Narcotics Enforcement in the era of the Opiate Epidemic

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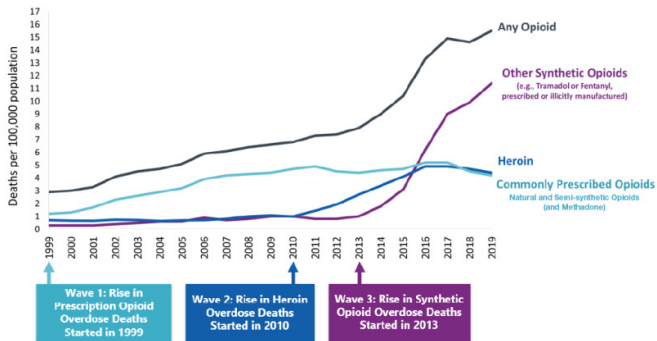
CLEAN Unit
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Illegal Drug Use

- In USA, largest cause of mortality for individuals under 50 is drug overdoses
- Nearly 500,000 people have died from drug overdoses in the last five years alone
- Terrible labor market effects
- Drug usage is associated with other types of crime
- Previous waves of the "opiate crisis" lead to today's fentanyl epidemic

The Opiate Epidemic

Addressing Illegal Drug Use

- How can policymakers address this crisis?

Addressing Illegal Drug Use

- Public Health Approaches
- Legislative Approaches
- Law Enforcement Approaches

Public Health Approaches

- "Harm reduction" and the moral hazard problem
- The opening of syringe exchange programs led to increased overdose mortality, increased rates of hospital admissions for overdoses, and increased rates of drug possession arrests. (Packham 2022)
- Naloxone access laws led to increased hospital admissions for overdoses, but had no net impact on overdose mortality (Doleac and Mukherjee 2022).
    - A new paper (like very new, from this week), however, does argue that decreases in overdose mortality were observed later as Narcan became more widespread.
- Public health approaches reduced the effective cost of drug use → users respond to price signals

How can illegal drug markets be disrupted?

- Regulation of legal markets that support illegal drug markets
- "Up stream" law enforcement efforts to prevent illegal drugs from entering local markets
- Localized enforcement efforts aimed at disrupting existing illegal markets

Basic Logic and Problem

- Realistically impossible to remove all narcotics from the market, so interventions aim to:
  - Reduce available quantity/ Increase seller costs $\rightarrow$ Increase prices for consumers $\rightarrow$ Reduce quantity demanded by consumers (in "theory") $\rightarrow$ Desired downstream effects
- The Problem: Inelastic demand for drugs among users
  - Users DO respond to price signals- but demand is relatively inelastic $\Rightarrow$ less repsonsive
  - Withdrawal and other ill effects of cessation of use- drug users want to avoid this!
  - Despite rising prices, users still demand the "high"
  - Induced substitution effects and consumer search
  - Arrests of local dealers can *increase* drug overdoses due to risky search behavior (Ray et al. 2023)

The War on Drugs: Methamphetamine, Public Health, and Crime

- Dobkin and Nicosia (2009)
- "Precursor legislation"
- Logic: Methamphetamine is produced with ephedrine and pseudo-ephedrine (then unregulated). Regulate them and costs to sellers increase $\rightarrow$ Downstream downward movement along demand curve
- 830 million tablets of precursor seized between 1994 and 1995 and a further 25 metric tons of precursor seized in 1995

The War on Drugs: Methamphetamine, Public Health, and Crime

FIGURE 1. METHAMPHETAMINE PRICE AND PURITY IN CALIFORNIA

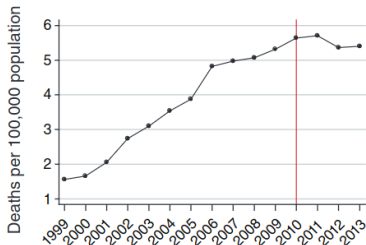# The War on Drugs: Methamphetamine, Public Health, and Crime

- Main Results
  - Decrease in hospital admissions mentioning meth
  - Increase in methamphetamine treatment admissions
  - No real crime effects, aside from reductions in possession and sale arrests
- Substitution Results
  - Increase in cocaine, opioid, and marijuana hospitalizations
  - Decrease in all other treatment admissions
- Temporary impact, but during the period drug users substituted to other drugs potentially mitigating desired effects

Supply-Side Drug Policy in the Presence of Substitutes: Evidence from the Introduction of Abuse-Deterrent Opioids
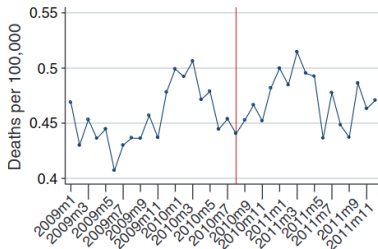
- Alpert et al. (2018)
- Lots of TV shows for background...late 90's and early 2000's USA had lots of pharmaceutical painkiller abuse
- 2010 introduction of "abuse deterrent" OxyContin. (included digestible wax in the pill to prevent crushing, and force an extended release)
- Exploit differences in opioid misuse rates, drawn from a national survey, to estimate impacts of the reformulation on overdose rates

Supply-Side Drug Policy in the Presence of Substitutes: Evidence from the Introduction of Abuse-Deterrent Opioids

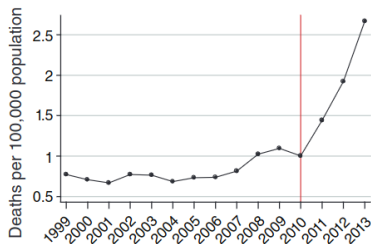Panel A. Drug overdose deaths—opioids

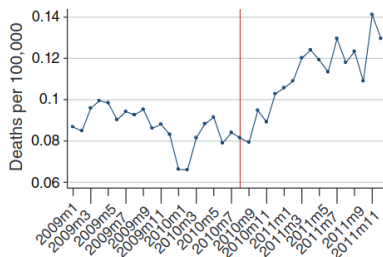Panel B. Monthly overdose deaths, 2009–2011—opioids

Supply-Side Drug Policy in the Presence of Substitutes: Evidence from the Introduction of Abuse-Deterrent Opioids

Panel C. Drug overdose deaths—heroin

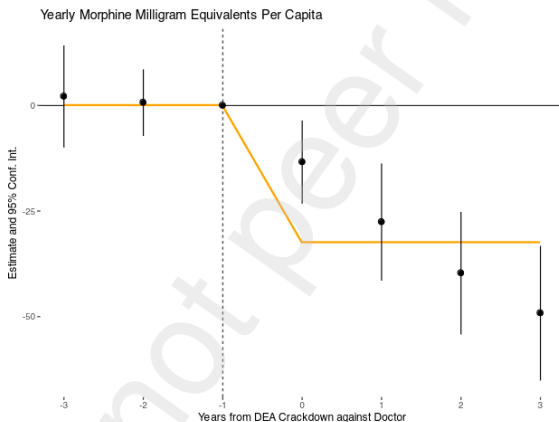Panel D. Monthly overdose deaths, 2009–2011—heroin

Supply-Side Drug Policy in the Presence of Substitutes: Evidence from the Introduction of Abuse-Deterrent Opioids

- Making the pills more difficult to abuse worked. The "curve" of Oxycontin abuse was flattened.
- Users substituted to lower cost heroin
- Overall, no effect on opioid overdose mortality. Substitution effects mitigated reductions in pharmaceutical abuse
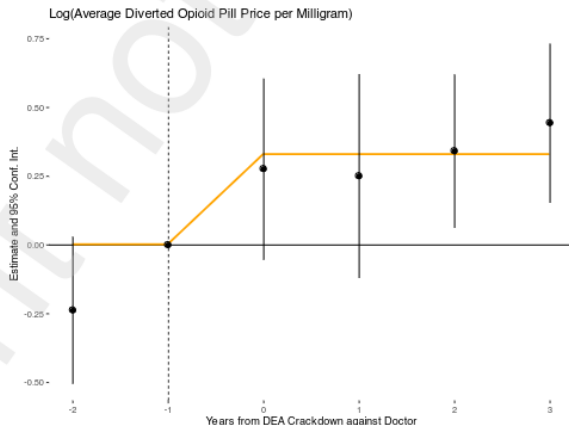
Disrupting Drug Markets: The Effects of Crackdowns on Rogue Opioid Suppliers

- Soliman (2022)
- Original "opioid crisis" was largely driven by misuse and over-prescribing of pharmaceuticals
- Law enforcement targeted specific over-prescribing doctors
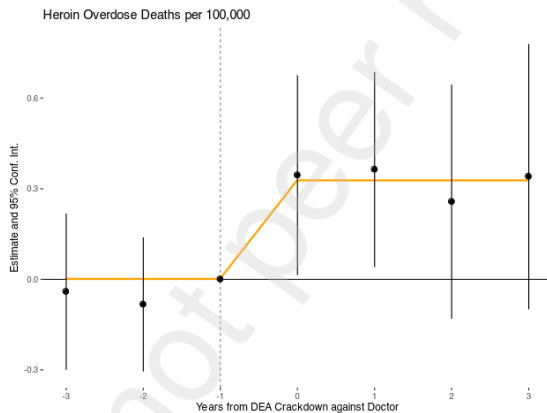- Localized impacts of removal of local source for pharmaceutical diversion

Disrupting Drug Markets: The Effects of Crackdowns on Rogue Opioid Suppliers

Disrupting Drug Markets: The Effects of Crackdowns on Rogue Opioid Suppliers

Log(Average Diverted Opioid Pill Price per Milligram)

Years from DEA Crackdown against Doctor

Estimate and 95% Conf. Int.

Disrupting Drug Markets: The Effects of Crackdowns on Rogue Opioid Suppliers

Opioid Use, Mortality Risks and Crime: Insights from a Rapid Reduction in Heroin Supply
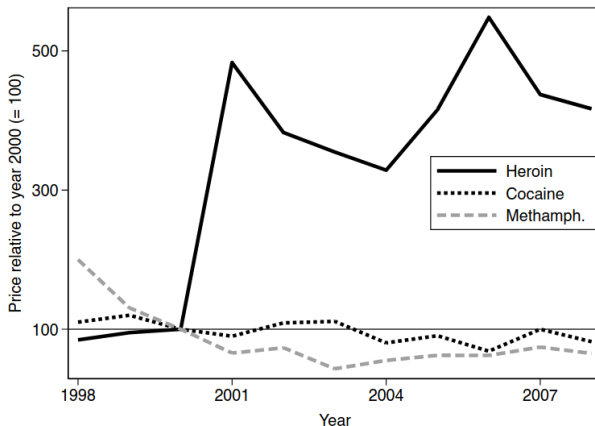
- Moore and Schnepel (2024)
- Australia is an island. Ports are more controllable than porous borders
  - Maybe not so generalizable- pre-fentanyl so no *real* substitute for heroin. And most places aren't islands.
- Increased enforcement efforts in 2000, led to a massive supply shock in 2001
- What happens to the *individuals* who use heroin?

Opioid Use, Mortality Risks and Crime: Insights from a Rapid Reduction in Heroin Supply

- Identify individuals using heroin pre-2000 (from arrest records)
- Compare outcomes for these individuals to other arrestees using non-opioid drugs
- Post-intervention massive increases in heroin price
- Let's look at some graphs to tell the story....
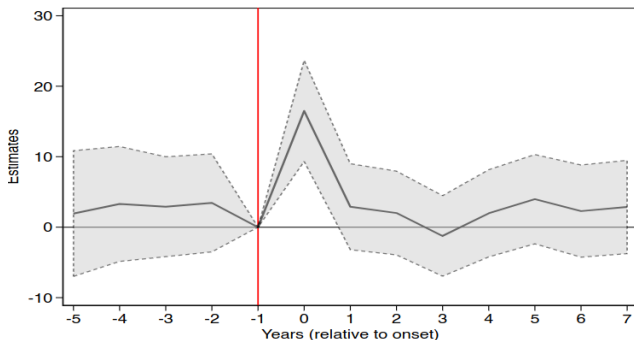
Opioid Use, Mortality Risks and Crime: Insights from a Rapid Reduction in Heroin Supply

Figure A.1: Prices of heroin, cocaine and methamphetamine, relative to year 2000
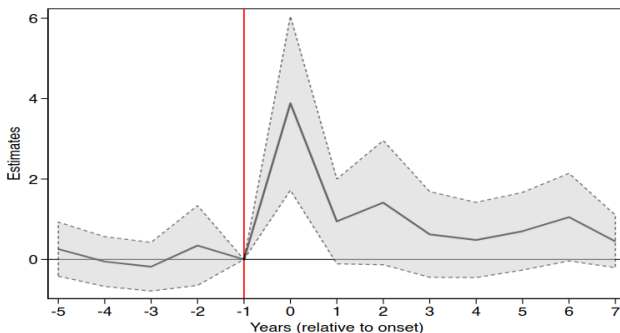
Opioid Use, Mortality Risks and Crime: Insights from a Rapid Reduction in Heroin Supply

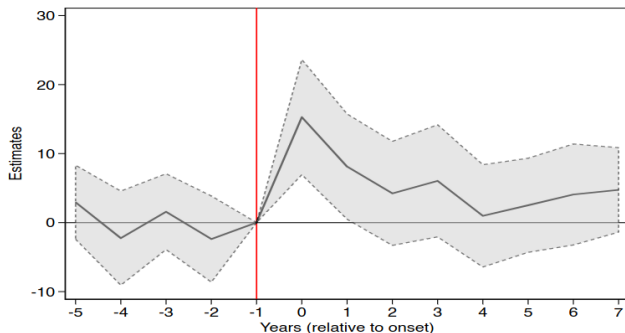(b) Non-opioid hard drug use/possession

Opioid Use, Mortality Risks and Crime: Insights from a Rapid Reduction in Heroin Supply

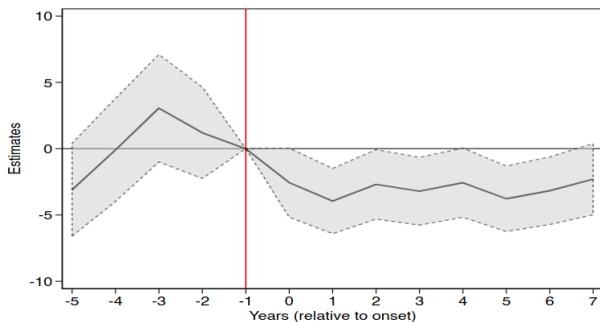(b) Homicide and manslaughter

Opioid Use, Mortality Risks and Crime: Insights from a Rapid Reduction in Heroin Supply
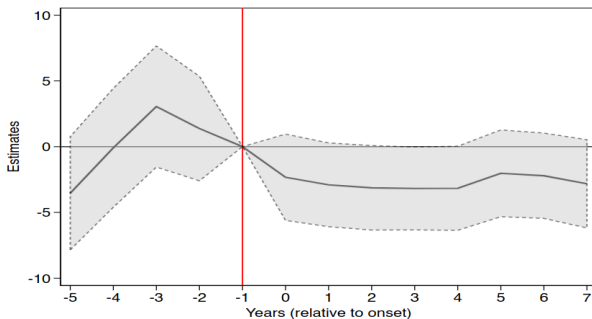

(b) Robbery

Opioid Use, Mortality Risks and Crime: Insights from a Rapid Reduction in Heroin Supply

(b) Opioid-related mortality

Opioid Use, Mortality Risks and Crime: Insights from a Rapid Reduction in Heroin Supply

(f) Total mortality

Opioid Use, Mortality Risks and Crime: Insights from a Rapid Reduction in Heroin Supply

- Individuals initially substitute to alternative drugs (costly search behavior?)
- In the long run, persistent reduction in adverse outcomes
- Overall reduction in mortality risk
- Truly optimistic note. $\rightarrow$ Without substitutes high level enforcement *reduced* demand for illicit narcotics!

A Brief History of the Failures of the Crack Epidemic

- Epitomized by racially motivated and otherwise indiscriminate stop-and-frisk policing
  - These sorts of arrest have no impact on drug crimes (Macdonald et al. 2016)
- Arrests of low-level dealers and users
- 89% increase in drug possession arrests and a 210% increase in drug sale arrests
- 161% in prison population across the country $\rightarrow$ The birth of our nation's mass incarceration epidemic
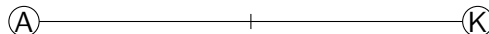
Identifying the General Equilibrium Effects of Narcotics Enforcement

- Porreca (2024)
- Potentially an approach that works in more generalizable settings
- Targeted local law enforcement efforts driven by lengthy intelligence efforts
- Reallocation of police effort towards arrests of the "right" people
- Attempt to disrupt a street level market for illegal opiates

Porreca (2024)

Consumer

$$D_i = f(p_i, p_{-i}, \psi_i, \psi_{-i}, x_i, x_{-i})$$

(A) ———————————————| ———————————— (K)

$$p_a = f(D_a, c_a(e_a)) \qquad\qquad\qquad p_k = f(D_k, c_k(e_k))$$

$\frac{\partial c_a}{\partial e_a} > 0; \;\; \frac{\partial p_a}{\partial e_a} > 0; \;\; \frac{\partial D_a}{\partial e_a} < 0; \;\; \frac{\partial D_a}{\partial e_k} > 0 \qquad \frac{\partial c_k}{\partial e_k} > 0; \;\; \frac{\partial p_k}{\partial e_k} > 0; \;\; \frac{\partial D_k}{\partial e_k} < 0; \;\; \frac{\partial D_k}{\partial e_a} > 0$

Porreca (2024)

$$\text{Consumer}$$

$$D_i = f(p_i, p_{-i}, \psi_i, \psi_{-i}, x_i, x_{-i})$$

$$\text{A} \longrightarrow\!\!\!\vert\!\!\!\longrightarrow \text{K}$$

$$p_a = f(D_a, c_a(e_a, e_k)) \qquad\qquad p_k = f(D_k, c_k(e_k))$$

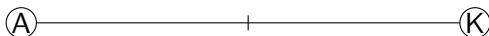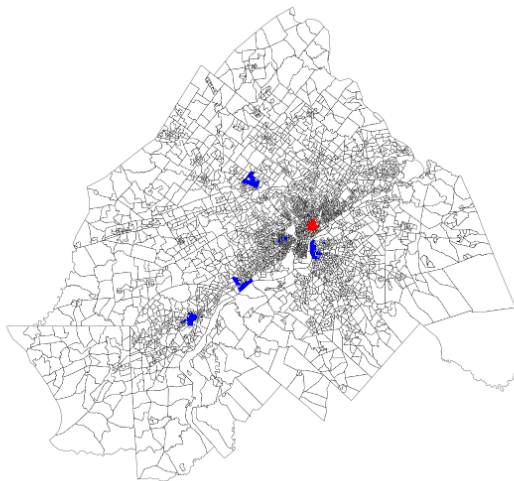$\frac{\partial c_a}{\partial e_a} > 0; \ \ \frac{\partial p_a}{\partial e_a} > 0; \ \ \frac{\partial D_a}{\partial e_a} < 0$ $\qquad$ $\frac{\partial c_k}{\partial e_k} > 0; \ \ \frac{\partial p_k}{\partial e_k} > 0; \ \ \frac{\partial D_k}{\partial e_k} < 0; \ \ \frac{\partial D_k}{\partial e_a} > 0$

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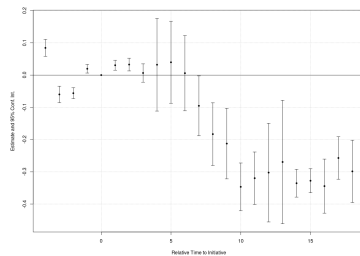
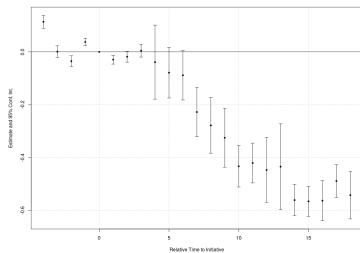# Porreca (2024)

Porreca (2024)

Porreca (2024)

Figure: Figures depicting estimates of the dynamic effect of the Kensington Initiative on total traffic flows (left) and unique visitors (right) into the target area.
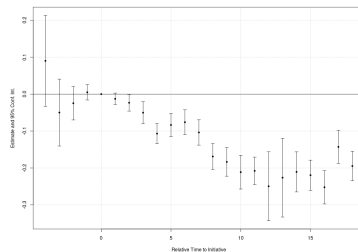
Porreca (2024)

Figure: Figures depicting the negative binomial difference-in-differences estimates of the dynamic effect of the Kensington Initiative on total traffic flows (left) and unique visitors (right) into alternative market areas.

Porreca (2024)

Figure: Figure depicting quarterly event study results showcasing the increase in Buprenorphine dispensing in the 11 counties of the Philadelphia metropolitan area following the initiative's onset.

Porreca (2024)

- Reduction in visits to targeted area
- Reduction in visits to alternative markets
- Reduction in flows between targeted area and alternative markets
- Reduction in drug overdoses in the metro area
- Increase in Burprenorphine dispensing
- Did targeting the hub disrupt the entire regional drug market enough to offset potential substitution and search effects?

Summary

- Demand for illegal drugs is inelastic. But users DO still respond to price signals somewhat
  - This allows policymakers to employ economic levers to strategically combat the epidemic
- Impacts of interventions are often offset by search and substitution effects
- Drug users look for alternatives
- Effective policy/disruptions need to simultaneously remove viable alternatives

Articles Referenced- Links

- Regulation of Legal Markets
  - Dobkin and Nicosia (2009)
  - Alpert et al. (2018)
  - Soliman (2022)
- Preventing Drugs from Entering a Market
  - Moore and Schnepel (2024)
- Disrupting Existing Markets
  - Porreca (2024)
  - Macdonald et al. (2016)
  - Ray et al. (2023)
- Public Heath
  - Packham (2022)
  - Doleac and Mukherjee (2022)

Questions/ Contact Info

Thank you! Please reach out to me via email at
zachary.porreca@unibocconi.it or at @zachporreca on Twitter