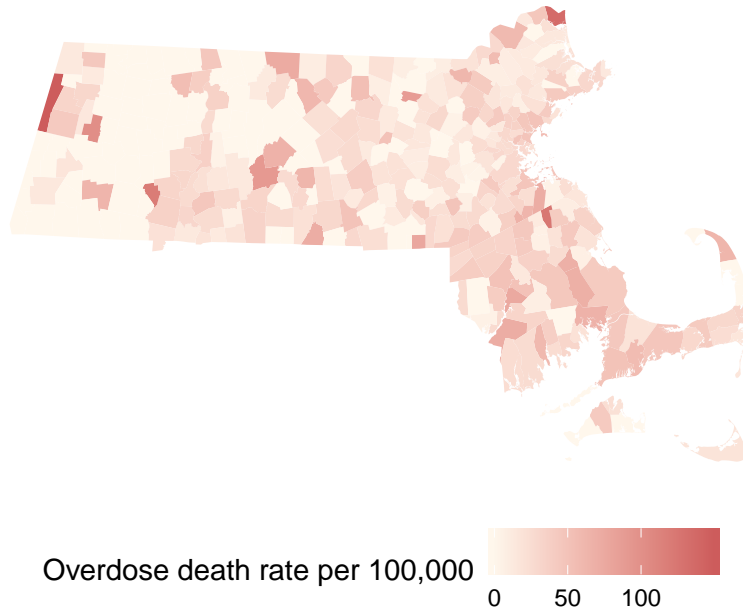
This level of data also enables greater precision when describing local context.

Additionally, Massachusetts provides overdose data that is specific to opioids, while the CDC aggregate county data is only available for more general drug overdoses. This is useful especially as the salience of the opioid crisis makes this measure appropriate for studying local contextual effects. Massachusetts also uses two different kinds of overdose data: overdose deaths by residents of a municipality, and overdose deaths that occur within a municipality. This could provide some evidence as to whether an effect is due to local social networks or geographic proximity. These measures are highly correlated but are not identical, with a correlation of 0.74. The paper will focus on the first measure using residents of a municipality; results using the second measure are in the appendix (Table A16).⁸ Figure 6 shows a map of the descriptive data for overdose deaths per 100,000 by municipality, and Figure 7 shows a map of the election results for Question 4.

Why is marijuana legalization a credible related outcome for studying the impact of the opioid crisis on public opinion? I argue that marijuana policy is broadly related to one of the main concepts at stake in debates over policy responses to the opioid crisis: a divide between criminal and public health approaches to drugs (Meier, 1994). Marijuana legalization serves as a useful case to test whether the opioid crisis is related to policy preferences that fall along a spectrum from treatment to criminalization. Local exposure to opioid overdoses could increase support for marijuana legalization as one of a number of non-punitive responses to drug abuse, due to the framing effects of the opioid crisis. Local exposure to opioid overdoses could also reduce support for marijuana legalization. Opioid overdoses may create a kind of risk aversion, where individuals fear anything that may create an environment with more

⁸In Table A17, both measures of overdose deaths are used, and residence appears to be more important.

Figure 6: Opioid Overdose Deaths per 100,000, 2016



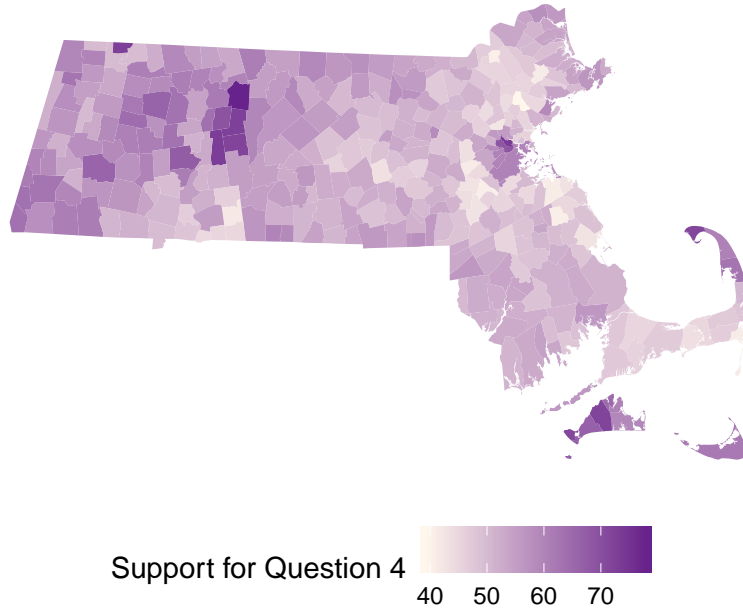
freely accessible substances that were formerly illicit. Indeed, interest groups and politicians make a connection between the opioid crisis and marijuana legalization. In Massachusetts, the campaign to oppose marijuana legalization argued in campaign material that legalization “ignores the deadly opioid epidemic” (Galvin, 2016).

Cross-Sectional Analysis: MA Question 4 (2016)

To study the relationship between opioid overdoses and support for marijuana legalization, I first look at the cross-sectional relationship in the 2016 using OLS regression Table 2. Table 2 shows the results from a regression of vote share for MA Question 4 on logged overdose deaths per 100,000, by municipality⁹. In this model, overdose rates are statistically significant and negatively associated with support for Question 4. Column 2 shows this

⁹Because the data is skewed toward zero but also has a number of units with high values, I use the logged measure of overdose deaths in the main specification. See Appendix Figure A1 for a plot of the distribution of opioid overdoses by municipality, unlogged.

Figure 7: Support for Massachusetts Question 4, 2016



result controlling for Democratic presidential vote share in 2012, with the overdose death rate decreasing in size but remaining statistically significant. Column 3 shows this result controlling for other local factors: percent Black, percent Latinx, percent female, percent with a high school education or less, logged median income, unemployment rate¹⁰. With these controls added, the overdose rate is still negative and significant, with a coefficient of -0.691. Substantively, this implies that increasing overdose deaths rates from the 1st to 3rd quartile (0 to 34 per 100,000) is associated with about a three percentage point decrease in support for Question 4¹¹.

The negative association between opioid overdose death rates and support for marijuana legalization could be subject omitted variable bias. To test that the relationship between

¹⁰This analysis does not control for crime rates, as this measure is likely post-treatment to the measure of opioid overdoses.

¹¹Similar results can be seen using the 2012 medical marijuana ballot question. Results using this model are in Appendix Table A21.

Table 2: Regression of MA Question 4 on Residential Overdose Rates

	Question 4 “Yes” Vote Share		
	(1)	(2)	(3)
Log OD deaths per 100,000 (residence)	−1.466*** (0.227)	−1.008*** (0.179)	−0.691*** (0.245)
2012 Democratic presidential vote share		0.356*** (0.029)	0.469*** (0.053)
Percent black			−0.276*** (0.066)
Percent Latinx			−0.287*** (0.084)
Percent female			−0.299** (0.130)
Percent high school or less			−0.662*** (0.173)
Percent Bachelor’s or more			−0.462*** (0.141)
Percent under 25			−0.455*** (0.144)
Percent 65 or over			−0.608*** (0.099)
Log median household income			−8.738*** (3.034)
Unemployment rate			−0.317 (0.292)
Population per 10,000			0.070 (0.118)
Population density per 10,000			2.291 (2.676)
Observations	351	351	351
Adjusted R ²	0.116	0.479	0.759

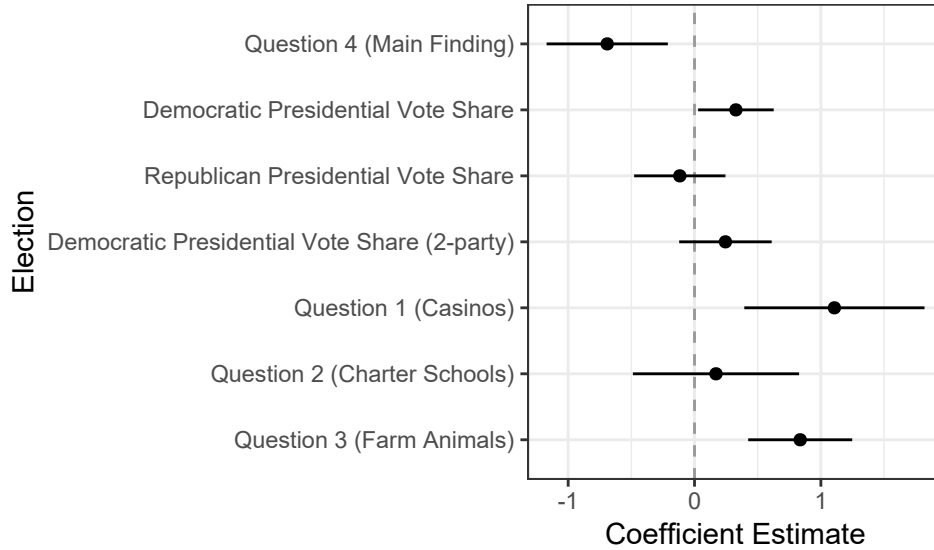
Note: Robust standard errors reported. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

vote share and overdose rates is unique to Question 4, I conducted placebo tests, replicating Column 3 of Table 2 by regressing vote share for the three other ballot initiatives in 2016 (casino expansion, charter school cap expansion, and regulations on farm animal care). The results of these regressions are displayed in Figure 8. If the effect of overdose deaths is specific to marijuana legalization, the placebo test should show that this variable is not correlated with other electoral outcomes. The results only partially confirm this expectation, however. Overdose death rates are not significantly related to the charter school question and are only slightly related to two-party Democratic presidential vote share and the casino question. More worrying, however, is the strong, significant positive relationship between overdose rates and support for Question 3 (farm animal regulations). This result suggests that there may be omitted differences between municipalities that explain a general voting preference that includes both marijuana legalization and agricultural preferences. While it is not entirely clear what this alternative explanation may be, this finding sheds at least some doubt on the initial finding about opioid overdoses and marijuana legalization.

Fixed Effects Model

To better estimate the effect of opioid overdose death rates on support for marijuana legalization, I use the Massachusetts 2012 referendum on the legalization of medical marijuana. By using this additional election, I can address the likely possibility of omitted variable bias in cross-sectional models. Here, I treat the medical marijuana vote in 2012 and the marijuana legalization vote in 2016 as the same dependent variable. This allows me to test the relationship between within-unit changes in overdose death rates and the change in vote share

Figure 8: Placebo Test, Other 2016 Election Outcomes



for marijuana legalization. There are two potential issues with this strategy. First, medical marijuana and recreational marijuana are different policies, with medical marijuana typically being much more popular. In order for this to be a problem, however, the difference in support between medical and recreational marijuana would have to vary between municipalities by some omitted variable from the model. I argue instead that both of these questions are examples of a broader policy question about public health and punitive drug policies. Second, there may be omitted variables that are changing in ways that are correlated with changes in overdose death rates. While this is a valid concern, it seems unlikely that other variables, perhaps economic conditions associated with “deaths of despair,” would change in a comparable way to the high growth of overdose death rates in four years. Despite these concerns, the fixed effects approach improves over cross-sectional approaches by making use of within-unit changes in death rates and in vote shares.

I use a panel fixed-effects regression, with year and municipality fixed effects and the controls from previous models. The results in Table 3 show that within-unit changes in

the overdose death rate are not associated with changes in voting for marijuana legalization. The coefficient for overdose death rates is small and no longer statistically significant. The negative finding in the cross-sectional data disappears when focusing on within-unit changes¹². Once again, it appears that there is little evidence of a relationship between local context and support for a public health or punitive approach to drug policies. In this case, the cross-sectional data shows some evidence of an association between overdose deaths and less support for legalization, but placebo tests and a fixed-effects model suggest that there is no relationship.

Discussion and Conclusion

In this paper, I use several nationwide surveys and two ballot questions in Massachusetts to assess the relationship between variation in local exposure to the opioid crisis and support for public health or criminal justice-oriented drug policies. Whether measuring context at the state, county, or municipal level, I find little evidence of a consistent relationship. For most policy questions, there appears to be no effect of local overdose death rates on opinion or vote share. There is evidence of state-level context being associated with support for Narcan availability and opposition to jail sentences for marijuana users. At the same time, there is also evidence of state-level context predicting support for penalties for illegal opioid use. Using more local-level data in the CCES and Massachusetts, as well as a fixed-effects model suggest that there is no relationship between exposure to the opioid crisis and changes

¹²Interestingly, using Democratic presidential vote share produces similar results: a negative cross-sectional relationship that becomes null when using a panel fixed effects model. See Appendix Table A22 for these results. This finding provides some contrast to Monnat (2016), who finds a correlation between “deaths of despair” and support for Donald Trump.

Table 3: Fixed-Effects Regression of Marijuana Ballot Questions on Residential Overdose Rates

	Vote share
Log OD deaths per 100,000 (residence)	−0.156 (0.147)
2012 Democratic presidential vote share	−0.378*** (0.034)
Percent black	0.124 (0.124)
Percent Latinx	0.331*** (0.086)
Percent female	−0.201* (0.108)
Percent high school or less	0.086 (0.121)
Percent Bachelor's or more	−0.128 (0.117)
Percent under 25	−0.343*** (0.126)
Percent 65 or over	−0.573*** (0.117)
Log median household income	−3.619 (2.320)
Unemployment rate	−0.194* (0.104)
Population per 10,000	−0.0001*** (0.00002)
Population density per 10,000	0.008*** (0.001)
Observations	702
Adjusted R ²	0.935
Fixed Effects	Municipality, Year
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01

in support for drug-related policies. The evidence appears closer to the no-effect hypothesis, rather than local context predicting support for public health or punitive policies.

Why is there no clear or strong relationship between local context and policy opinion? First, respondents may not be aware of the context they are in. The severity results suggest that individuals in high-overdose death states are more likely to view the opioid crisis as severe, but the effect is fairly small in size. Still, there is some evidence of a relationship between local context and wanting politicians to prioritize the issue. It is possible that there are small effects of context on these fairly simple, costless questions: is the opioid crisis severe and should politicians pay attention to it? When it comes to policy, however, these small effects of context are not enough to override preexisting policy positions, likely based in party, race, and other characteristics.

By showing small, null, or conflicting results about local context in the opioid crisis, these findings may provide more evidence for the nationalization of politics (Hopkins, 2018). Despite being an issue that is nationally salient, where some parts of the country are struggling much more than others, this local context appears to have little effect on public opinion. While public policy and the media may have shifted away from the punitive drug politics of the past, this trend does not appear to be any more or less likely in regions with the highest levels of overdose deaths. Future research could explore further the distinctions between opposition to jail sentences for marijuana use and support for penalties for illegal opioid use. It is possible that a wider battery of survey questions could help explore whether this is a pattern or an anomaly. Finally, these results could have implications for the politics of the COVID-19 pandemic. It is possible that as the pandemic continues, support for different health and medical policies could be more driven by partisanship and the nationalization of

politics than by living in the most affected areas.

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Appendix

1 State-Level Survey Analysis

1.1 Survey Information

Table A1: Surveys Used

Survey	Sponsor/Firm	Dates Fielded	Sample	N
AP/NORC 2018-03	AP-NORC Center for Public Affairs Research	3/14/2018 to 3/19/2018	National adult	1054
AP/NORC 2019-04	AP-NORC Center for Public Affairs Research	4/11/2019 to 4/14/2019	National adult	1108
Kaiser 2015-11	Kaiser Family Founda- tion, PSRAI ¹³	11/10/2015 to 11/17/2015	National adult	1352
Kaiser 2016-04	Kaiser Family Founda- tion, PSRAI	4/12/2016 to 4/19/2016	National adult	1201
Kaiser 2016-08	Kaiser Family Founda- tion, PSRAI	8/18/2016 to 8/24/2016	National adult	1211
Kaiser 2016-09	Kaiser Family Founda- tion, PSRAI	9/14/2016 to 9/20/2016	National adult	1204
Kaiser 2016-12	Kaiser Family Founda- tion, PSRAI	12/13/2016 to 12/19/2016	National adult	1204
Kaiser 2017-04	Kaiser Family Founda- tion, PSRAI	4/17/2017 to 4/23/2017	National adult	1171
Kaiser 2017-11	Kaiser Family Founda- tion, SSRS ¹⁴	11/8/2017 to 11/13/2017	National adult	1201
Kaiser 2018-01	Kaiser Family Founda- tion, SSRS	1/16/2018 to 1/21/2018	National adult	1215
Kaiser 2018-02	Kaiser Family Founda- tion, SSRS	2/15/2018 to 2/20/2018	National adult	1193
Kaiser 2018-03	Kaiser Family Founda- tion, SSRS	3/8/2018 to 3/13/2018	National adult	1212
Kaiser 2019-06	Kaiser Family Founda- tion, SSRS	5/30/2019 to 6/4/2019	National adult, in- cluding an oversam- ple of 189 prepaid (pay-as-you-go) tele- phone numbers	1206

¹³Princeton Survey Research Associates International

¹⁴Social Science Research Solutions

Kaiser 2019-10	Kaiser Family Founda- tion, SSRS	10/3/2019 to 10/8/2019	National adult, in- cluding an oversam- ple of 219 prepaid (pay-as-you-go) tele- phone numbers	1205
Monmouth 2017-08	Monmouth University Polling Institute	8/10/2017 to 8/14/2017	National adult	805
Washington Post/Kaiser 2017-04	The Washington Post/Kaiser Family Foundation, SSRS	4/13/2017 to 5/1/2017	National adult, in- cluding an oversam- ple of 1,070 adults living in rural areas	1686
Pew 2014- 02	Pew Research Center for the People and the Press, PSRAI	2/14/2014 to 2/23/2014	National adult in- cluding an oversam- ple of 18-33 year olds	1821

Table A2: Severity Question Text

Survey	Question_text
AP/NORC 2018-03	In your community, how serious of a problem is...[the use of prescription pain relievers such as Oxycontin, Percocet, or Vicodin]?
AP/NORC 2018-03	In your community, how serious of a problem is...[heroin use]?
AP/NORC 2019-04	In your community, how serious of a problem is...[the use of prescription pain relievers such as Oxycontin, Percocet, or Vicodin]?
AP/NORC 2019-04	In your community, how serious of a problem is...[heroin and illicit fentanyl use]?
Kaiser 2016-04	For each health issue I name, please tell me how serious a problem you think it is in this country: extremely serious, very serious, somewhat serious, or less serious than that. [Abuse of strong prescription painkillers, sometimes called opioids, such as Percocet, OxyContin or Vicodin]
Kaiser 2016-04	For each health issue I name, please tell me how serious a problem you think it is in this country: extremely serious, very serious, somewhat serious, or less serious than that. [Heroin abuse]
Kaiser 2019-06	I am going to read you a list of things that some people worry about and others do not. I would like you to tell me how worried you are, if at all, about the impact of [the opioid epidemic, or the misuse of prescription painkillers] in this country? Are you very worried, somewhat worried, not too worried, or not at all worried?
Monmouth 2017-08	Is opioid addiction a very serious, somewhat serious, not too serious, or not at all serious problem in the state where you live?
Pew 2014- 02	How would you describe the problem of drug abuse across the country? Would you say it is a crisis, a serious problem, a minor problem, or not a problem?
Pew 2014- 02	How would you describe the problem of drug abuse in your neighborhood, including the local schools? Would you say it is a crisis, a serious problem, a minor problem, or not a problem?

Table A3: Priority Question Text

Survey	Question_text
Kaiser 2015-11	Now I'd like to ask you about possible priorities for your state's governor and legislature. First, [Reducing the number of people abusing prescription painkillers or heroin], should that be a top priority, important but a lower priority, not too important or should it not be done?
Kaiser 2016-08	Now I'd like to ask you about possible health issues that the presidential candidates could be talking about during the 2016 presidential campaign. Do you think each of the following should be a top priority, an important but not a top priority, not too important, or not at all important for the candidates to be talking about? Starting off, how about [The ongoing heroin and prescription painkiller addiction epidemic in the U.S.]?
Kaiser 2016-09	Thinking about the many issues that might affect your vote for president in 2016, would you say a candidate's plan to address [the ongoing heroin and prescription painkiller addiction epidemic in the US] will be very important to your vote, somewhat important, not too important, or not at all important?
Kaiser 2016-12	I'm going to read you some different things Donald Trump and the next Congress might do when it comes to health care. First, [dealing with the prescription painkiller addiction epidemic], should that be a top priority, or important but not a top priority, or not too important, or should it not be done?
Kaiser 2017-04	I'm going to read you some different things President Trump and Congress might do when it comes to health care. First, [dealing with the prescription painkiller addiction epidemic], should that be a top priority, or important but not a top priority, or not too important, or should it not be done?
Kaiser 2017-11	I'm going to read you some different things President Trump and Congress might try to do in the coming months. First, [addressing the prescription painkiller addiction epidemic], should that be a top priority, important but not a top priority, not too important, or should it not be done?
Kaiser 2018-01	I'm going to read you some different things President Trump and Congress might try to do in the coming months. First, [addressing the prescription painkiller addiction epidemic], should that be a top priority, important but not a top priority, not too important, or should it not be done?
Kaiser 2018-02	Thinking about the many health care issues that candidates can talk about during their campaigns, how important would you say it is for 2018 candidates to talk about [the ongoing heroin and prescription painkiller addiction epidemic in the US]? Is it very important, somewhat important, not too important, or not at all important for the 2018 candidates to talk about?
Kaiser 2018-03	I'm going to read you some different things President Trump and Congress might try to do in the coming months. First, [addressing the prescription painkiller addiction epidemic], should that be a top priority, important but not a top priority, not too important, or should it not be done?

Table A4: Policy Question Text

Survey	Question_text
Kaiser 2015-11	There is a drug called Narcan or Naloxone that can prevent people from dying if they are experiencing an overdose of a prescription painkiller or heroin. Some states have made this drug available to adults without a prescription. Other states restrict the sale of this drug because they think it might encourage the use of illegal drugs. Which comes closer to your view?
Kaiser 2015-11	In order to encourage people to call for help during drug overdoses, some states have laws so that people who call for emergency medical help for a drug overdose for themselves or others are not arrested for having or using the drug. Other states do not have these laws because they think they are too lenient on drug users. Do you think these types of laws are a good idea or a bad idea?
Kaiser 2016-04	There is a drug called Narcan or Naloxone that can prevent people from dying if they are experiencing an overdose of a prescription painkiller or heroin. Some states have made this drug available to adults without a prescription. Other states restrict the sale of this drug because they think it might encourage the use of illegal drugs. Which comes closer to your view?
Monmouth 2017-08	Do you approve or disapprove of increasing federal funding to make in-patient opioid addiction treatment available to more people, or are you not sure?
Monmouth 2017-08	Do you approve or disapprove of increasing federal funding to provide opioid detection sensors for the U.S. postal service and for U.S. customs agents at our ports, or are you not sure?
Monmouth 2017-08	Do you approve or disapprove of imposing stricter criminal penalties for illegal opioid use, or are you not sure?
Pew 2014- 02	In dealing with drug policy, should government focus more on prosecuting people who use illegal drugs such as heroin and cocaine, or do you think it should focus more on providing treatment for people who use these types of drugs? [order randomized]
Pew 2014- 02	Some states have moved AWAY from the idea of mandatory prison sentences for non-violent drug offenders. Do you think this is a good thing or a bad thing?
Pew 2014- 02	Which comes closer to your view about the use of marijuana by adults? It should be legal for personal use, it should be legal only for medicinal use or it should not be legal?
Pew 2014- 02	If marijuana use is not legalized, do you think people convicted of possessing small amounts of marijuana should serve time in jail, or not?

1.2 Severity Regressions

Table A5: Relationship between state overdose death rate and perceptions of crisis severity (1)

	Pew 2014-02 Drug Country (1)	Pew 2014-02 Drug Neighborhood (2)	Kaiser 2016-04 Heroin Country (3)	Kaiser 2016-04 Opioid Country (4)
State OD death rate	0.004 (0.002)	0.004 (0.003)	0.005*** (0.002)	0.005*** (0.001)
Indep/Other	0.033 (0.030)	-0.024 (0.049)	-0.074 (0.046)	-0.047 (0.034)
Republican	0.010 (0.022)	0.011 (0.027)	-0.021 (0.042)	-0.014 (0.027)
Moderate	-0.003 (0.026)	-0.014 (0.028)	0.006 (0.045)	-0.016 (0.026)
Conservative	0.056* (0.032)	-0.017 (0.035)	0.069 (0.048)	-0.015 (0.037)
Black	0.056** (0.027)	0.034 (0.031)	0.043 (0.059)	0.054 (0.038)
Latinx	0.026 (0.028)	0.037 (0.039)	0.045 (0.057)	0.019 (0.029)
Other race/ethnicity	0.027 (0.033)	-0.035 (0.044)	0.154** (0.064)	-0.032 (0.051)
Female	0.035 (0.021)	0.017 (0.024)	0.067** (0.033)	0.031* (0.017)
Income: 50k-100k	0.037 (0.025)	-0.039 (0.026)	-0.031 (0.049)	-0.009 (0.028)
Income: 100k or more	0.001 (0.028)	-0.081** (0.033)	-0.071 (0.056)	-0.030 (0.030)
High school or equiv	0.042 (0.030)	-0.086** (0.041)	-0.014 (0.057)	0.014 (0.036)
Some college/Assoc	0.028 (0.028)	-0.148*** (0.052)	-0.010 (0.073)	0.003 (0.041)
College degree	-0.009 (0.024)	-0.118*** (0.044)	-0.087 (0.079)	-0.028 (0.045)
Age: 30-39	0.077** (0.034)	0.050 (0.032)	0.013 (0.058)	0.033 (0.035)
Age: 40-59	0.105*** (0.032)	0.091*** (0.029)	0.055 (0.050)	0.047* (0.029)
Age: 60-64	0.108*** (0.041)	0.108** (0.051)	0.067 (0.042)	0.054 (0.036)
Age: 65 and older	0.133*** (0.028)	0.075** (0.035)	0.056 (0.050)	0.064** (0.029)
Suburban	-0.004 (0.023)	0.048 (0.038)	0.003 (0.050)	0.028 (0.024)
Urban	0.002 (0.025)	0.028 (0.043)	0.017 (0.042)	0.021 (0.034)
Observations	763	768	489	982
Adjusted R ²	0.063	0.043	0.053	0.024

Note:

*p<0.1; **p<0.05; ***p<0.01

Table A6: Relationship between state overdose death rate and perceptions of crisis severity (2)

	Monmouth 2017-08 Opioid State (1)	AP/NORC 2018-03 Heroin Community (2)	AP/NORC 2018-03 Prescription Community (3)
State OD death rate	0.003*** (0.001)	0.008*** (0.002)	0.004** (0.002)
Indep/Other	0.058 (0.042)	0.028 (0.041)	0.022 (0.034)
Republican	0.044 (0.033)	0.032 (0.026)	0.010 (0.025)
Moderate	-0.060* (0.033)		
Conservative	-0.039 (0.041)		
Black	-0.023 (0.042)	-0.014 (0.038)	-0.007 (0.036)
Latinx	-0.029 (0.041)	-0.034 (0.044)	-0.041 (0.034)
Other race/ethnicity	-0.027 (0.039)	-0.012 (0.053)	-0.073* (0.043)
Female	0.029 (0.020)	0.020 (0.028)	0.061** (0.030)
Income: 50k-100k	0.007 (0.030)	-0.023 (0.034)	0.025 (0.029)
Income: 100k or more	0.011 (0.027)	0.041 (0.036)	0.067* (0.041)
High school or equiv	-0.035 (0.081)	-0.025 (0.058)	-0.012 (0.083)
Some college/Assoc	0.013 (0.092)	-0.045 (0.056)	-0.034 (0.075)
College degree	-0.0005 (0.094)	-0.074 (0.046)	-0.048 (0.072)
Age: 30-39	0.119*** (0.046)	-0.051 (0.057)	-0.071 (0.058)
Age: 40-59	0.129*** (0.038)	-0.039 (0.044)	-0.038 (0.039)
Age: 60-64	0.099** (0.044)	-0.045 (0.057)	-0.039 (0.049)
Age: 65 and older	0.141*** (0.040)	-0.011 (0.043)	-0.005 (0.038)
Suburban		0.008 (0.037)	-0.006 (0.031)
Urban		0.047 (0.040)	0.037 (0.037)
Observations	576	1,003	1,008
Adjusted R ²	0.070	0.048	0.029

Note:

*p<0.1; **p<0.05; ***p<0.01

Table A7: Relationship between state overdose death rate and perceptions of crisis severity (3)

	AP/NORC 2019-04 Heroin Community (1)	AP/NORC 2019-04 Prescription Community (2)	Kaiser 2019-06 Opioid Country (3)
State OD death rate	0.002* (0.001)	0.002 (0.002)	0.001 (0.002)
Indep/Other	-0.081** (0.040)	-0.095** (0.047)	0.097** (0.049)
Republican	-0.011 (0.035)	-0.045 (0.042)	-0.026 (0.043)
Moderate	-0.044 (0.042)	-0.026 (0.038)	-0.018 (0.028)
Conservative	-0.004 (0.041)	-0.025 (0.041)	-0.025 (0.051)
Black	-0.090 (0.061)	-0.150*** (0.048)	-0.150* (0.087)
Latinx	-0.039 (0.039)	-0.034 (0.039)	0.0001 (0.050)
Other race/ethnicity	-0.070 (0.044)	-0.018 (0.041)	-0.082 (0.078)
Female	0.052** (0.026)	0.070*** (0.024)	0.101*** (0.036)
Income: 50k-100k	-0.007 (0.032)	0.003 (0.028)	0.080** (0.033)
Income: 100k or more	0.014 (0.030)	-0.023 (0.030)	0.087* (0.052)
High school or equiv	-0.144** (0.070)	-0.015 (0.054)	0.061 (0.077)
Some college/Assoc	-0.126** (0.062)	-0.022 (0.057)	0.088 (0.080)
College degree	-0.146** (0.072)	-0.029 (0.067)	0.056 (0.090)
Age: 30-39	0.022 (0.041)	-0.034 (0.038)	0.001 (0.064)
Age: 40-59	-0.031 (0.033)	-0.056 (0.037)	-0.062 (0.053)
Age: 60-64	0.070 (0.044)	0.008 (0.048)	0.052 (0.068)
Age: 65 and older	-0.007 (0.031)	-0.072** (0.036)	0.040 (0.058)
Suburban	-0.051 (0.031)	-0.066** (0.030)	-0.004 (0.041)
Urban	0.009 (0.041)	-0.020 (0.044)	-0.014 (0.043)
Observations	1,053	1,056	485
Adjusted R ²	0.050	0.053	0.062

Note:

*p<0.1; **p<0.05; ***p<0.01

1.3 Priority Regressions

Table A8: Relationship between state overdose death rate and priority given to overdose crisis
(1)

	Kaiser 2015-11 State governor/legislature	Kaiser 2016-08 Presidential candidates	Kaiser 2016-09 Presidential vote
	(1)	(2)	(3)
State OD death rate	0.004*** (0.001)	0.003** (0.001)	0.004*** (0.001)
Indep/Other	0.008 (0.031)	0.002 (0.032)	0.069* (0.036)
Republican	0.009 (0.022)	-0.089*** (0.025)	-0.017 (0.023)
Moderate	-0.034* (0.020)	-0.032 (0.023)	-0.031 (0.028)
Conservative	-0.020 (0.024)	-0.030 (0.026)	-0.035 (0.032)
Black	0.073** (0.033)	-0.047 (0.042)	-0.038 (0.035)
Latinx	0.020 (0.033)	-0.015 (0.029)	0.053 (0.036)
Other race/ethnicity	0.059* (0.031)	-0.151*** (0.053)	0.082** (0.033)
Female	0.026 (0.019)	0.030 (0.019)	0.038 (0.030)
Income: 50k-100k	-0.021 (0.020)	-0.030 (0.028)	-0.046* (0.024)
Income: 100k or more	-0.023 (0.027)	-0.035 (0.025)	-0.080** (0.032)
High school or equiv	0.068** (0.030)	0.038 (0.053)	0.043 (0.034)
Some college/Assoc	0.035 (0.028)	0.065 (0.058)	-0.047 (0.037)
College degree	-0.026 (0.025)	0.007 (0.053)	-0.056 (0.048)
Age: 30-39	-0.006 (0.035)	0.033 (0.037)	-0.007 (0.045)
Age: 40-59	0.031 (0.030)	0.041 (0.031)	0.041 (0.036)
Age: 60-64	0.049 (0.037)	0.100** (0.044)	0.018 (0.055)
Age: 65 and older	0.063* (0.034)	0.103*** (0.032)	0.096*** (0.035)
Suburban	0.00000 (0.027)	-0.035 (0.033)	0.004 (0.035)
Urban	-0.006 (0.032)	0.007 (0.036)	0.028 (0.035)
Observations	1,086	999	1,022
Adjusted R ²	0.037	0.072	0.059

Note:

*p<0.1; **p<0.05; ***p<0.01

Table A9: Relationship between state overdose death rate and priority given to overdose crisis
(2)

	Kaiser 2016-12 Trump/Congress	Kaiser 2017-04 Trump/Congress	Kaiser 2017-11 Trump/Congress
	(1)	(2)	(3)
State OD death rate	0.002* (0.001)	0.002*** (0.001)	-0.001 (0.001)
Indep/Other	-0.041 (0.028)	0.018 (0.032)	0.025 (0.059)
Republican	-0.045** (0.022)	-0.039 (0.024)	0.048 (0.046)
Moderate	0.002 (0.019)	0.041* (0.023)	-0.053 (0.039)
Conservative	-0.030 (0.027)	0.026 (0.031)	-0.111*** (0.042)
Black	0.025 (0.024)	-0.001 (0.029)	-0.050 (0.062)
Latinx	-0.010 (0.025)	-0.115*** (0.029)	-0.062 (0.070)
Other race/ethnicity	0.031 (0.033)	-0.011 (0.031)	-0.073 (0.053)
Female	0.006 (0.015)	0.034 (0.021)	0.029 (0.033)
Income: 50k-100k	-0.026 (0.019)	-0.008 (0.023)	-0.047 (0.034)
Income: 100k or more	-0.024 (0.030)	-0.039 (0.029)	-0.077 (0.054)
High school or equiv	0.052 (0.043)	-0.030 (0.027)	0.058 (0.079)
Some college/Assoc	0.065 (0.047)	-0.064** (0.031)	0.064 (0.075)
College degree	0.031 (0.047)	-0.054 (0.036)	0.102 (0.075)
Age: 30-39	-0.075** (0.033)	0.039 (0.038)	0.005 (0.051)
Age: 40-59	-0.002 (0.027)	0.023 (0.035)	0.033 (0.035)
Age: 60-64	0.002 (0.032)	-0.024 (0.043)	0.013 (0.060)
Age: 65 and older	-0.010 (0.020)	-0.039 (0.037)	0.033 (0.043)
Suburban	0.030 (0.024)	0.034 (0.023)	0.079* (0.041)
Urban	-0.023 (0.034)	0.031 (0.022)	0.065 (0.044)
Observations	992	974	495
Adjusted R ²	0.026	0.026	0.019

Note:

*p<0.1; **p<0.05; ***p<0.01

Table A10: Relationship between state overdose death rate and priority given to overdose crisis
(3)

	Kaiser 2018-01 Trump/Congress	Kaiser 2018-02 2018 candidates	Kaiser 2018-03 Trump/Congress
	(1)	(2)	(3)
State OD death rate	−0.002 (0.002)	−0.001 (0.001)	−0.0004 (0.002)
Indep/Other	−0.034 (0.073)	−0.041 (0.035)	0.003 (0.056)
Republican	−0.035 (0.044)	−0.060* (0.031)	−0.015 (0.039)
Moderate	−0.044 (0.039)	0.014 (0.033)	−0.039 (0.036)
Conservative	−0.027 (0.053)	0.027 (0.039)	−0.072 (0.051)
Black	−0.011 (0.053)	−0.039 (0.034)	−0.032 (0.037)
Latinx	−0.047 (0.067)	−0.021 (0.025)	−0.103** (0.042)
Other race/ethnicity	−0.019 (0.063)	−0.040 (0.042)	−0.075 (0.064)
Female	0.016 (0.030)	0.037* (0.020)	0.081*** (0.029)
Income: 50k-100k	−0.037 (0.038)	0.015 (0.022)	0.011 (0.033)
Income: 100k or more	−0.020 (0.036)	−0.060*** (0.021)	0.064* (0.037)
High school or equiv	0.079 (0.115)	0.002 (0.048)	−0.022 (0.108)
Some college/Assoc	0.107 (0.105)	−0.038 (0.052)	−0.011 (0.097)
College degree	0.073 (0.102)	−0.008 (0.044)	−0.040 (0.095)
Age: 30-39	0.030 (0.044)	0.013 (0.029)	0.066 (0.043)
Age: 40-59	−0.012 (0.046)	−0.015 (0.029)	−0.003 (0.031)
Age: 60-64	0.004 (0.057)	0.017 (0.029)	0.024 (0.048)
Age: 65 and older	0.001 (0.049)	0.002 (0.028)	0.083** (0.036)
Suburban	−0.035 (0.045)	0.018 (0.029)	0.054* (0.031)
Urban	−0.057 (0.049)	0.014 (0.033)	0.055 (0.041)
Observations	504	953	507
Adjusted R ²	−0.005	0.012	0.051

Note:

*p<0.1; **p<0.05; ***p<0.01

1.4 Policy Regressions

Table A11: Relationship between state overdose death rate and policy views (1)

	Pew 2014-02 Mandatory sentences Oppose (1)	Pew 2014-02 Marijuana jail Oppose (2)	Pew 2014-02 Marijuana legal Support (3)	Pew 2014-02 Treatment Support (4)
State OD death rate	-0.001 (0.003)	0.004** (0.002)	0.0002 (0.002)	0.001 (0.003)
Indep/Other	-0.011 (0.043)	0.004 (0.039)	0.031 (0.028)	-0.100** (0.047)
Republican	-0.142*** (0.037)	-0.080*** (0.029)	-0.097*** (0.017)	-0.173*** (0.036)
Moderate	-0.041 (0.034)	-0.040 (0.032)	-0.067*** (0.021)	-0.024 (0.032)
Conservative	-0.129*** (0.040)	-0.091*** (0.034)	-0.160*** (0.022)	-0.119*** (0.032)
Black	-0.117*** (0.040)	-0.052 (0.049)	-0.067** (0.026)	0.030 (0.048)
Latinx	-0.156*** (0.043)	-0.153*** (0.043)	-0.151*** (0.023)	-0.113*** (0.031)
Other race/ethnicity	-0.194*** (0.058)	-0.082* (0.044)	-0.054* (0.033)	-0.072* (0.042)
Female	-0.042* (0.025)	-0.027 (0.024)	-0.039** (0.019)	-0.007 (0.023)
Income: 50k-100k	-0.001 (0.031)	0.035 (0.031)	0.040 (0.026)	-0.029 (0.029)
Income: 100k or more	0.028 (0.037)	0.046 (0.037)	0.014 (0.029)	-0.041* (0.023)
High school or equiv	0.089** (0.043)	0.113* (0.063)	0.094*** (0.031)	0.168*** (0.058)
Some college/Assoc	0.169*** (0.047)	0.170** (0.073)	0.104*** (0.028)	0.176*** (0.050)
College degree	0.209*** (0.048)	0.190** (0.083)	0.109*** (0.034)	0.236*** (0.043)
Age: 30-39	0.066 (0.042)	-0.037 (0.042)	-0.027 (0.026)	-0.050 (0.041)
Age: 40-59	-0.048 (0.034)	-0.029 (0.024)	-0.074*** (0.018)	-0.055 (0.035)
Age: 60-64	-0.091* (0.054)	0.008 (0.032)	-0.068** (0.034)	-0.072 (0.045)
Age: 65 and older	-0.115*** (0.037)	-0.113*** (0.034)	-0.216*** (0.026)	-0.124*** (0.028)
Suburban	0.070 (0.047)	0.108*** (0.033)	0.043 (0.035)	0.078* (0.042)
Urban	0.111** (0.045)	0.117*** (0.038)	0.058* (0.035)	0.125*** (0.044)
Observations	1,514	1,542	1,541	1,478
Adjusted R ²	0.103	0.082	0.143	0.109

Note:

*p<0.1; **p<0.05; ***p<0.01

Table A12: Relationship between state overdose death rate and policy views (2)

	Kaiser 2015-11 Good Samaritan Support	Kaiser 2015-11 Narcan Support	Kaiser 2016-04 Narcan Support
	(1)	(2)	(3)
State OD death rate	-0.003 (0.003)	0.003* (0.002)	0.004 (0.002)
Indep/Other	-0.124** (0.057)	-0.065 (0.053)	-0.042 (0.050)
Republican	-0.113*** (0.041)	-0.165*** (0.043)	-0.022 (0.052)
Moderate	-0.039 (0.039)	-0.071* (0.041)	-0.136*** (0.048)
Conservative	-0.074 (0.050)	-0.103* (0.059)	-0.303*** (0.055)
Black	-0.136** (0.053)	-0.163*** (0.057)	-0.166*** (0.058)
Latinx	-0.110* (0.066)	-0.128* (0.071)	-0.133** (0.067)
Other race/ethnicity	-0.064 (0.062)	-0.181*** (0.060)	-0.103 (0.077)
Female	0.014 (0.032)	-0.035 (0.032)	-0.016 (0.035)
Income: 50k-100k	-0.042 (0.041)	-0.013 (0.039)	-0.033 (0.046)
Income: 100k or more	-0.006 (0.053)	0.051 (0.055)	-0.0002 (0.057)
High school or equiv	0.044 (0.073)	0.125** (0.059)	0.127** (0.053)
Some college/Assoc	0.077 (0.085)	0.218*** (0.052)	0.189*** (0.055)
College degree	0.149** (0.069)	0.221*** (0.063)	0.195*** (0.058)
Age: 30-39	0.0005 (0.047)	0.022 (0.066)	-0.092* (0.048)
Age: 40-59	-0.049 (0.052)	-0.133*** (0.050)	-0.022 (0.054)
Age: 60-64	-0.033 (0.085)	-0.119 (0.083)	-0.019 (0.055)
Age: 65 and older	-0.105* (0.060)	-0.241*** (0.049)	-0.181*** (0.051)
Suburban	-0.031 (0.045)	-0.00004 (0.034)	-0.020 (0.050)
Urban	0.021 (0.047)	0.033 (0.033)	-0.025 (0.059)
Observations	1,035	1,052	962
Adjusted R ²	0.040	0.115	0.108

Note:

*p<0.1; **p<0.05; ***p<0.01

Table A13: Relationship between state overdose death rate and policy views (3)

	Monmouth 2017-08 Opioid penalties Oppose (1)	Monmouth 2017-08 Opioid sensors Support (2)	Monmouth 2017-08 Treatment Support (3)
State OD death rate	−0.005*** (0.002)	0.001 (0.001)	0.0005 (0.002)
Indep/Other	−0.091* (0.050)	0.049 (0.060)	0.004 (0.059)
Republican	−0.227*** (0.045)	0.051 (0.040)	−0.092** (0.047)
Moderate	−0.003 (0.037)	−0.008 (0.034)	−0.048 (0.053)
Conservative	−0.090** (0.043)	0.013 (0.064)	−0.180*** (0.049)
Black	−0.054 (0.055)	0.026 (0.046)	−0.055 (0.037)
Latinx	−0.084 (0.057)	−0.027 (0.058)	−0.135** (0.058)
Other race/ethnicity	0.005 (0.073)	0.065 (0.083)	−0.082 (0.055)
Female	−0.091*** (0.034)	−0.009 (0.034)	−0.033 (0.038)
Income: 50k-100k	0.011 (0.041)	0.011 (0.031)	−0.001 (0.041)
Income: 100k or more	0.046 (0.040)	0.053 (0.040)	0.012 (0.039)
High school or equiv	−0.003 (0.139)	−0.071 (0.073)	−0.030 (0.082)
Some college/Assoc	0.044 (0.127)	−0.054 (0.077)	−0.030 (0.097)
College degree	0.066 (0.127)	−0.062 (0.082)	0.009 (0.085)
Age: 30-39	−0.153*** (0.051)	0.085 (0.057)	0.075* (0.041)
Age: 40-59	−0.029 (0.045)	0.149*** (0.043)	−0.003 (0.044)
Age: 60-64	−0.019 (0.060)	0.187*** (0.050)	0.134*** (0.050)
Age: 65 and older	−0.054 (0.058)	0.212*** (0.038)	0.055 (0.051)
Observations	636	636	636
Adjusted R ²	0.129	0.033	0.087

Note:

*p<0.1; **p<0.05; ***p<0.01

1.5 Personal Experience

Table A14: Relationship between state overdose death rate and personal experience

	Kaiser 2015-11	Kaiser 2016-04	AP/NORC 2018-03
	(1)	(2)	(3)
State OD death rate	0.006** (0.003)	0.003 (0.002)	0.003 (0.002)
Personal experience	-0.071 (0.053)	-0.030 (0.052)	-0.014 (0.058)
Indep/Other	0.001 (0.047)	0.049 (0.048)	0.052 (0.043)
Republican	0.012 (0.043)	-0.123** (0.051)	
Moderate	-0.026 (0.054)	-0.144** (0.069)	
Conservative	-0.291*** (0.040)	-0.184*** (0.054)	-0.026 (0.070)
Black	-0.239*** (0.048)	-0.257*** (0.058)	-0.038 (0.047)
Latinx	-0.200*** (0.072)	-0.100* (0.057)	-0.096* (0.054)
Other race/ethnicity	-0.050 (0.033)	-0.039 (0.029)	0.062 (0.042)
Female	-0.019 (0.041)	0.027 (0.040)	0.010 (0.031)
Income: 50k-100k	-0.007 (0.062)	-0.070 (0.053)	-0.065 (0.044)
Income: 100k or more	0.017 (0.065)	0.073 (0.074)	-0.025 (0.082)
High school or equiv	0.076 (0.071)	0.210** (0.083)	0.009 (0.077)
Some college/Assoc	-0.017 (0.068)	0.051 (0.087)	-0.137* (0.080)
College degree	0.137*** (0.045)	0.065 (0.061)	0.078 (0.072)
Age: 30-39	0.091* (0.046)	0.054 (0.054)	0.016 (0.066)
Age: 40-59	-0.064 (0.060)	0.046 (0.071)	0.020 (0.073)
Age: 60-64	-0.050 (0.041)	-0.132*** (0.049)	-0.083 (0.061)
Age: 65 and older	-0.009 (0.048)	-0.016 (0.043)	0.021 (0.037)
Suburban	-0.012 (0.054)	-0.003 (0.047)	0.065 (0.042)
Observations	1,089	999	1,013
Adjusted R ²	0.073	0.087	0.035

Note:

*p<0.1; **p<0.05; ***p<0.01

Table A15: Relationship between state overdose death rate, personal experience and preferences about overdose crisis

	Kaiser 2016-04 Severity Heroin (1)	Kaiser 2016-04 Severity Opioid (2)	AP/NORC 2018-03 Severity Heroin (3)	AP/NORC 2018-03 Severity Prescription (4)	Kaiser 2015-11 Priority State gov't (5)
State OD death rate	0.005*** (0.002)	0.004*** (0.001)	0.008*** (0.002)	0.004** (0.002)	0.003*** (0.001)
Personal experience	0.119*** (0.039)	0.085*** (0.023)	0.110*** (0.025)	0.097*** (0.031)	0.035** (0.016)
Indep/Other	-0.076* (0.046)	-0.044 (0.034)	0.030 (0.039)	0.022 (0.031)	0.006 (0.031)
Republican	-0.025 (0.043)	-0.018 (0.029)	0.028 (0.027)	0.002 (0.025)	0.008 (0.021)
Moderate	0.019 (0.048)	-0.007 (0.027)			-0.028 (0.020)
Conservative	0.088* (0.050)	-0.002 (0.039)			-0.015 (0.024)
Black	0.065 (0.055)	0.067* (0.036)	-0.008 (0.038)	-0.004 (0.040)	0.089** (0.034)
Latinx	0.065 (0.062)	0.036 (0.029)	-0.029 (0.040)	-0.038 (0.032)	0.029 (0.034)
Other race/ethnicity	0.150** (0.063)	-0.025 (0.051)	-0.001 (0.050)	-0.064 (0.042)	0.069** (0.032)
Female	0.081** (0.031)	0.036** (0.017)	0.014 (0.025)	0.054* (0.028)	0.025 (0.019)
Income: 50k-100k	-0.035 (0.046)	-0.014 (0.028)	-0.027 (0.033)	0.020 (0.027)	-0.021 (0.020)
Income: 100k or more	-0.063 (0.054)	-0.025 (0.031)	0.049 (0.038)	0.074* (0.042)	-0.026 (0.026)
High school or equiv	-0.027 (0.056)	0.002 (0.036)	-0.011 (0.065)	-0.001 (0.087)	0.066** (0.032)
Some college/Assoc	-0.031 (0.073)	-0.019 (0.041)	-0.035 (0.064)	-0.024 (0.080)	0.034 (0.027)
College degree	-0.096 (0.077)	-0.038 (0.045)	-0.046 (0.053)	-0.022 (0.076)	-0.029 (0.025)
Age: 30-39	-0.010 (0.054)	0.026 (0.036)	-0.057 (0.056)	-0.076 (0.059)	-0.009 (0.035)
Age: 40-59	0.038 (0.047)	0.041 (0.029)	-0.044 (0.044)	-0.042 (0.040)	0.028 (0.030)
Age: 60-64	0.056 (0.043)	0.049 (0.036)	-0.049 (0.059)	-0.045 (0.050)	0.050 (0.037)
Age: 65 and older	0.060 (0.056)	0.077*** (0.029)	-0.003 (0.041)	-0.001 (0.038)	0.068** (0.034)
Suburban	-0.0003 (0.046)	0.032 (0.025)	0.003 (0.036)	-0.013 (0.030)	0.003 (0.027)
Urban	0.016 (0.041)	0.023 (0.033)	0.040 (0.041)	0.029 (0.038)	-0.003 (0.032)
Observations	487	978	988	993	1,075
Adjusted R ²	0.088	0.042	0.071	0.052	0.043

Note:

*p<0.1; **p<0.05; ***p<0.01

2 Massachusetts Referenda Analysis

2.1 Massachusetts Ballot Questions Text Summaries

2016

Question 1, Expanded Slot-Machine Gambling: Do you approve of a law summarized below, on which no vote was taken by the Senate or the House of Representatives on or before May 3, 2016?

This proposed law would allow the state Gaming Commission to issue one additional category 2 license, which would permit operation of a gaming establishment with no table games and not more than 1,250 slot machines.

The proposed law would authorize the Commission to request applications for the additional license to be granted to a gaming establishment located on property that is (i) at least four acres in size; (ii) adjacent to and within 1,500 feet of a race track, including the track's additional facilities, such as the track, grounds, paddocks, barns, auditorium, amphitheatre, and bleachers; (iii) where a horse racing meeting may physically be held; (iv) where a horse racing meeting shall have been hosted; and (v) not separated from the race track by a highway or railway.

Question 2, Charter School Expansion: Do you approve of a law summarized below, on which no vote was taken by the Senate or the House of Representatives on or before May 3, 2016?

This proposed law would allow the state Board of Elementary and Secondary Education to approve up to 12 new charter schools or enrollment expansions in existing charter schools each year. Approvals under this law could expand statewide charter school enrollment by up to 1% of the total statewide public school enrollment each year. New charters and enrollment expansions approved under this law would be exempt from existing limits on the number of charter schools, the number of students enrolled in them, and the amount of local school districts' spending allocated to them.

If the Board received more than 12 applications in a single year from qualified applicants, then the proposed law would require it to give priority to proposed charter schools or enrollment expansions in districts where student performance on statewide assessments is in the bottom 25% of all districts in the previous two years and where demonstrated parent demand for additional public school options is greatest.

New charter schools and enrollment expansions approved under this proposed law would be subject to the same approval standards as other charter schools, and to recruitment, retention, and multilingual outreach requirements that currently apply to some charter schools. Schools authorized under this law would be subject to annual performance reviews according to standards established by the Board.

The proposed law would take effect on January 1, 2017.

Question 3, Conditions for Farm Animals: Do you approve of a law summarized below, on which no vote was taken by the Senate or the House of Representatives on or before May

3, 2016?

This proposed law would prohibit any farm owner or operator from knowingly confining any breeding pig, calf raised for veal, or egg-laying hen in a way that prevents the animal from lying down, standing up, fully extending its limbs, or turning around freely. The proposed law would also prohibit any business owner or operator in Massachusetts from selling whole eggs intended for human consumption or any uncooked cut of veal or pork if the business owner or operator knows or should know that the hen, breeding pig, or veal calf that produced these products was confined in a manner prohibited by the proposed law. The proposed law would exempt sales of food products that combine veal or pork with other products, including soups, sandwiches, pizzas, hotdogs, or similar processed or prepared food items.

The proposed law's confinement prohibitions would not apply during transportation; state and county fair exhibitions; 4-H programs; slaughter in compliance with applicable laws and regulations; medical research; veterinary exams, testing, treatment and operation if performed under the direct supervision of a licensed veterinarian; five days prior to a pregnant pig's expected date of giving birth; any day that pig is nursing piglets; and for temporary periods for animal husbandry purposes not to exceed six hours in any twenty-four hour period.

The proposed law would create a civil penalty of up to \$1,000 for each violation and would give the Attorney General the exclusive authority to enforce the law, and to issue regulations to implement it. As a defense to enforcement proceedings, the proposed law would allow a business owner or operator to rely in good faith upon a written certification or guarantee of compliance by a supplier.

The proposed law would be in addition to any other animal welfare laws and would not prohibit stricter local laws.

The proposed law would take effect on January 1, 2022. The proposed law states that if any of its parts were declared invalid, the other parts would stay in effect.

Question 4, Legalization, Regulation, and Taxation of Marijuana: Do you approve of a law summarized below, on which no vote was taken by the Senate or the House of Representatives on or before May 3, 2016?

The proposed law would permit the possession, use, distribution, and cultivation of marijuana in limited amounts by persons age 21 and older and would remove criminal penalties for such activities. It would provide for the regulation of commerce in marijuana, marijuana accessories, and marijuana products and for the taxation of proceeds from sales of these items.

The proposed law would authorize persons at least 21 years old to possess up to one ounce of marijuana outside of their residences; possess up to ten ounces of marijuana inside their residences; grow up to six marijuana plants in their residences; give one ounce or less of marijuana to a person at least 21 years old without payment; possess, produce or transfer hemp; or make or transfer items related to marijuana use, storage, cultivation, or processing.

The measure would create a Cannabis Control Commission of three members appointed by the state Treasurer which would generally administer the law governing marijuana use and distribution, promulgate regulations, and be responsible for the licensing of marijuana commercial establishments. The proposed law would also create a Cannabis Advisory Board

of fifteen members appointed by the Governor. The Cannabis Control Commission would adopt regulations governing licensing qualifications; security; record keeping; health and safety standards; packaging and labeling; testing; advertising and displays; required inspections; and such other matters as the Commission considers appropriate. The records of the Commission would be public records.

The proposed law would authorize cities and towns to adopt reasonable restrictions on the time, place, and manner of operating marijuana businesses and to limit the number of marijuana establishments in their communities. A city or town could hold a local vote to determine whether to permit the selling of marijuana and marijuana products for consumption on the premises at commercial establishments.

The proceeds of retail sales of marijuana and marijuana products would be subject to the state sales tax and an additional excise tax of 3.75%. A city or town could impose a separate tax of up to 2%. Revenue received from the additional state excise tax or from license application fees and civil penalties for violations of this law would be deposited in a Marijuana Regulation Fund and would be used subject to appropriation for administration of the proposed law.

Marijuana-related activities authorized under this proposed law could not be a basis for adverse orders in child welfare cases absent clear and convincing evidence that such activities had created an unreasonable danger to the safety of a minor child.

The proposed law would not affect existing law regarding medical marijuana treatment centers or the operation of motor vehicles while under the influence. It would permit property owners to prohibit the use, sale, or production of marijuana on their premises (with an exception that landlords cannot prohibit consumption by tenants of marijuana by means other than by smoking); and would permit employers to prohibit the consumption of marijuana by employees in the workplace. State and local governments could continue to restrict uses in public buildings or at or near schools. Supplying marijuana to persons under age 21 would be unlawful.

The proposed law would take effect on December 15, 2016.

2012

Question 3, Medical Use of Marijuana: Do you approve of a law summarized below, on which no vote was taken by the Senate or the House of Representatives on or before May 1, 2012?

This proposed law would eliminate state criminal and civil penalties for the medical use of marijuana by qualifying patients. To qualify, a patient must have been diagnosed with a debilitating medical condition, such as cancer, glaucoma, HIV-positive status or AIDS, hepatitis C, Crohn's disease, Parkinson's disease, ALS, or multiple sclerosis. The patient would also have to obtain a written certification, from a physician with whom the patient has a bona fide physician-patient relationship, that the patient has a specific debilitating medical condition and would likely obtain a net benefit from medical use of marijuana.

The proposed law would allow patients to possess up to a 60-day supply of marijuana for their personal medical use. The state Department of Public Health (DPH) would decide what amount would be a 60-day supply. A patient could designate a personal caregiver, at least 21 years old, who could assist with the patient's medical use of marijuana but would be

prohibited from consuming that marijuana. Patients and caregivers would have to register with DPH by submitting the physician's certification.

The proposed law would allow for non-profit medical marijuana treatment centers to grow, process and provide marijuana to patients or their caregivers. A treatment center would have to apply for a DPH registration by (1) paying a fee to offset DPH's administrative costs; (2) identifying its location and one additional location, if any, where marijuana would be grown; and (3) submitting operating procedures, consistent with rules to be issued by DPH, including cultivation and storage of marijuana only in enclosed, locked facilities.

A treatment center's personnel would have to register with DPH before working or volunteering at the center, be at least 21 years old, and have no felony drug convictions. In 2013, there could be no more than 35 treatment centers, with at least one but not more than five centers in each county. In later years, DPH could modify the number of centers.

The proposed law would require DPH to issue a cultivation registration to a qualifying patient whose access to a treatment center is limited by financial hardship, physical inability to access reasonable transportation, or distance. This would allow the patient or caregiver to grow only enough plants, in a closed, locked facility, for a 60-day supply of marijuana for the patient's own use.

DPH could revoke any registration for a willful violation of the proposed law. Fraudulent use of a DPH registration could be punished by up to six months in a house of correction or a fine of up to \$500, and fraudulent use of a registration for the sale, distribution, or trafficking of marijuana for non-medical use for profit could be punished by up to five years in state prison or by two and one-half years in a house of correction.

The proposed law would (1) not give immunity under federal law or obstruct federal enforcement of federal law; (2) not supersede Massachusetts laws prohibiting possession, cultivation, or sale of marijuana for nonmedical purposes; (3) not allow the operation of a motor vehicle, boat, or aircraft while under the influence of marijuana; (4) not require any health insurer or government entity to reimburse for the costs of the medical use of marijuana; (5) not require any health care professional to authorize the medical use of marijuana; (6) not require any accommodation of the medical use of marijuana in any workplace, school bus or grounds, youth center, or correctional facility; and (7) not require any accommodation of smoking marijuana in any public place.

The proposed law would take effect January 1, 2013, and states that if any of its part were declared invalid, the other parts would stay in effect.

2.2 Additional Descriptive Data

Figure A1: Density Plot, MA Opioid Overdose Death Rate (Residential), 2016

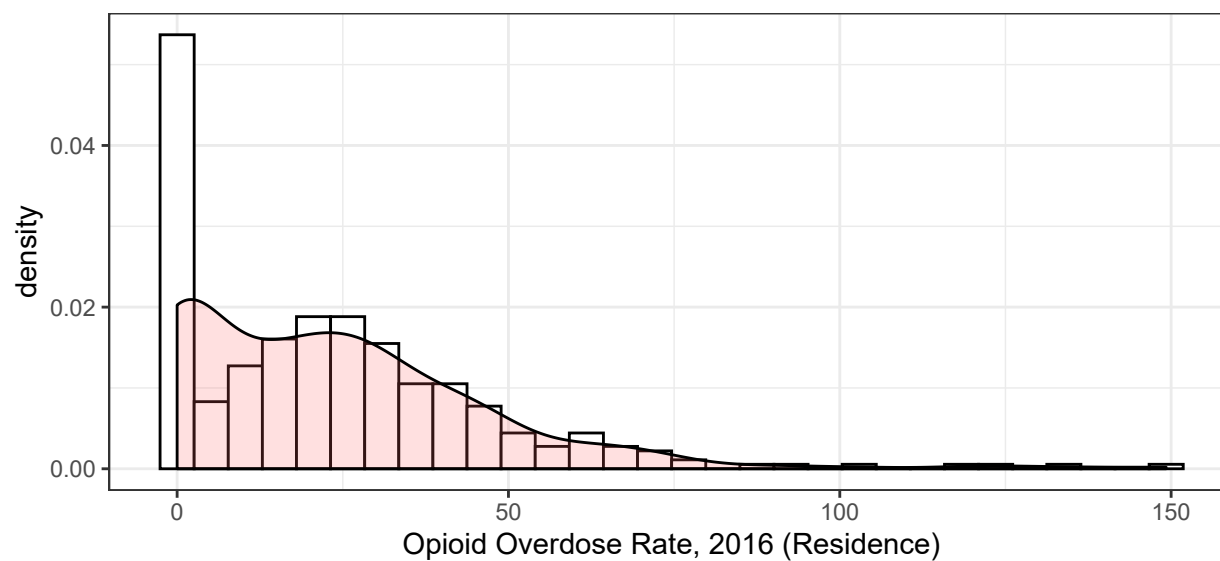
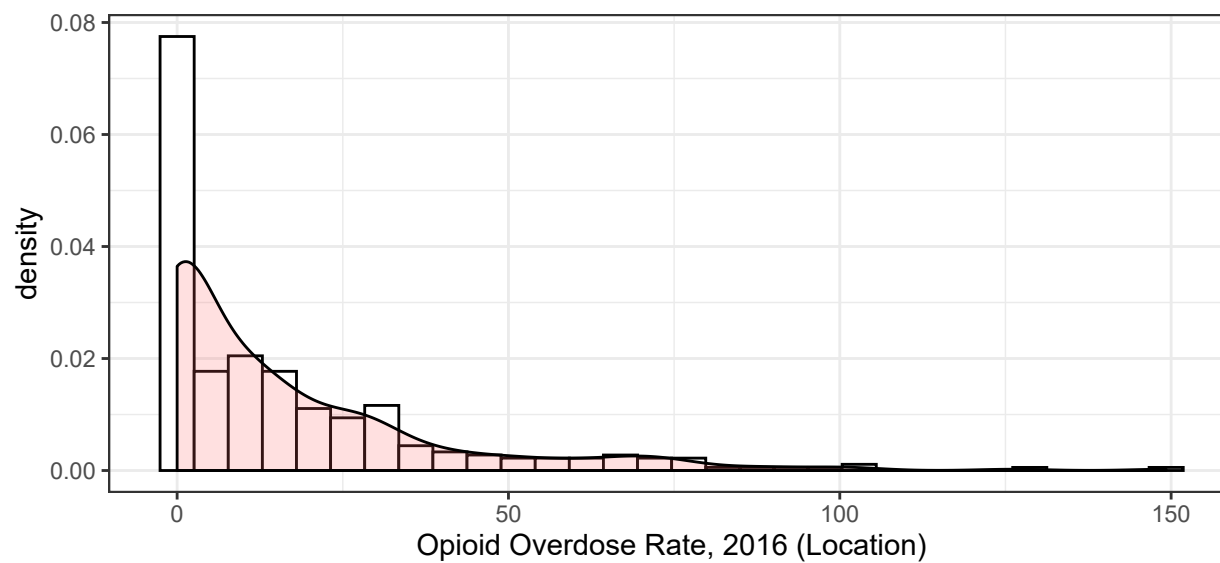


Figure A2: Density Plot, MA Opioid Overdose Death Rate (Locational), 2016



2.3 Alternative Regression Models

Table A16: Regression of MA Question 4 on Overdose Death Rates by Location

	Question 4 “Yes” Vote Share		
	(1)	(2)	(3)
Log OD deaths per 100,000 (location)	−0.928*** (0.224)	−0.848*** (0.176)	−0.482** (0.218)
2012 Democratic presidential vote share		0.377*** (0.028)	0.474*** (0.053)
Percent black			−0.270*** (0.065)
Percent Latinx			−0.286*** (0.085)
Percent female			−0.301** (0.132)
Percent high school or less			−0.650*** (0.175)
Percent Bachelor’s or more			−0.440*** (0.141)
Percent under 25			−0.436*** (0.142)
Percent 65 or over			−0.616*** (0.099)
Log median household income			−9.084*** (3.049)
Unemployment rate			−0.329 (0.293)
Population per 10,000			0.071 (0.113)
Population density per 10,000			2.090 (2.677)
Observations	351	351	351
Adjusted R ²	0.047	0.466	0.758

Note: Robust standard errors reported. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Table A17: Regression of MA Question 4 on Overdose Death Rates by Residence and Location

	Question 4 “Yes” Vote Share		
	(1)	(2)	(3)
Log OD deaths per 100,000 (residence)	−1.739*** (0.325)	−0.805*** (0.241)	−0.500 (0.306)
Log OD deaths per 100,000 (location)	0.355 (0.301)	−0.257 (0.233)	−0.222 (0.275)
2012 Democratic presidential vote share		0.360*** (0.028)	0.469*** (0.053)
Percent black			−0.273*** (0.065)
Percent Latinx			−0.287*** (0.084)
Percent female			−0.294** (0.131)
Percent high school or less			−0.657*** (0.174)
Percent Bachelor’s or more			−0.454*** (0.141)
Percent under 25			−0.450*** (0.142)
Percent 65 or over			−0.613*** (0.099)
Log median household income			−8.990*** (3.015)
Unemployment rate			−0.315 (0.292)
Population per 10,000			0.070 (0.110)
Population density per 10,000			2.286 (2.687)
Observations	351	351	351
Adjusted R ²	0.116	0.479	0.759

Note: Robust standard errors reported. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Table A18: Regression of MA Presidential Vote Share on Residential Overdose Rates

	2016 Presidential Vote Share:		
	Dem Pct	Rep Pct	Dem 2-Party Pct
	(1)	(2)	(3)
Log OD deaths per 100,000 (residence)	0.327** (0.153)	−0.116 (0.184)	0.245 (0.187)
2012 Democratic presidential vote share	0.752*** (0.032)	−0.723*** (0.035)	0.793*** (0.037)
Percent black	0.280*** (0.036)	−0.220*** (0.040)	0.257*** (0.041)
Percent Latinx	0.173*** (0.043)	−0.144*** (0.043)	0.162*** (0.046)
Percent female	0.016 (0.106)	0.063 (0.109)	−0.042 (0.120)
Percent high school or less	0.114 (0.128)	−0.016 (0.134)	0.064 (0.143)
Percent Bachelor's or more	0.588*** (0.090)	−0.562*** (0.094)	0.623*** (0.098)
Percent under 25	0.316*** (0.119)	−0.272** (0.118)	0.323** (0.133)
Percent 65 or over	0.094 (0.068)	0.035 (0.066)	0.021 (0.072)
Log median household income	0.563 (1.727)	1.912 (1.826)	−1.237 (1.913)
Unemployment rate	−0.024 (0.135)	0.111 (0.155)	−0.105 (0.154)
Population per 10,000	−0.034 (0.024)	0.020 (0.072)	−0.028 (0.044)
Population density per 10,000	0.681 (1.489)	0.666 (1.478)	−0.377 (1.651)
Observations	351	351	351
Adjusted R ²	0.978	0.971	0.974

Note: Robust standard errors reported. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Table A19: Regression of MA Questions 1-3 on Residential Overdose Rates

	<i>Question “Yes” Vote Share:</i>		
	Gambling (1)	Charter Schools (2)	Farm Animals (3)
Log OD deaths per 100,000 (residence)	1.107*** (0.364)	0.170 (0.336)	0.836*** (0.210)
2012 Democratic presidential vote share	−0.197*** (0.063)	−0.184*** (0.067)	−0.012 (0.046)
Percent black	−0.075 (0.090)	0.160** (0.082)	0.014 (0.074)
Percent Latinx	−0.049 (0.063)	0.201** (0.080)	−0.045 (0.075)
Percent female	0.273 (0.176)	0.053 (0.218)	0.049 (0.102)
Percent high school or less	0.474* (0.243)	0.627** (0.282)	−0.075 (0.134)
Percent Bachelor’s or more	−0.307 (0.212)	0.554*** (0.213)	0.099 (0.117)
Percent under 25	−0.120 (0.189)	0.468* (0.265)	0.097 (0.125)
Percent 65 or over	−0.522*** (0.121)	0.518*** (0.146)	0.146** (0.073)
Log median household income	3.483 (3.903)	6.091 (3.850)	−1.639 (2.443)
Unemployment rate	0.386 (0.332)	0.694** (0.322)	−0.232 (0.265)
Population per 10,000	0.061 (0.337)	0.022 (0.270)	0.007 (0.101)
Population density per 10,000	−2.235 (1.930)	−1.466 (2.237)	3.664*** (0.914)
Observations	351	351	351
Adjusted R ²	0.765	0.301	0.414

Note: Robust standard errors reported. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Table A20: Regression of MA Question 4 on 3-Year Average Residential Overdose Rates

	Question 4 “Yes” Vote Share		
	(1)	(2)	(3)
3-Year log OD deaths per 100,000 (residence)	−1.284*** (0.305)	−0.867*** (0.241)	−0.813** (0.379)
2012 Democratic presidential vote share		0.368*** (0.030)	0.466*** (0.053)
Percent black			−0.272*** (0.066)
Percent Latinx			−0.289*** (0.084)
Percent female			−0.310** (0.130)
Percent high school or less			−0.658*** (0.174)
Percent Bachelor’s or more			−0.459*** (0.143)
Percent under 25			−0.462*** (0.146)
Percent 65 or over			−0.620*** (0.099)
Log median household income			−8.949*** (3.042)
Unemployment rate			−0.324 (0.292)
Population per 10,000			0.068 (0.126)
Population density per 10,000			2.225 (2.665)
Observations	351	351	351
Adjusted R ²	0.056	0.451	0.757

Note: Robust standard errors reported. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Table A21: Regression of 2012 MA Question 3 (Medical Marijuana) on Residential Overdose Rates

	2012 Question 3 “Yes” Vote Share		
	(1)	(2)	(3)
Log OD deaths per 100,000 (residence)	−1.621*** (0.207)	−1.106*** (0.163)	−0.518*** (0.195)
2008 Democratic presidential vote share		0.346*** (0.029)	0.474*** (0.048)
Percent Black			−0.188*** (0.052)
Percent Latinx			−0.213*** (0.068)
Percent female			−0.208* (0.112)
Percent high school or less			−0.558*** (0.146)
Percent Bachelor’s or more			−0.318** (0.125)
Percent under 25			−0.328** (0.141)
Percent 65 or over			−0.330*** (0.083)
Log median household income			−4.361* (2.573)
Unemployment rate			−0.458* (0.247)
Population per 10,000			0.047 (0.092)
Population density per 10,000			0.735 (1.517)
Observations	351	351	351
Adjusted R ²	0.175	0.519	0.761

Note: Robust standard errors reported. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ (two-tailed test)

Table A22: Fixed-Effects Regression of Democratic Presidential Vote Share on Residential Overdose Rates

	Vote share
Log OD deaths per 100,000 (residence)	0.045 (0.090)
2012 Democratic presidential vote share	1.210*** (0.026)
Percent black	−0.129 (0.108)
Percent Latinx	−0.196** (0.078)
Percent female	0.102* (0.060)
Percent high school or less	−0.072 (0.071)
Percent Bachelor’s or more	−0.048 (0.066)
Percent under 25	−0.017 (0.068)
Percent 65 or over	0.073 (0.065)
Log median household income	−0.785 (1.438)
Unemployment rate	0.104 (0.065)
Population per 10,000	0.0001 (0.0001)
Population density per 10,000	−0.010*** (0.002)
Observations	702
Adjusted R ²	0.978
Fixed Effects	Municipality, Year
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01