CAROLINE WEBER, PhD

Associate Professor
Martin School for Public Policy & Administration
University of Kentucky
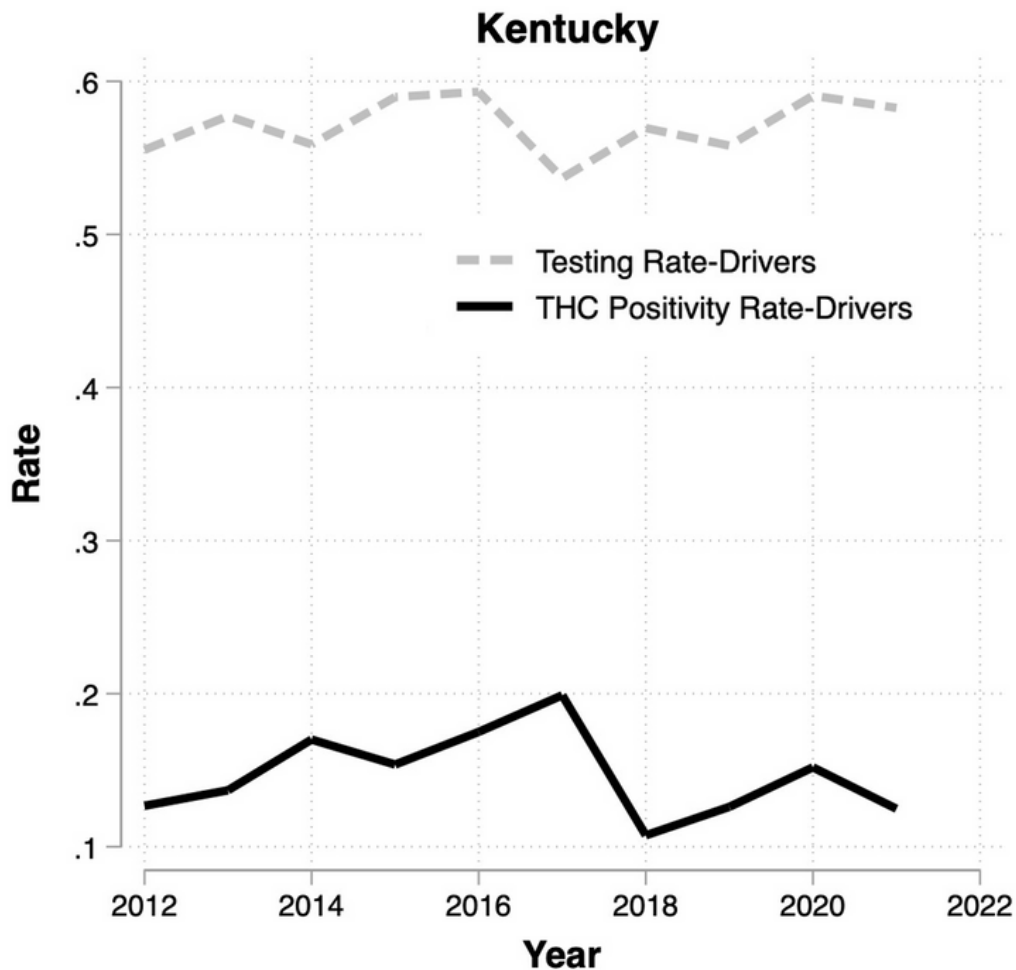
PILOT PROJECT #1

The Evolution of Cannabis Consumption: Evidence from Traffic Fatalities

The rapid expansion of recreational cannabis access in the United States has dramatically increased legal recreational cannabis consumption. However, increased legal recreational consumption likely coincides with a decrease in black market and legal medical cannabis; hence, it's theoretically ambiguous how much overall cannabis consumption has changed in states that have legalized recreational cannabis. We generate a new annual proxy for the proportion of adults consuming cannabis using blood and urine tetrahydrocannabinol (THC) test results from the Fatality Analysis Reporting System (FARS) data for the period 2010 - 2021. THC tests from traffic fatality records are possible to use as a broader measure of THC consumption because THC remains in the bloodstream after impairment from cannabis consumption has dissipated for regular cannabis users. We select states that frequently test drivers in fatal crashes and reliably test for THC. We explore how our measure varies by demographics and engagement in risky behaviors (e.g. testing positive for alcohol or hard drugs). We benchmark our measure against existing usage measures, such as the Behavioral Risk Surveillance System Survey (BRFSS). These existing measures are self-reported which may limit their ability to fully capture overall usage and precise responses to cannabis law changes. We can then use our new proxy for cannabis consumption to study how consumption changes when recreational cannabis is legalized.

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This figure plots FARS data over time in Kentucky from 2012 - 2021. The gray dashed line marks the fraction of drivers that Kentucky has tested for drugs via blood or urine tests and the black line marks the fraction of individuals tested for drugs that test positive for THC.

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State Fractions for 2017 - 2021

	State	Drivers Tested for Drugs (%)	Tested Drivers Positive for THC (%)
1	Montana	75.72	16.88
2	New Hampshire	68.12	18.55
3	Arkansas	67.04	17.98
4	Oklahoma	58.17	9.80
5	Louisiana	57.02	15.78
6	**Kentucky**	**56.75**	**14.20**
7	South Dakota	53.93	7.31
8	Utah	53.08	11.51
9	Vermont**	49.56	30.36
10	Connecticut	48.63	20.44
11	West Virginia	48.04	11.46
12	Hawaii	47.11	16.73
13	Pennsylvania	46.86	8.51
14	Colorado**	46.74	21.73
15	New Jersey**	46.45	17.05
16	Washington**	46.31	20.39
17	Idaho	45.79	14.85
18	Indiana	45.23	7.40
19	North Dakota	44.83	5.86
20	District of Columbia**	44.60	28.25
21	Alabama	43.94	14.48
22	Rhode Island	43.13	27.33
23	Ohio	42.70	19.92
24	Tennessee	40.94	16.11
25	Wisconsin	40.71	16.45

This table presents the percent of drivers in the FARS data (all drivers involved in a car crash with at least one fatality) that are administered a blood or urine drug test by state for all states who test at least 40 percent of drivers in the years 2017 - 2021. It also presents the fraction of drivers administered one of these tests that test positive for THC. ✶✶ indicates that recreational cannabis was legalized during the time period of valid data for that state (5 states).