The Effect of Medical Cannabis Laws on Use of Pain Medications Among Commercially Insured Patients in the United States

Felipe Lozano-Rojas [1] Amanda Abraham [1]
Sumedha Gupta [2] David Bradford [1]
[1] University of Georgia [2] Indiana University-Indianapolis

Discussant: Lucy Xiaolu Wang

University of Massachusetts Amherst; MPI - innovation; CCHE

ASSA 2025.1.3

Main message and contribution

- Research question:

  How do state MCLs affect prescription pain medication use patterns among commercially insured patients in the US

- Approach: synthetic control case studies for 22 states (2007-2020)
  - examining both when MCL implemented and when dispensaries opened

- Results: MCL reduces opioid Rx by 10-28% across states
  - affect extensive & intensive margins; complementary effects w NSAIDs

- Contribution: 1st paper study the effects of MCLs on pain meds using synthetic control case studies, reveals large heterogeneity

1. Institutional setting: method choices

- Q1: Cool to use synthetic control (SC), and it'll be even better to clarify motivation in method choice: SC vs synthetic DiD vs augmented SC?
  - Limitations (does it matter?): 1) conventional SC don't allow for unit FEs (like DD does) 2) there is no within-unit differencing, only across-unit matching
  - **Ideas**: 1) robustness check using SDID (à la Arkhangelsky et al. 2021) to reweight (unit & time) pre-MCL trends; 2) share what are the pros and cons

- Q2: Combine data-driven approach with more economics intuition?
  - SC can work great, but can feel like a black box, thus many researcher d.o.f.
  - **Ideas**: 1) What assumptions are necessary vs optional? (e.g., no dormant factors awake after treatment; does PDMP/RCL changes in T or C matter?) 2) use institutional features to guide and test robustness of donor selection (e.g., states with similar opioid policies, insurance markets, demographics, …)

1. Institutional setting: policy variation

- Q3: How to better think about cross-state contamination in this setting?
  - MCL implementation/dispensaries in neighboring states can affect patients' attitude/access to medical cannabis (or even recreational), esp. in NE region
  - **Ideas**: offer more context/discussions on how patients can access MCL across borders, and how that may affect the estimates or interpretation?

- Q4: Most states with MCL has RCL a few years later. How does this may (or may not) change the interpretation of the estimates?
  - Intrinsically hard to separately identify policy impact (in post-RCL period)
  - **Ideas**: 1) some discussions to help readers think; 2) some states with long-lags between MCL and RCL can provide additional variation for tests.

2. Differences in policies or responses?

- Q1: What are the main underlying factors driving the heterogeneity?
  - State-specific factors/policy combination that generates larger responses?
  - Specific MCL implementation in a state that works particularly well?
  - **Ideas**: 1) Policy driven, or market driven? Maybe compare two states with fairly similar MCL policy content and implementation, but different market environment. 2) What are some commonalities of states share similar magnitudes of policy responses for MCL? (urbanization; pop.;…)

- Q2: Policy implications: how should we think about MCL (& RCL) relative to other popular policies in the opioid space?
  - MCL that encourages switching versus PDMP that curbs opioid over-Rx
  - **Ideas**: 1) Consider a robustness check account for post-MCL (or independent) PDMP policy changes (and compare the magnitudes)? 2) subsample analysis with limited PDMP variation?

Minor suggestions/future extensions

- Can you dive deeper into patient characteristics?
  - e.g., more detailed diagnostics, chronic vs acute pain, prior opioid use history
- It'll be cool to learn more about health outcomes (another paper)
  - health care costs/utilization (beyond drugs), inpatient/ER hospitalization, …
- Are heterogeneity tied with cannabis dispensary market structure?
  - Are switching to medical cannabis easier with more dispensary competition?
- Heterogeneity in provider versus patient responses/heterogeneity?
  - Are PCPs or specialists respond faster? Potential patient attitude in initiation?
- Sensitivity analysis to different donor pools?
  - Some NSAIDs are available as generic/OTC and thus are likely undercounted

Final thoughts

- Very interesting topic, lots of fruit for thought
- Key takeaway: MCLs substantially reduce opioid Rx while showing complementarity with safer alternatives like NSAIDs
- Main thoughts: flesh out more details on the state-level policy variation and explore mechanisms behind the heterogeneity
- Very cool topic. Looking forward to a new version!