WSIPP's Initiative 502 Evaluation: *Report Three Overview*

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December 2023

Washington State Institute for Public Policy
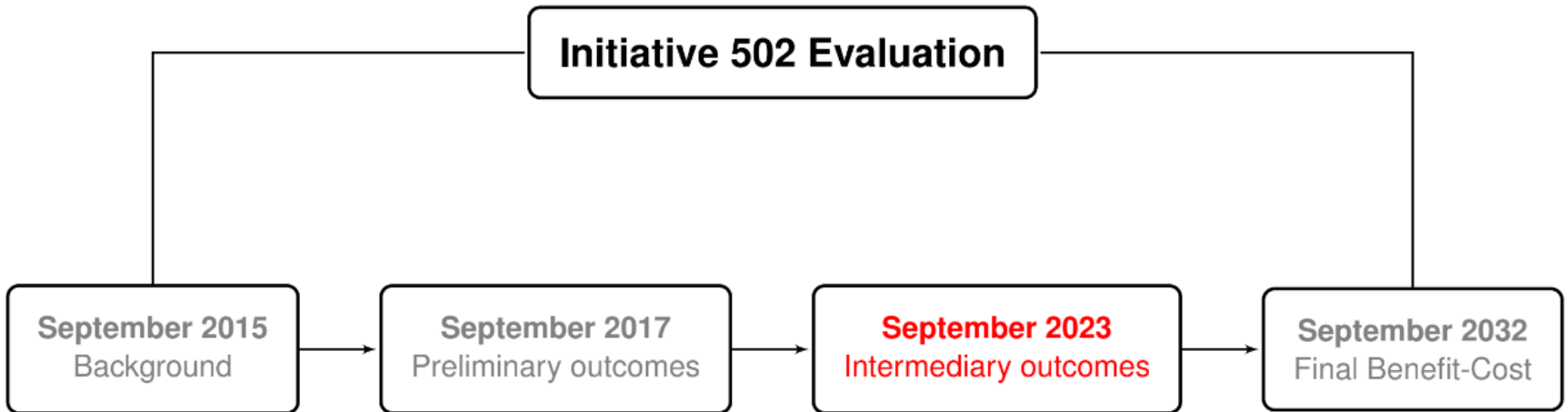
LEGISLATIVE ASSIGNMENT

RCW 69.50.550

WSIPP shall conduct cost-benefit evaluations for the implementation of [this act]…The evaluations shall include, but *not necessarily be limited to*:

- Public health and health care,
- Public safety,
- Substance use,
- Criminal justice,
- Economic impacts, and
- Administrative costs and revenues

abbreviated assignment language

WSIPP I-502 Report Series

I-502 EVALUATION THREE

1. Descriptive Briefs

   • Policy background

   • Cost/Revenue Summary

2. Outcome Evaluations

   Within-state analysis

   ▪ Traffic fatalities

   ▪ Criminal Justice (charges/convictions/sentencing)

   ▪ Reported youth use (HYS)

   ▪ High school outcomes (academic and disciplinary)

   ▪ Cannabis/substance use disorder and (related) mental health diagnoses

   National comparison

   ▪ Reported cannabis and other substance use

Years 2020-2022 omitted due to covid impacts
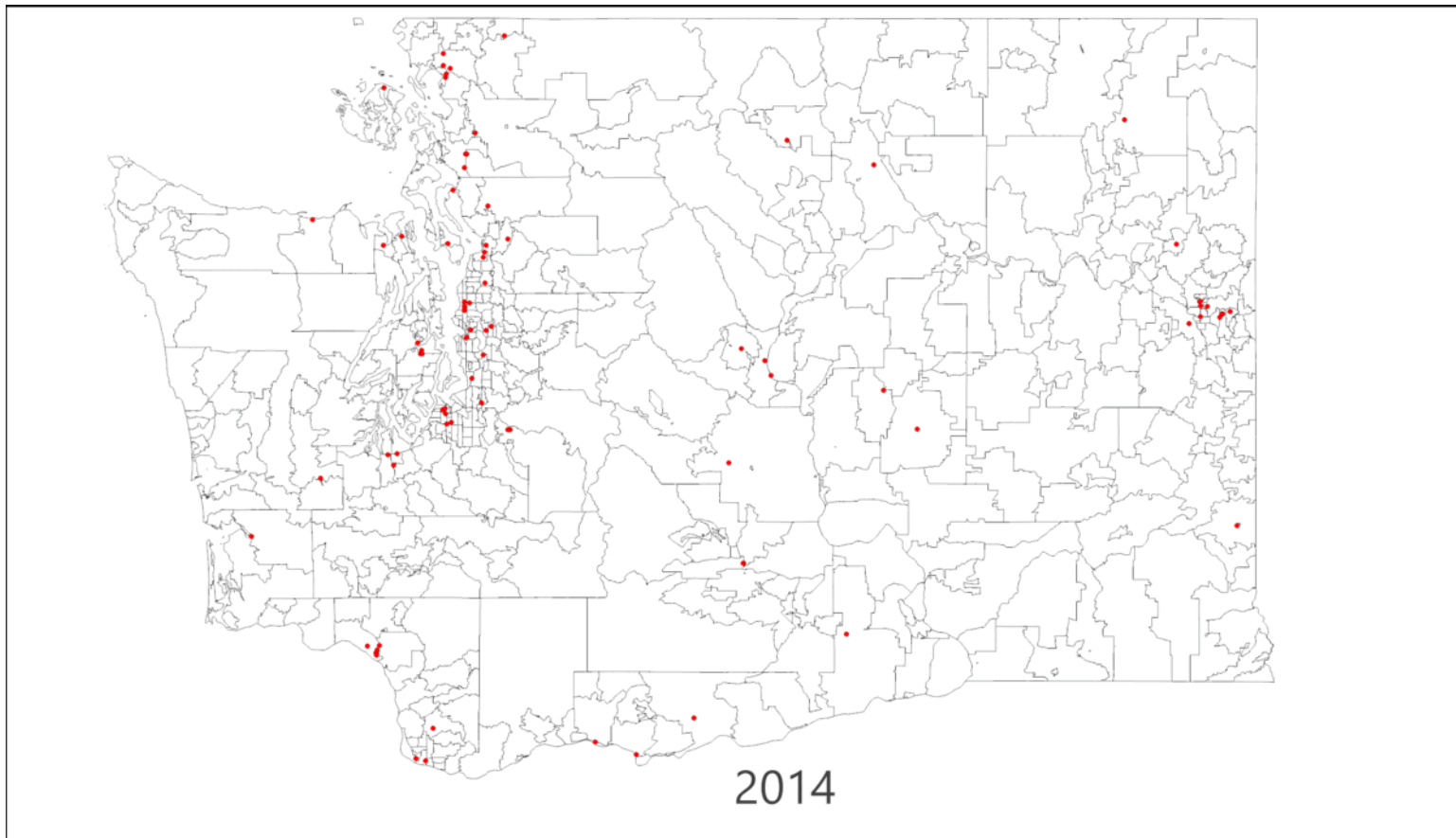
Research Design

Across all outcomes we will generally examine two questions:

1. How have trends in outcomes evolved over time since legalization?

2. How do local outcomes vary with retail access?
   "Access" defined three ways:
   - i- Any local retailers operational
   - ii- Number of retailers nearby
   - iii-Drive time/distance to nearest retailers

   Where sample sizes allow, we will examine differences across subgroups (e.g., age group, race, sex, region)

NON-MEDICAL CANNABIS (NMC) RETAIL LICENSEES

NMC Retail Licensee Locations,
ZIP codes 2014-2019

2014

NMC RETAIL LICENSEES

Zip code racial/ethnic population makeup by Retail Licensees operational, 2019

	Operational retailers	No operational retailers	Difference
Percent population white	73.15 (1.15)	76.10 (1.59)	-2.95*
Percent population Hispanic	11.48 (0.81)	11.70 (0.95)	-0.216
Percent population Asian	6.24 (0.57)	3.14 (0.32)	-3.10***
Percent population black	2.87 (0.30)	1.59 (0.18)	1.275***
Percent population AIAN	1.192 (0.13)	3.35 (0.58)	-2.16***
Percent population other race/ethnicity	5.07 (0.20)	4.117 (0.24)	0.95***
Observations	204	385	

Note: ***Significant at the 0.001-level, **Significant at the 0.05-level, *Significant at the 0.01-level

NMC RETAIL LICENSEES

Zip Code Socio-Economic Conditions by Retail Licensees Presence, 2019

	Operational dispensary	No operational dispensary	Difference
Percent age 25+, less than HS diploma	9.26 (0.47)	11.29 (0.61)	-2.03***
Percent age 25+, at least a Bachelors degree	32.25 (1.18)	26.44 (0.91)	5.81***
Percent households below FPL	11.60 (0.40)	12.19 (0.51)	-0.59
Percent households receiving cash assistance/SNAP	13.96 (0.53)	14.02 (0.57)	-0.06
Percent households renting	35.65 (1.06)	27.78 (0.98)	7.86***
Median household income	70,007 (1,588)	65,766 (1,424)	4,241**
Unemployment rate	5.00 (0.16)	5.86 (0.31)	-0.86**
Observations	204	385	

Note: ***Significant at the 0.001-level, **Significant at the 0.05-level, *Significant at the 0.01-level

WA STATE BRFSS

- WA BRFSS is an annual survey that measures changes in the health-related outcomes

- We use the BRFSS to explore how reported cannabis use changes with NMC retail access.
    - Changes in ZIP-level access between the years 2011-2019
    - Builds on the studies Everson et al. (2019) and Ambrose et al. (2021)

- Primary outcomes include:
    - Any reported cannabis use
    - Reported past-month cannabis use
    - Reported past-month heavy cannabis use (20+ days of use)

- We first establish that greater NMC retail access increases reported cannabis use. In subsequent outcome analyses we will then explore how NMC retail access relates to changes in cannabis use related outcomes (i.e., traffic safety, health, crime, etc.).

WA STATE BRFSS

WA BRFSS Respondent Characteristics, by Reported Cannabis Use 2011-2019

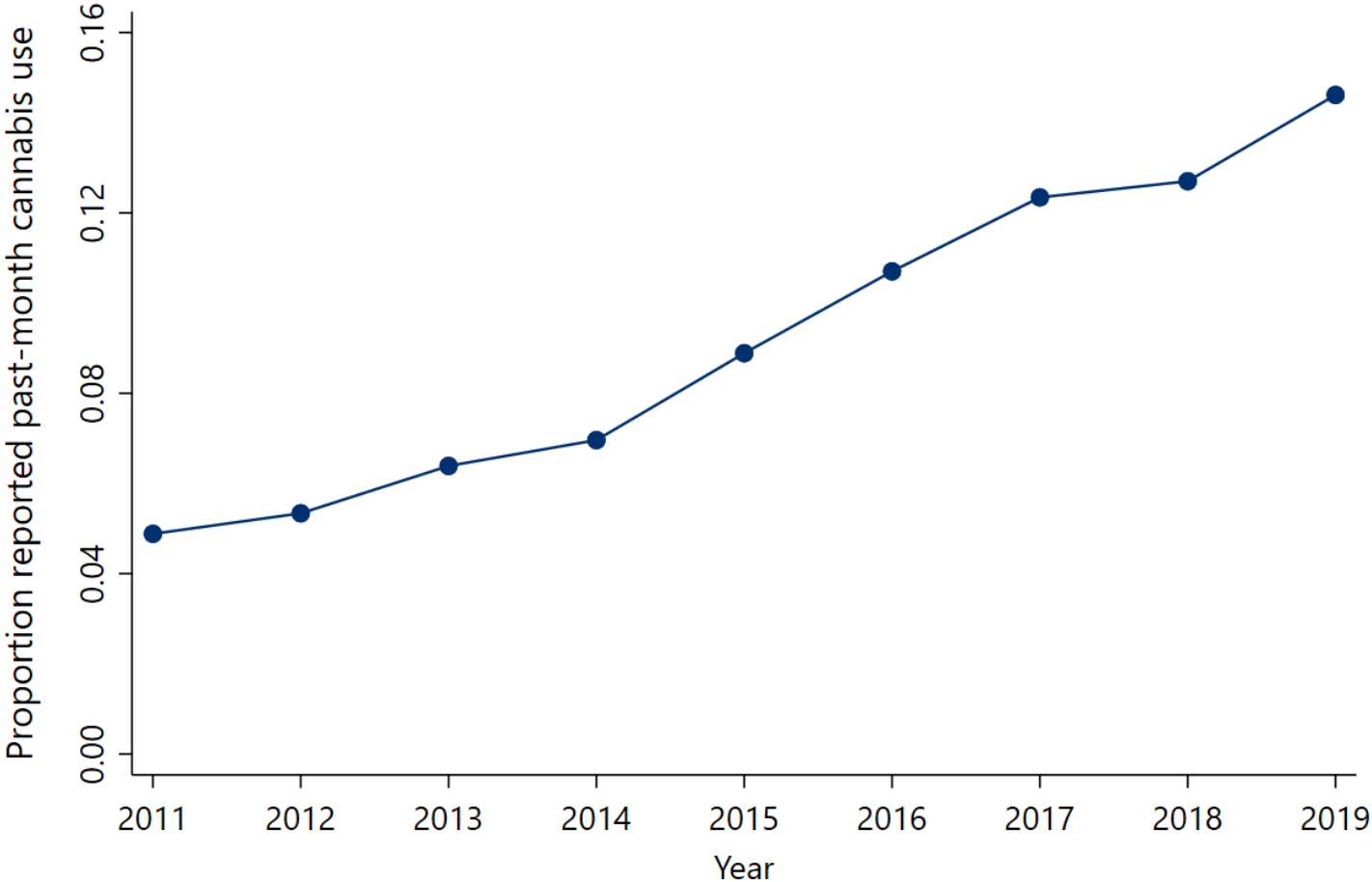|	No cannabis use	Any cannabis use	Past-month cannabis use
Age	52.73	46.79	40.99
Female	0.56	0.46	0.41
Race/ethnicity:			
Hispanic	0.12	0.07	0.07
Non-Hispanic BIPOC	0.18	0.13	0.13
White	0.70	0.81	0.81
Educational attainment:			
No HS degree	0.10	0.07	0.10
Some college	0.56	0.62	0.64
Completed college	0.34	0.32	0.26
Employed	0.53	0.68	0.68
Observations	47,903	43,415	7,868

Note: We report unweighted observation counts.

WA STATE BRFSS

WA BRFSS Respondent Health, by Reported Cannabis Use 2011-2019

	No cannabis use	Any cannabis use	Past-month cannabis use
Good health	0.87	0.87	0.84
Any past-month poor mental health	0.27	0.43	0.57
Not current smoker	0.94	0.80	0.67
Any past-month alcohol	0.48	0.73	0.80
Any past-month binge drinking	0.07	0.25	0.40
Observations	47,903	43,415	7,868

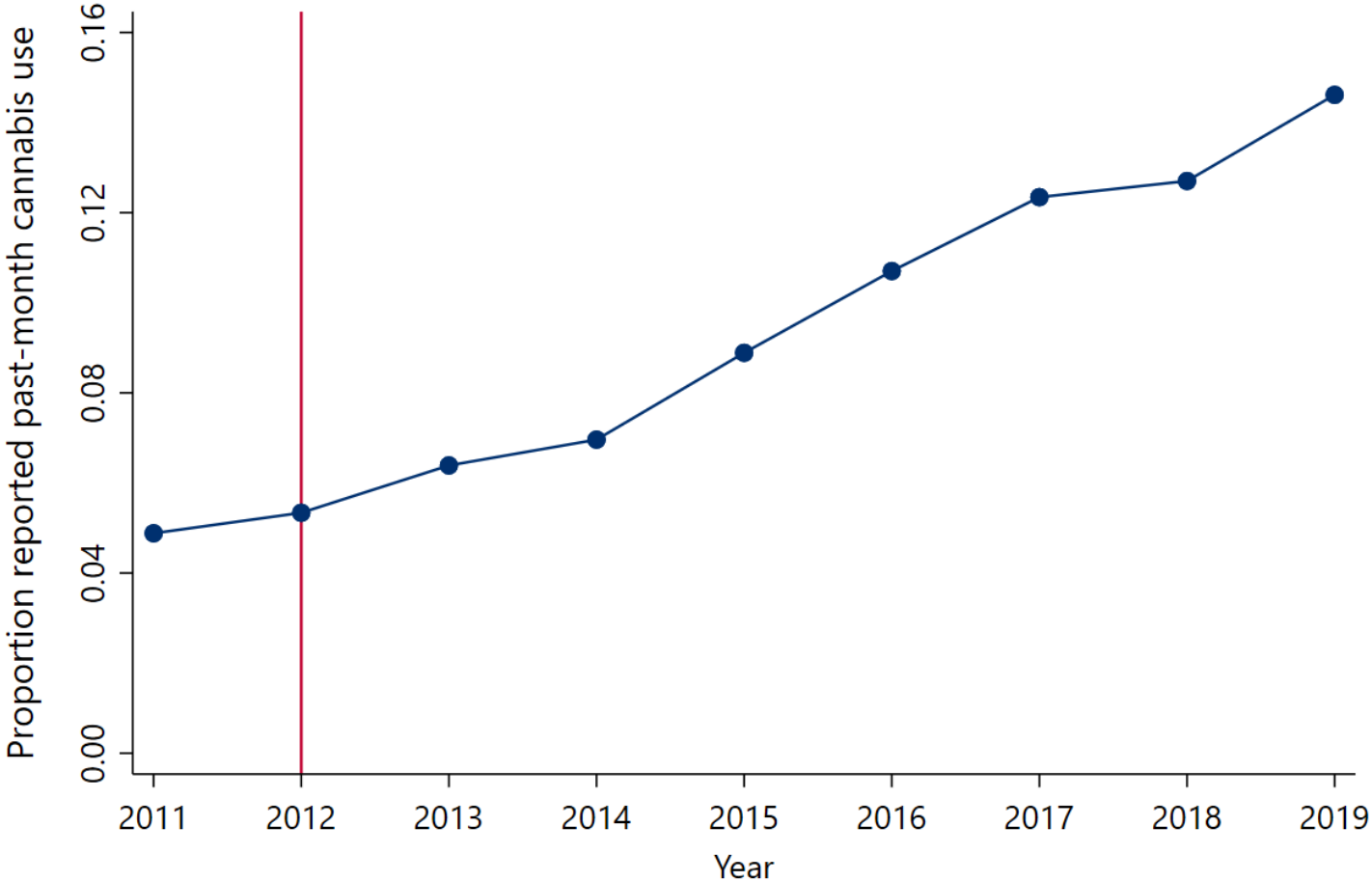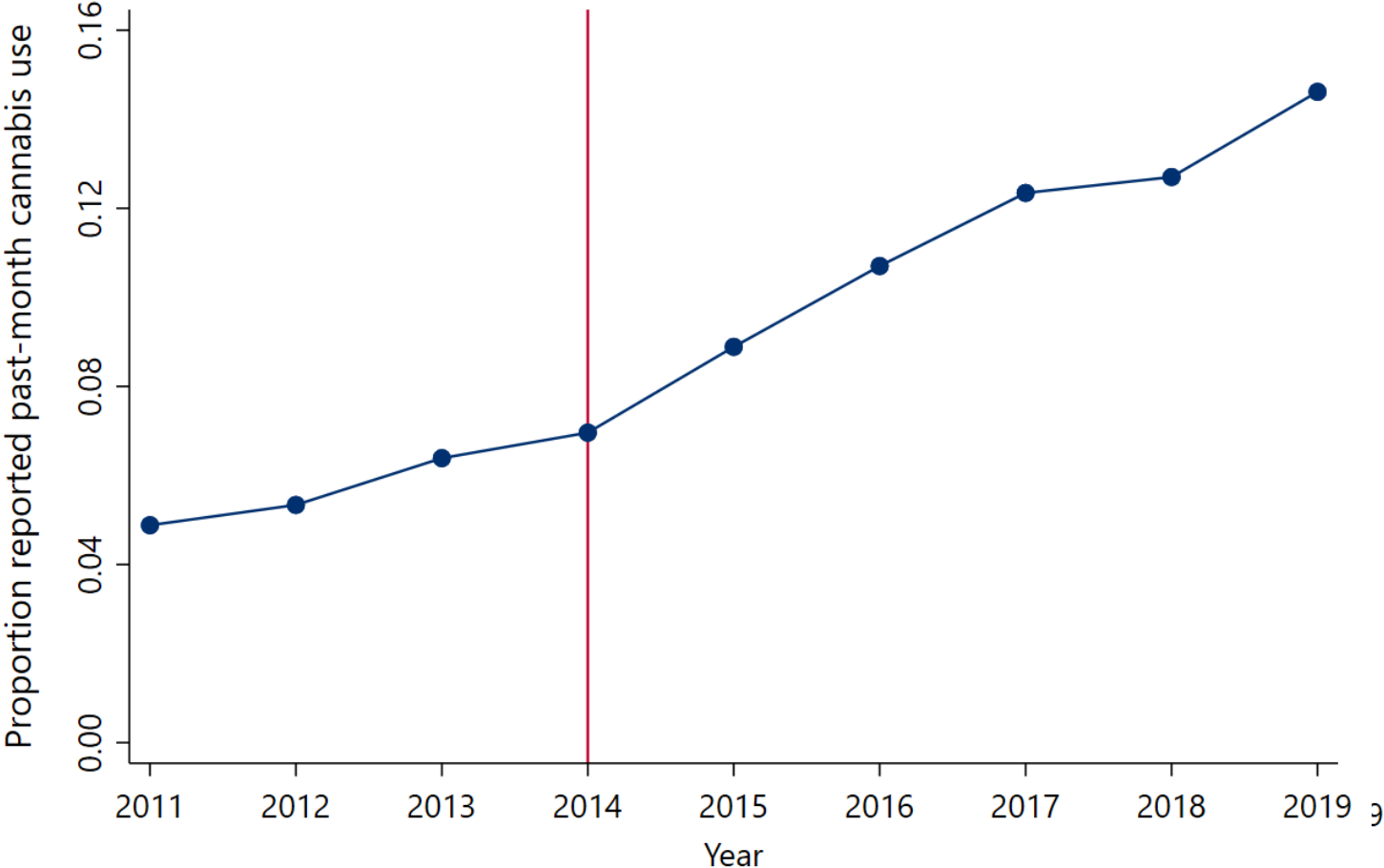*Note:* We report unweighted observation counts.

WA STATE BRFSS

WA BRFSS Reported Past-Month Cannabis Use, 2011-2019

WA STATE BRFSS

WA BRFSS Reported Past-Month Cannabis Use, 2011-2019

WA BRFSS Reported Past-Month Cannabis Use, 2011-2019

WA STATE BRFSS

- Our analysis compares changes in reported cannabis use after any NMC retail licensee opens in ZIP code (versus changes in ZIP codes with no retailers).

- Our model accounts for respondent characteristics, county-level characteristics that change over time, ZIP code-level and year fixed effects

- Preliminary findings indicate:
  - We estimate no changes in reportedly ever using cannabis with the opening of retailers
  - We estimate modest increases (~10-15%) in the average probability of reported past-month use and heavy past-month use, in ZIP codes with NMC retail openings (versus ZIP codes with no retailers)

Reported Substance Use in WA: A National Comparison

I-502 and reported substance use:

Data

- National Survey on Drug Use and Health:

  - Population, 12 years old +

  - N~70,000/year, n~800-1,000 for most states

  - Study period includes the years 2004-2019

  - Administrated via Computer assisted self-interviewing (CASI)

  - State IDs are restricted
    - Analyses conducted at a secure RDC

SUBSTANCE USE: NATIONAL COMPARISON

Outcomes

- Use of cannabis, alcohol, tobacco cigarettes, cocaine, heroine
  - Past-year use
  - Past-month use
  - Heavy use (≥20 days in past 30)
  - Abuse or dependence

- Treatment received in past year
  - Any illicit drug
  - Alcohol
  - Mental health

Outcomes examined separately for ages 12-20 and 21+
- Censoring prohibits all other subgroup analyses

Research Design

- Synthetic Control Model – Commercial Sales (2014)

  1. Use information from other states to construct a control unit which best mimics how outcomes *would have* evolved in WA had NMCL and subsequent sales never occurred

     - Accounts for demographics, economic conditions, alcohol sales tax, and average substance use rates prior to legalization and commercial sales

  2. Compare average outcomes in WA to the constructed synthetic control unit in the years after the start of commercial sales

Sensitivity Analyses

- Synthetic Control Model
    1. Legalization as treatment (2012)
    2. Excluding border states as controls
    3. Lagged outcomes as only predictors

- Difference in Differences Models
    1. Binary on/off, Commercial sales as treatment
    2. Binary on/off, Legalization as treatment
    3. Trends, Commercial sales as treatment
    4. Trends, Legalization as treatment

Thank you!

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