

Evaluation & Benefit-Cost Analysis Of Initiative 502: Findings from 2nd Required Report

Washington State Institute For Public Policy

**Adam
Darnell, Ph.D.**

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Presentation Overview

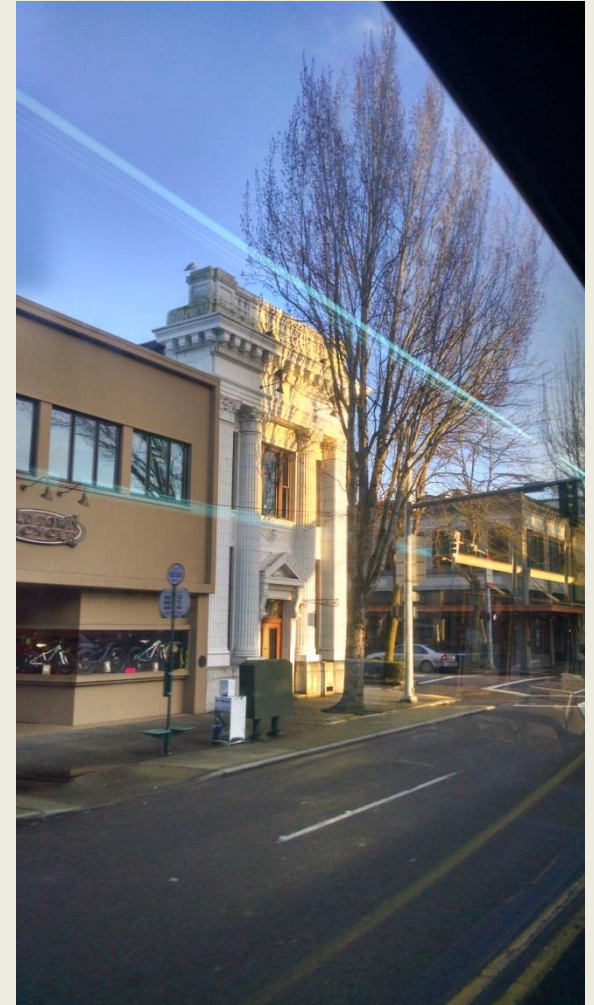
- Study requirements
- Outcome analysis methods
 - Outcomes examined:
 - Youth and adult substance use
 - Substance abuse treatment admissions
 - Drug-related criminal convictions
 - Between-state and within-state analyses
- Findings
- Limitations
- Status of other study components
- Questions

Washington State Institute for Public Policy (WSIPP)

Created by the 1983 Legislature

Mission: carry out non-partisan
research at the direction of the
Legislature

- Meta-analyses
- Benefit-cost analyses
- Evaluations



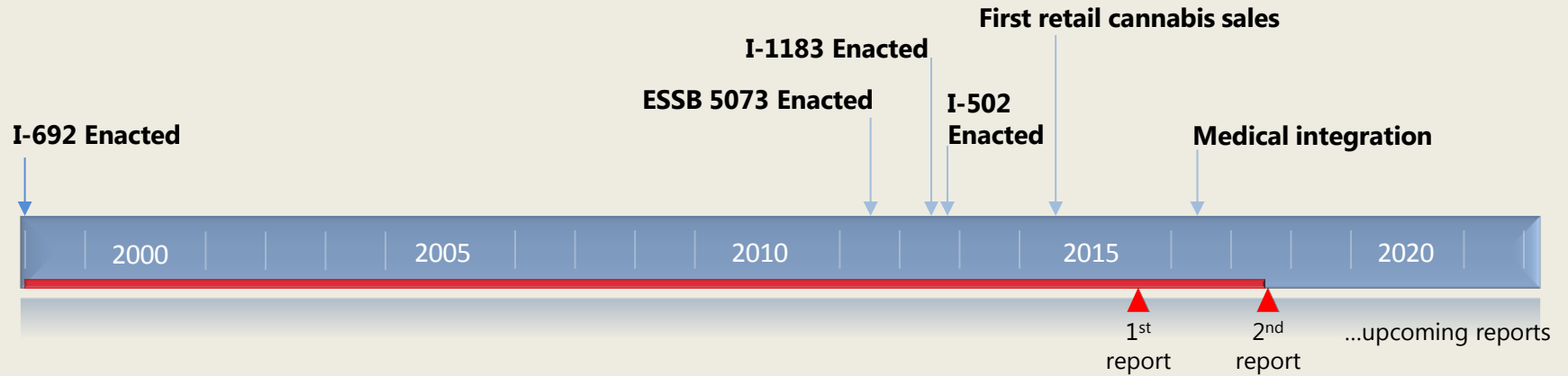
Summary of Study Requirements

[RCW 69.50.550](#)

WSIPP shall conduct cost-benefit evaluations for the implementation of this act...The evaluation shall include, but not necessarily be limited to:

- Youth and adult marijuana use, maladaptive use, and clinical disorder
- Public health
 - Health costs and effects of increased investment in prevention, treatment, and research
- Public safety
- Criminal justice
 - Use of public resources and effects on would-be offenders
- Economic impacts
 - Jobs creation, workplace safety, state/local revenues and administrative costs
- Reports required Sept 1, 2015, 2017, 2022, & 2032

Timeline of MJ Policy in WA



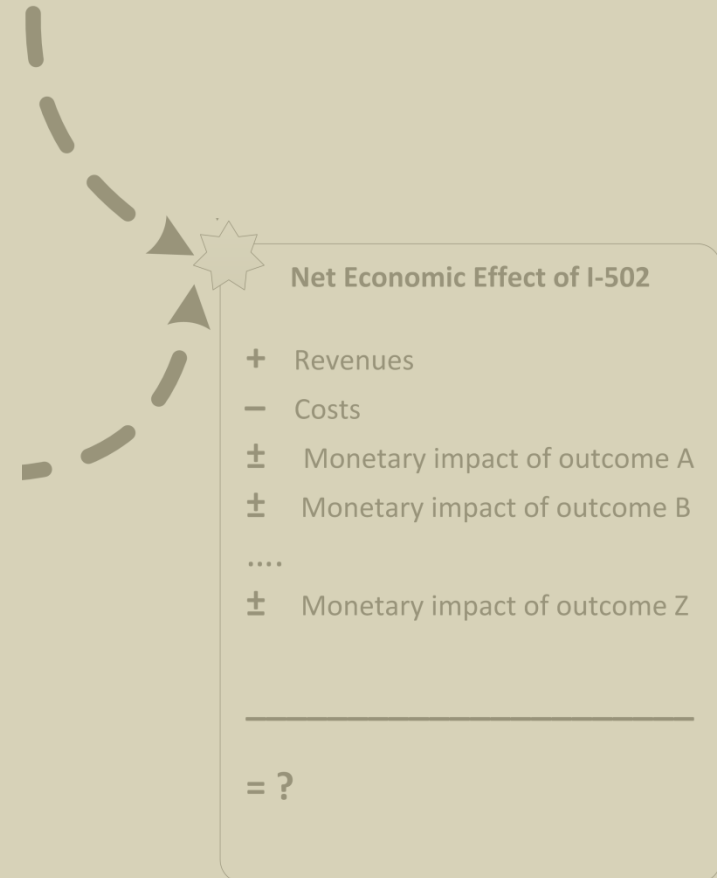
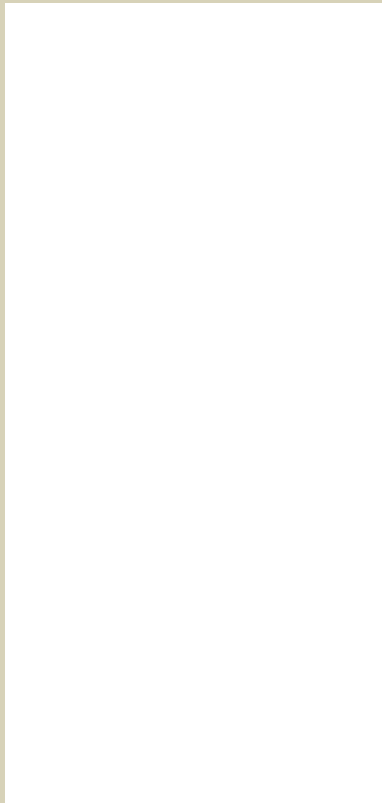
Identifying Causal Effects of I-502

- First report (Sept 2015) described the overall study plan:
 - Descriptive study
 - Outcome study
 - Benefit-cost study

<http://www.wsipp.wa.gov/Reports/570>

- Identifying causal effects of I-502 on non-monetary outcomes is a necessary intermediate step for the overall benefit-cost analysis of I-502

Overall Study Components



Overall Study Outcomes

- Substance use: Youth and adult use and abuse of cannabis, alcohol, and other drugs;
- Health: Physical and mental health problems associated with substance use;
- Traffic safety: Traffic accidents and fatalities involving impaired drivers;
- Criminal justice: Arrests, convictions, and sanctions for charges involving cannabis and other drugs;
- Education: Standardized test scores, disciplinary actions, grade retention, high school graduation; and
- Workplace safety and productivity: Accidents, injuries, and absenteeism

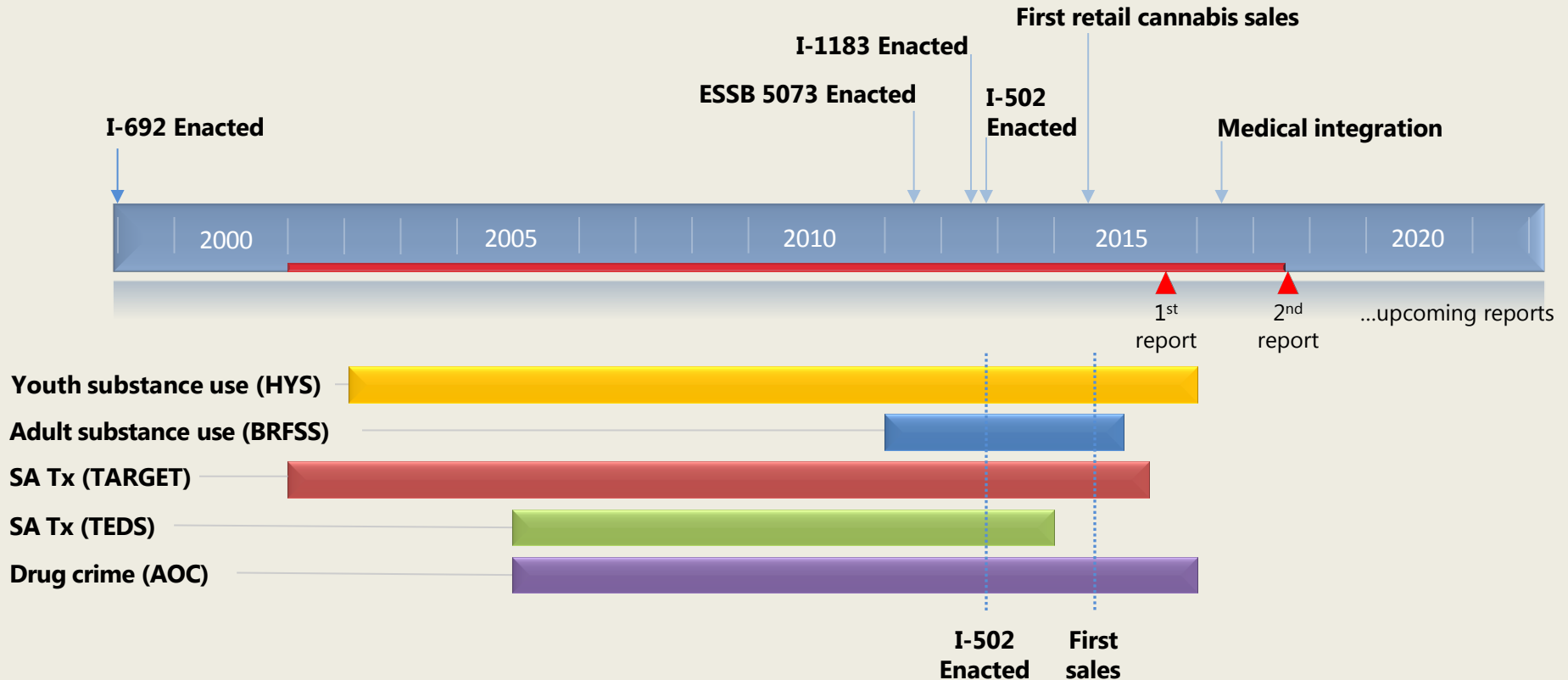
Outcomes Examined in Current Report

- Youth substance use and attitudes—HYS
 - Cannabis use: lifetime, current, heavy
 - Alcohol use: current & binge drinking
 - Cigarette use: current
 - Attitudes about cannabis: difficult to access, would get caught by police, view as wrong, regular use is harmful
- Adult substance use—BRFSS
 - Cannabis use: lifetime, current, heavy
 - Alcohol use: heavy & binge drinking
 - Cigarette use: current occasional or regular smoker

Outcomes Examined in Current Report

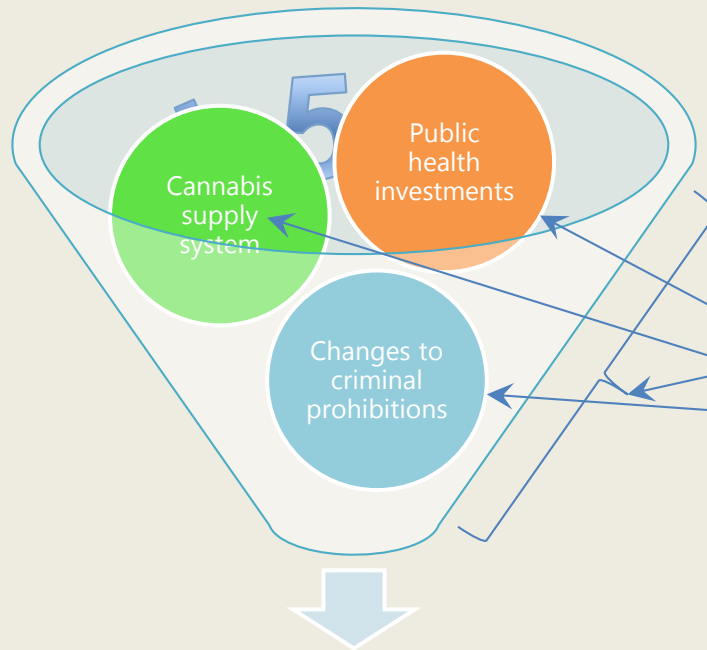
- Cannabis abuse treatment admissions—TARGET & TEDS-A
 - Census of state-funded substance abuse treatment
 - Admissions in which cannabis is primary drug of abuse
- Drug-related criminal convictions—AOC
 - Census of filed and convicted charges
 - Misdemeanor marijuana possession
 - Paraphernalia
 - Negligent driving and DUI
 - Other drug misdemeanors
 - Other drug felonies

Timeline of MJ Policy & Data Sources



Conceptualizing effects of I-502

I-502 is a multi-faceted intervention



We use 2 types of methods to identify potential effects of I-502:

- Between-state analyses
- Within-state analyses

Net effect of I-502

Outcome Analyses

- ***Between-state analyses*** to identify effect of I-502 on the whole, from enactment in 2012
- ***Within-state analyses*** to identify effect of local differences in per capita retail cannabis sales on local outcomes within WA

Outcome	Method
Youth substance use	Within-state
Adult substance use	Within-state
Cannabis abuse treatment admissions	Between- & within-state
Drug-related criminal convictions	Within-state

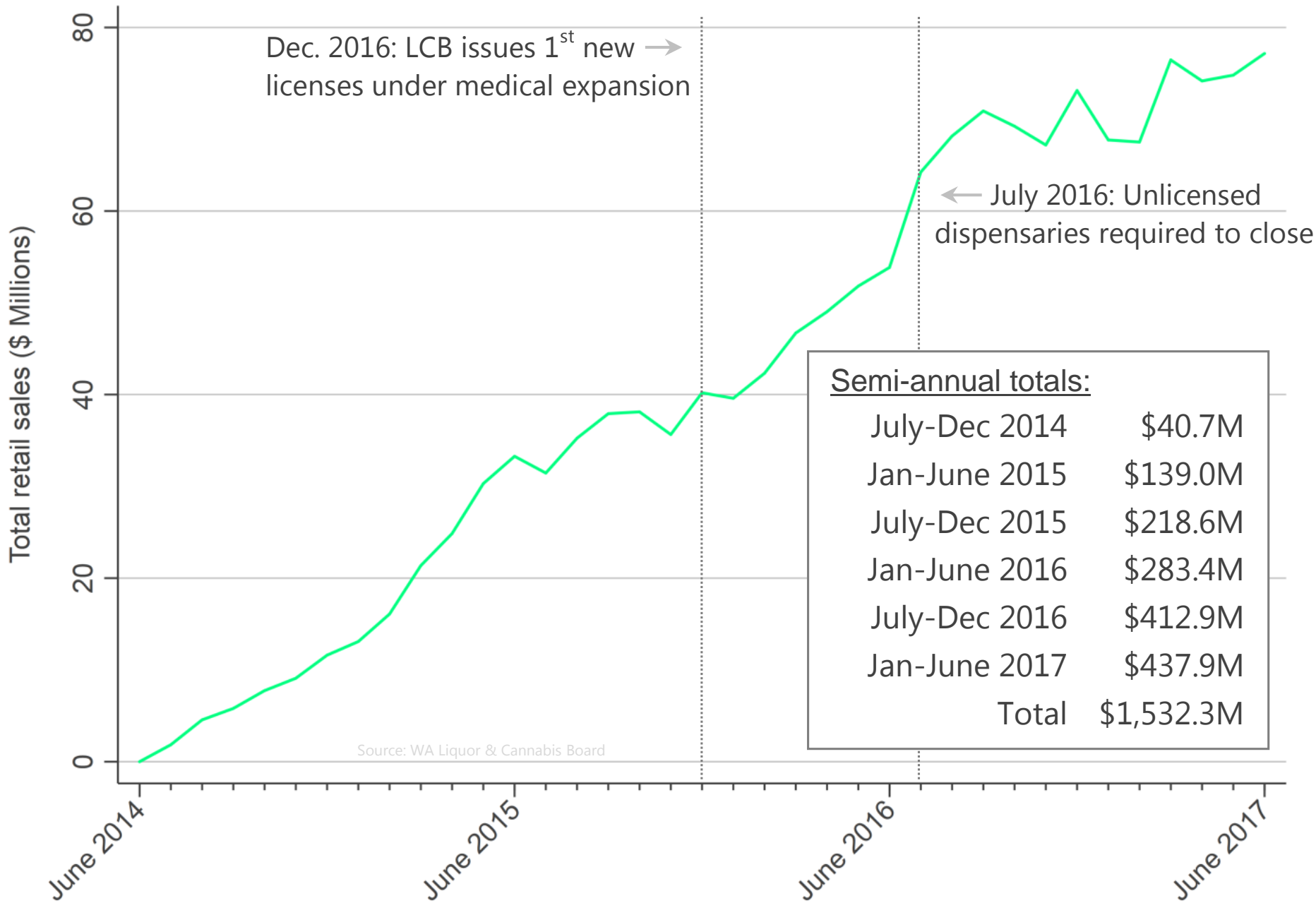
Between-State Analysis Strategy

- Synthetic control method
- Non-legalizing states for comparison
- Comparison states are weighted based on pre-502 characteristics
- Weighted states form “synthetic Washington” with maximal similarity to Washington pre-502
- Differences between Washington and synthetic WA after I-502 can be interpreted as effects of the law

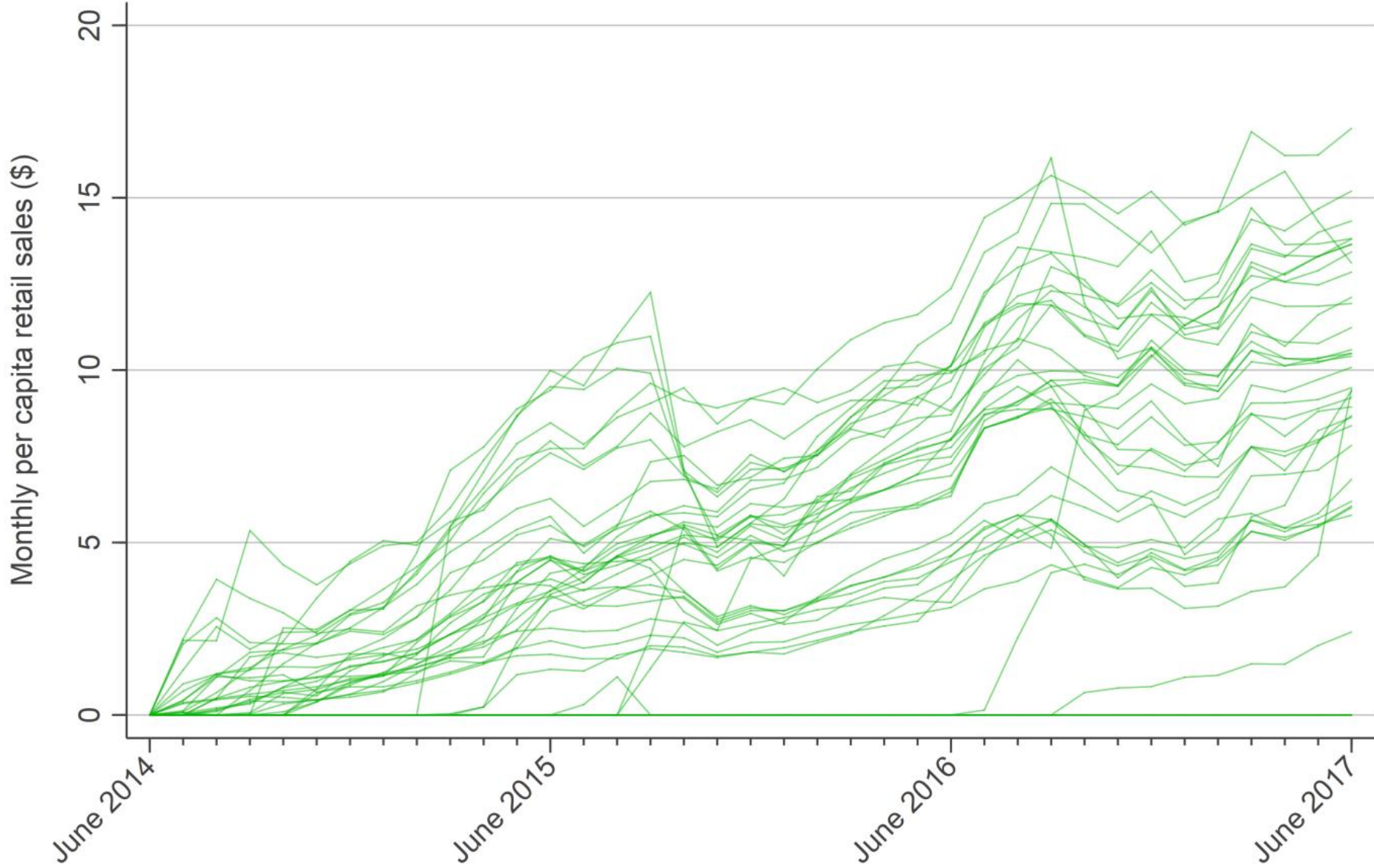
Within-State Analysis Strategy

- Fixed effects models
- Amount of legal cannabis sales → outcomes
- Analysis accounts for:
 - All time-constant differences between places (county/school district)
 - All differences over time that are common in all places
 - Time-varying control variables (e.g., demographic changes)
- Other changes that coincide with sales can be a problem

Licensed Retail Cannabis Sales Since Market Inception



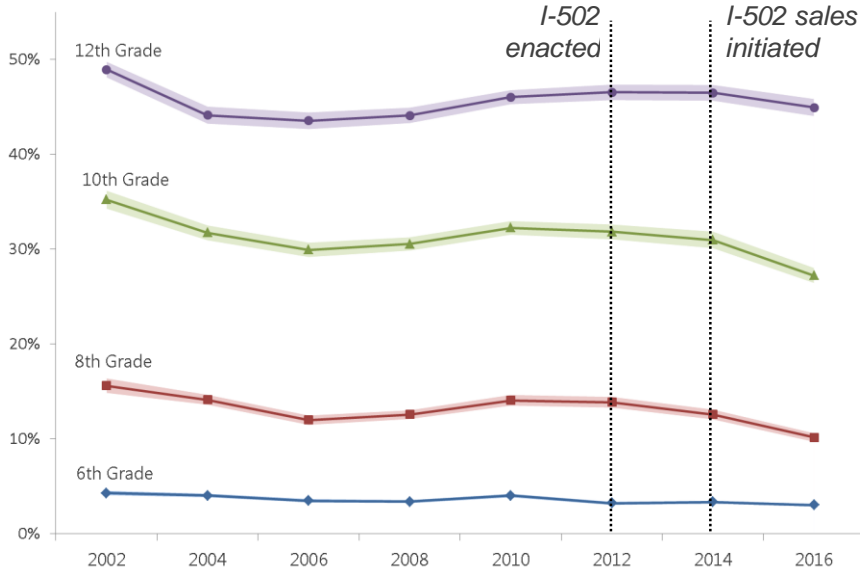
Variation in Per Capita Retail Sales Between WA Counties



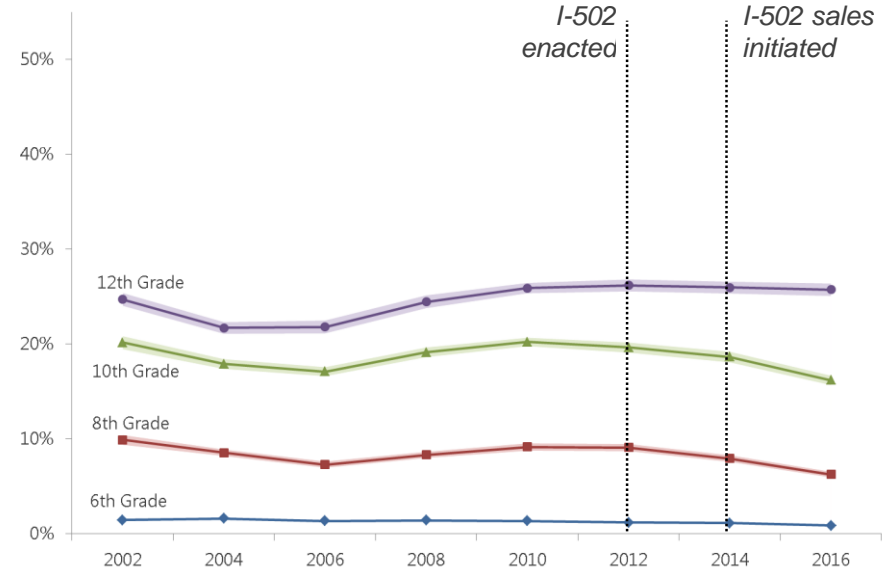
YOUTH SUBSTANCE USE

Washington Healthy Youth Survey Trends by Grade

Lifetime cannabis users

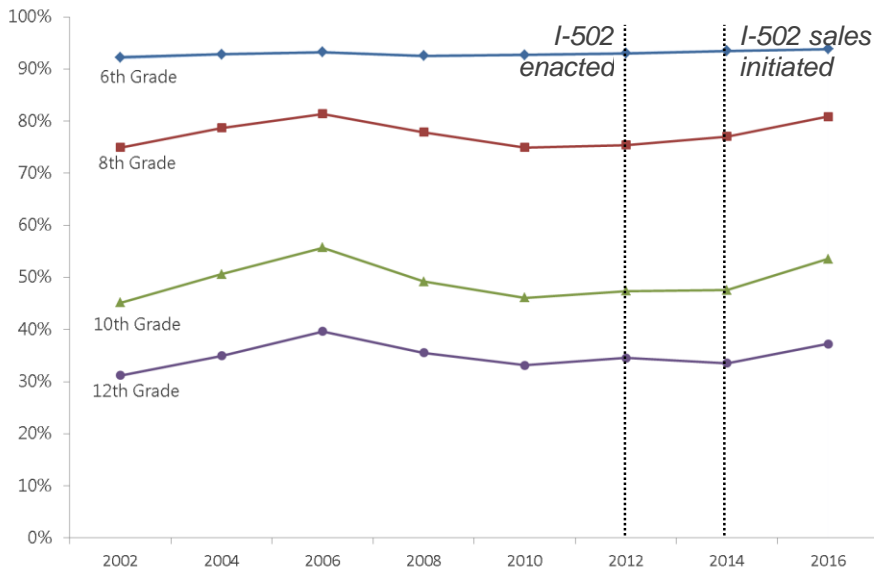


30-day cannabis users

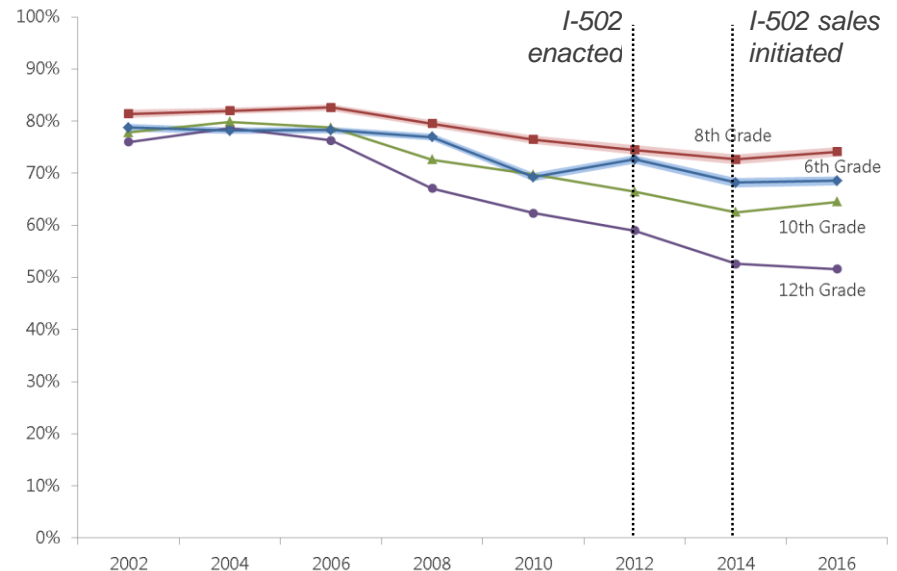


Shaded regions represent 95% confidence intervals (p<.05)

Cannabis is hard or very hard to get



Regular use of cannabis is harmful or very harmful



Findings – Youth Substance Use

State trend: Youth cannabis use stable or decreasing & unfavorable changes in some attitudes (through 2016):

- Were these changes caused by I-502?

We have not answered that question.

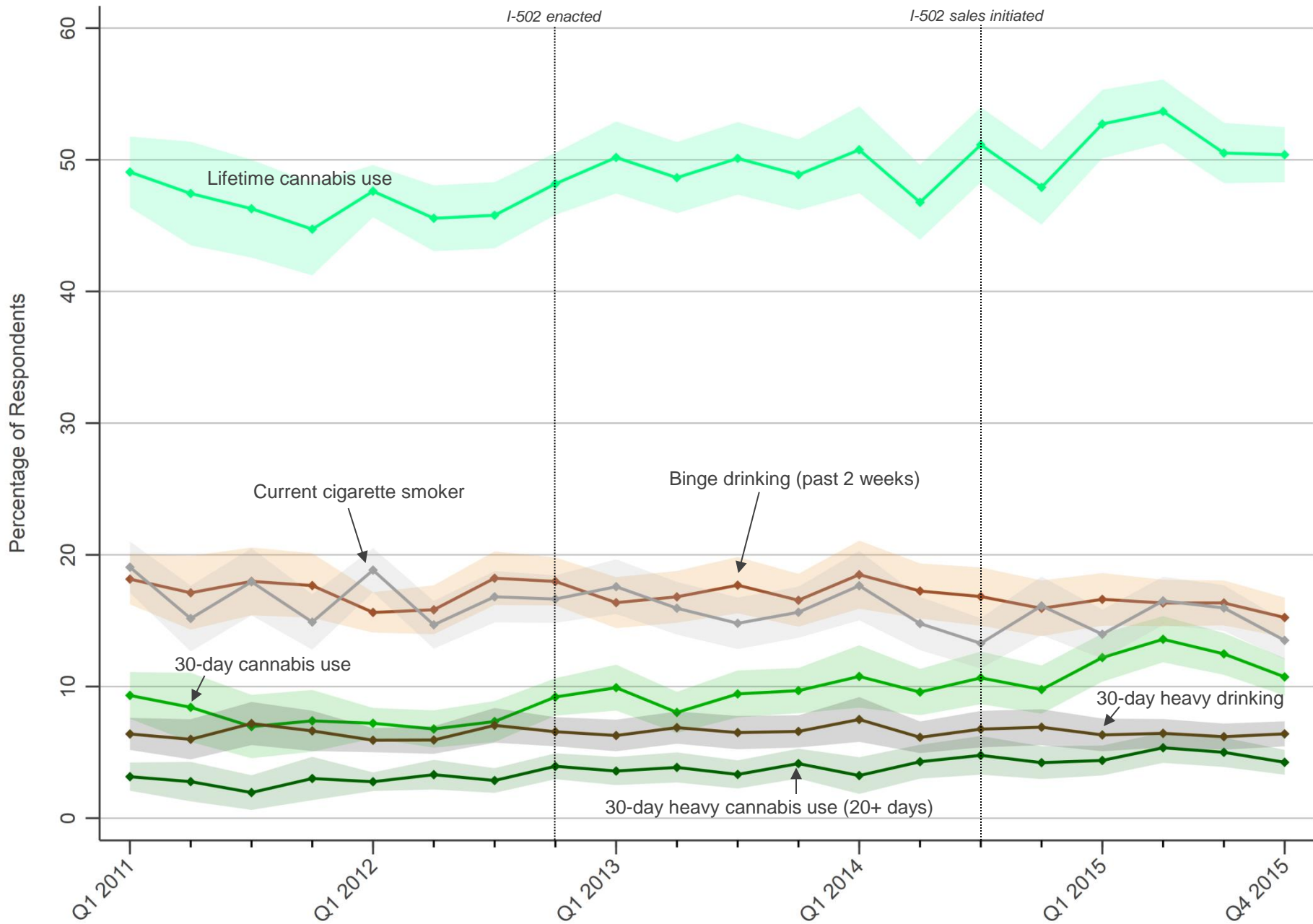
- Did the amount of legal cannabis sales in different parts of WA affect these outcomes?

No evidence.

ADULT SUBSTANCE USE

Adult Substance Use, Washington BRFSS

Shaded regions represent 95% confidence intervals (p < .05)



Findings – Adult Substance Use

State trend: Adult cannabis is on the rise (through 2015)

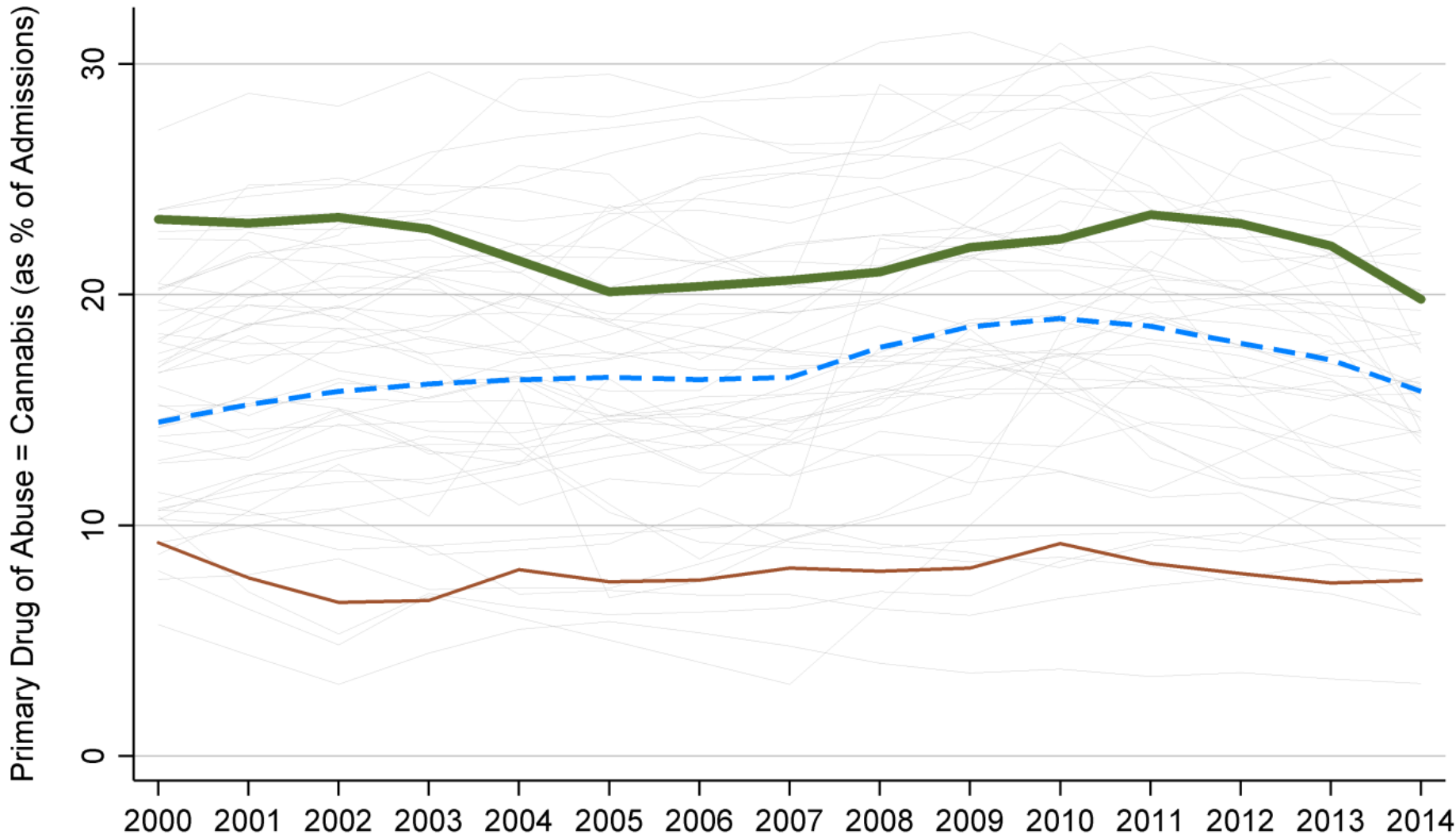
- Were these changes caused by I-502?

We have not answered that question.

- Did the amount of legal cannabis sales in different parts of WA affect these outcomes?
 - Evidence that larger amounts of legal sales in a county were associated with more prevalent adult use (age 21+), and heavy use.
 - Larger amounts of sales were also associated with lower likelihood of current cannabis use among 18-21 age group.

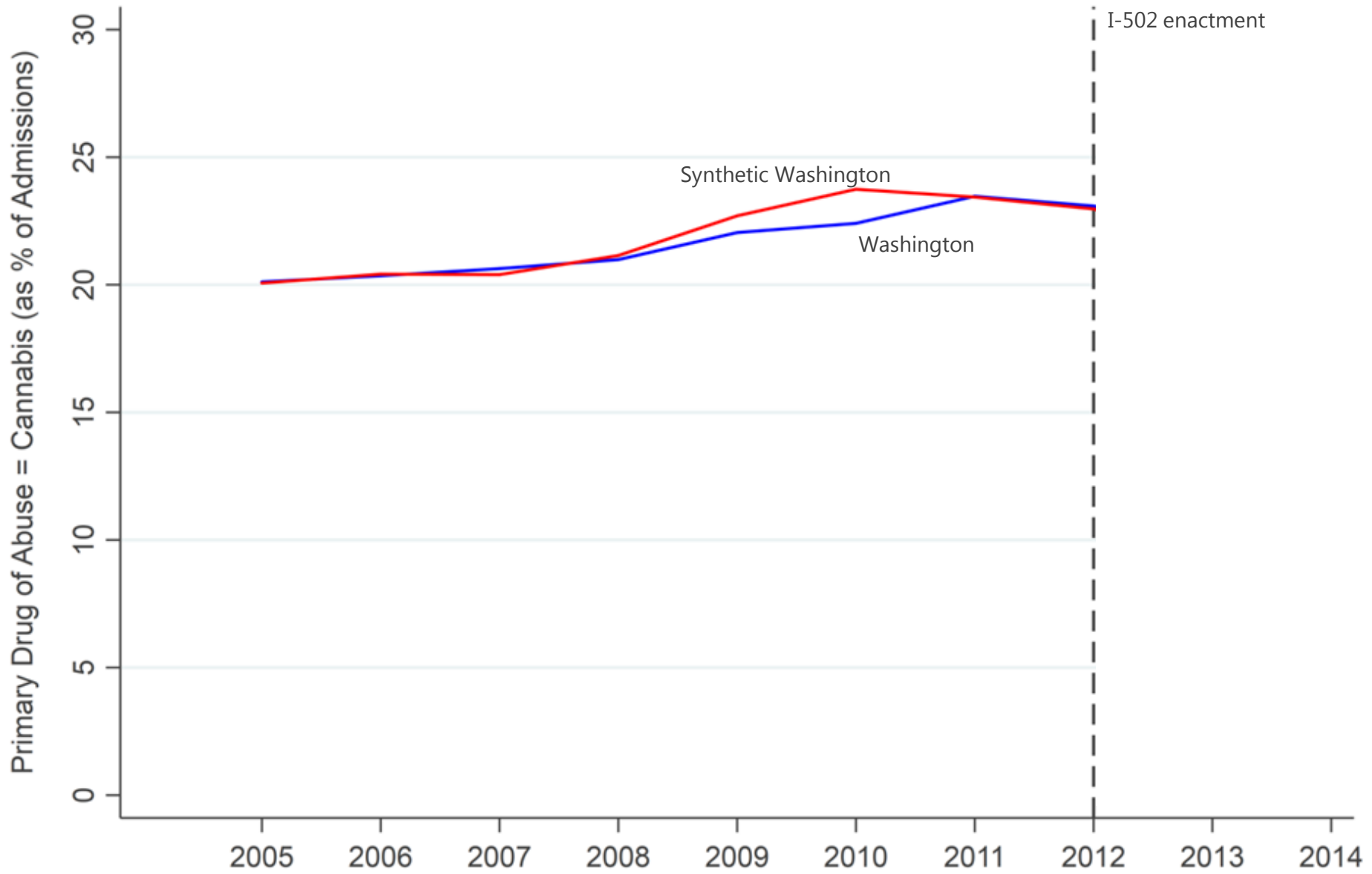
CLINICALLY- DISORDERED SUBSTANCE USE

State-Funded Cannabis Abuse Treatment Admissions (TEDS-A)



— Washington
— Colorado
— All other states
- - - Mean of all other states

State-Funded Cannabis Abuse Treatment Admissions (TEDS-A)



Findings – Cannabis Abuse Treatment

State trend: Treatment admissions for cannabis abuse fell (through 2014)

- Was this change caused by I-502?

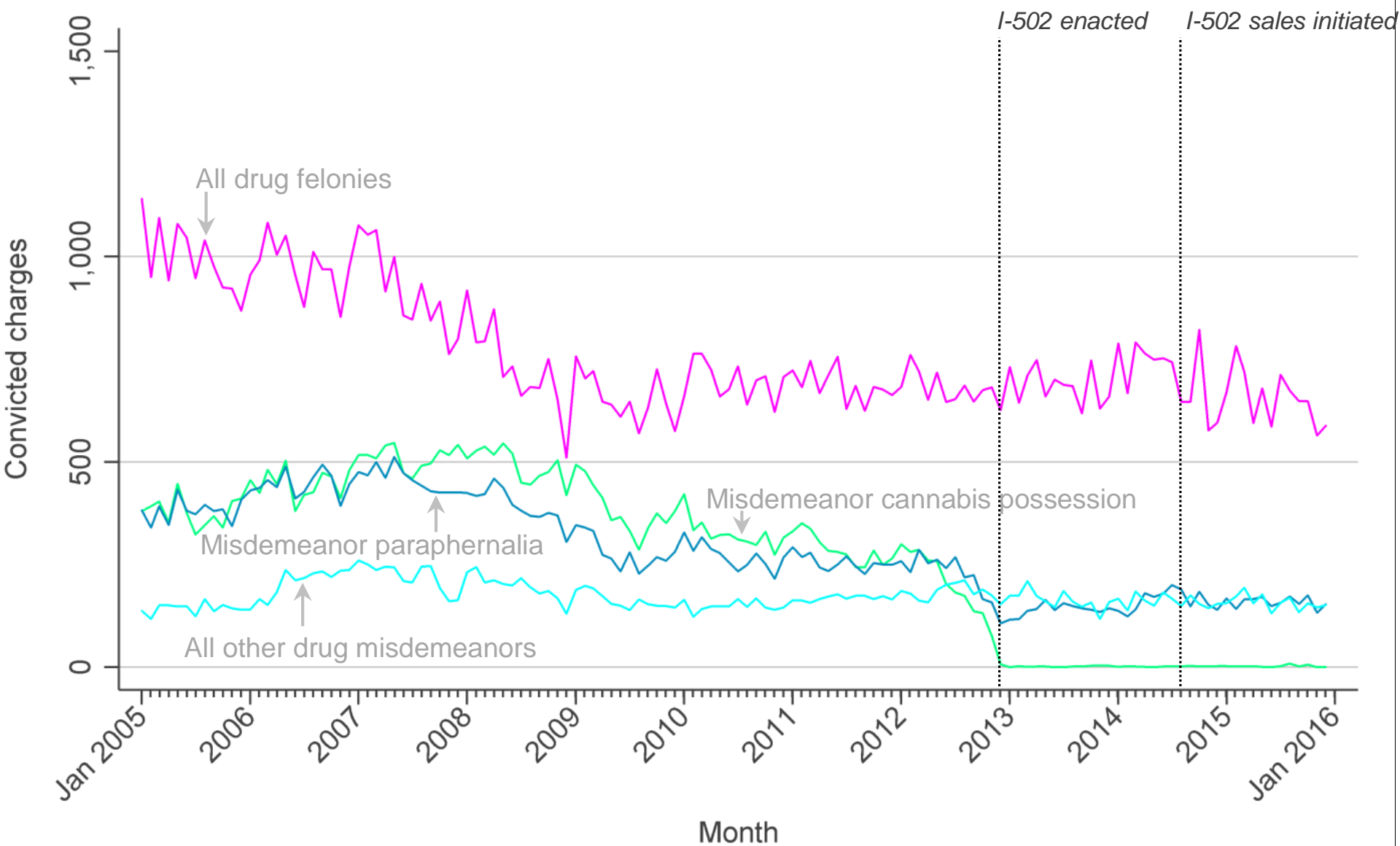
No evidence.

- Did the amount of legal cannabis sales in different parts of WA affect this outcome?

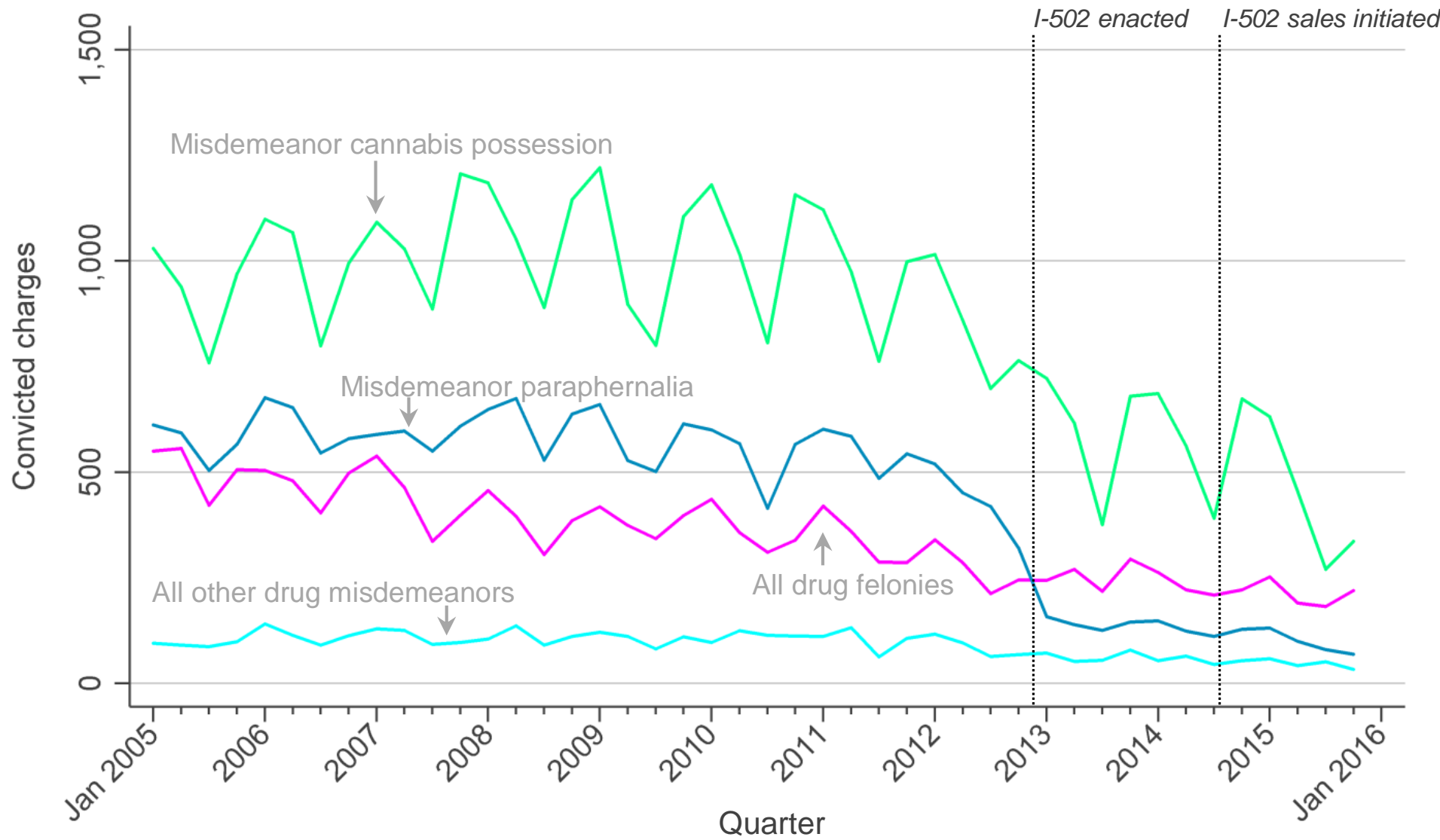
No evidence.

DRUG-RELATED CRIMINAL CONVICTIONS

Adult (21+) Convictions, WA Administrative Office of the Courts



Under 21 Convictions, WA Administrative Office of the Courts



Findings – Drug-Related Convictions

State trend: Misdemeanor marijuana possession and paraphernalia charges dropped substantially among both youth and adults

- Were these changes caused by I-502?

We have not answered that question.

- Did the amount of legal cannabis sales in different parts of WA affect these outcomes?

No evidence.

Limitations

- Changes in measurement error
- Other time-varying factors that coincide with intervention
 - I-1183
 - Prevention programming
- Currency of outcome data with respect to implementation

Status of Overall Study Components

Revenues

- Excise tax
- Sales & use tax
- Business & occupation tax
- Fees
- Fines

Costs

- LCB rulemaking, licensure, & enforcement
- Background checks
- Hearing appeals
- Tax collection
- Prevention & treatment
- Research
- Training
- Etc.

Other Economic Impacts

- Jobs & wages in non-medical cannabis industry
- Indirect impact on secondary industries
- Induced impact on broader economy

Outcome A

- Youth cannabis use by high school

Linked Outcomes

- Adult cannabis use disorder
- High school graduation
- Crime

Monetary Impact of Linked Outcomes

- Labor market earnings
- Healthcare costs
- Criminal justice system costs
- Victim costs

Outcome B

Linked Outcomes

Monetary Impact of Linked Outcomes

Outcome C

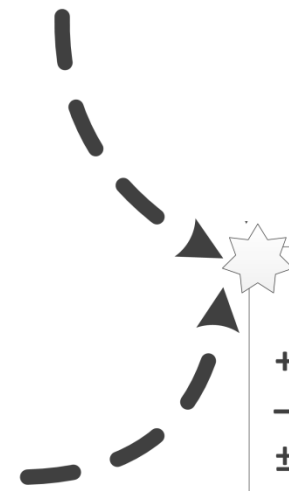
Linked Outcomes

Monetary Impact of Linked Outcomes

Outcome ... Z

Linked Outcomes

Monetary Impact of Linked Outcomes



Net Economic Effect of I-502

- + Revenues
- Costs
- ± Monetary impact of outcome A
- ± Monetary impact of outcome B
-
- ± Monetary impact of outcome Z

= ?

Q & A

Sept. 1, 2017 report

<http://www.wsipp.wa.gov/Reports/604>

Contact

adam.darnell@wsipp.wa.gov

360.664.9074