

Is the Rise in Illicit Opioids Affecting Labor Supply and Disability Claiming Rates?

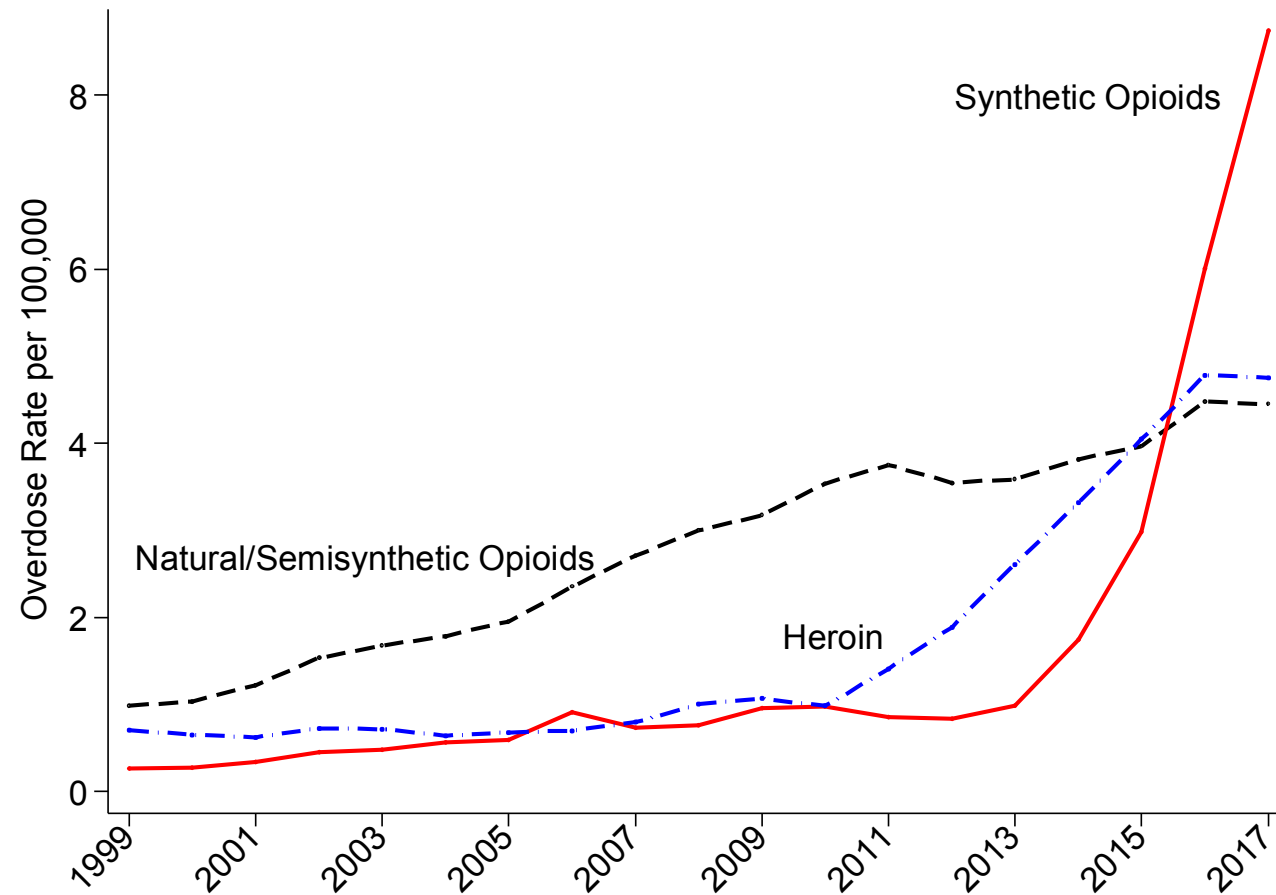
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Transition of the Opioid Crisis



The Rise of Illicit Opioids

- **Causes**

- OxyContin reformulation in 2010
 - Abuse-deterrent version of OxyContin
 - Largest reduction in supply of abusable opioids
 - Evidence that people substituted to heroin and illicit markets

- **Implications**

- Reductions in non-medical OxyContin misuse
- Rise in heroin/fentanyl overdoses
- Rise in hepatitis C infections

Ramifications on Labor Supply and Disability Insurance are unknown

Background

- **The Opioid Crisis and Labor Supply**
 - Mixed evidence if opioid supply is affecting labor force participation rates
 - Primary focus to date has been on opioid prescriptions and the first wave of the crisis, not illicit opioids
- **Why would the transition affect labor supply?**
 - Growth of illicit drug markets
 - Additional potency of heroin/fentanyl
- **Importance for understanding Disability Insurance (DI)**
 - Illicit opioids are more relevant to future of this crisis
 - While substance use itself is not a qualifying condition, it may exacerbate disabling conditions or alter labor market opportunities

This Paper

- Our Focus: What was the role of OxyContin reformulation on labor supply and disability insurance applications?
- Empirical challenge: reformulation was nationwide
 - Exploit cross-state variation in “exposure” to reformulation using approach found in Alpert et al. (2018) and Powell et al. (2019)
 - Large amounts of geographic variation in pre-reformulation rates of non-medical OxyContin misuse

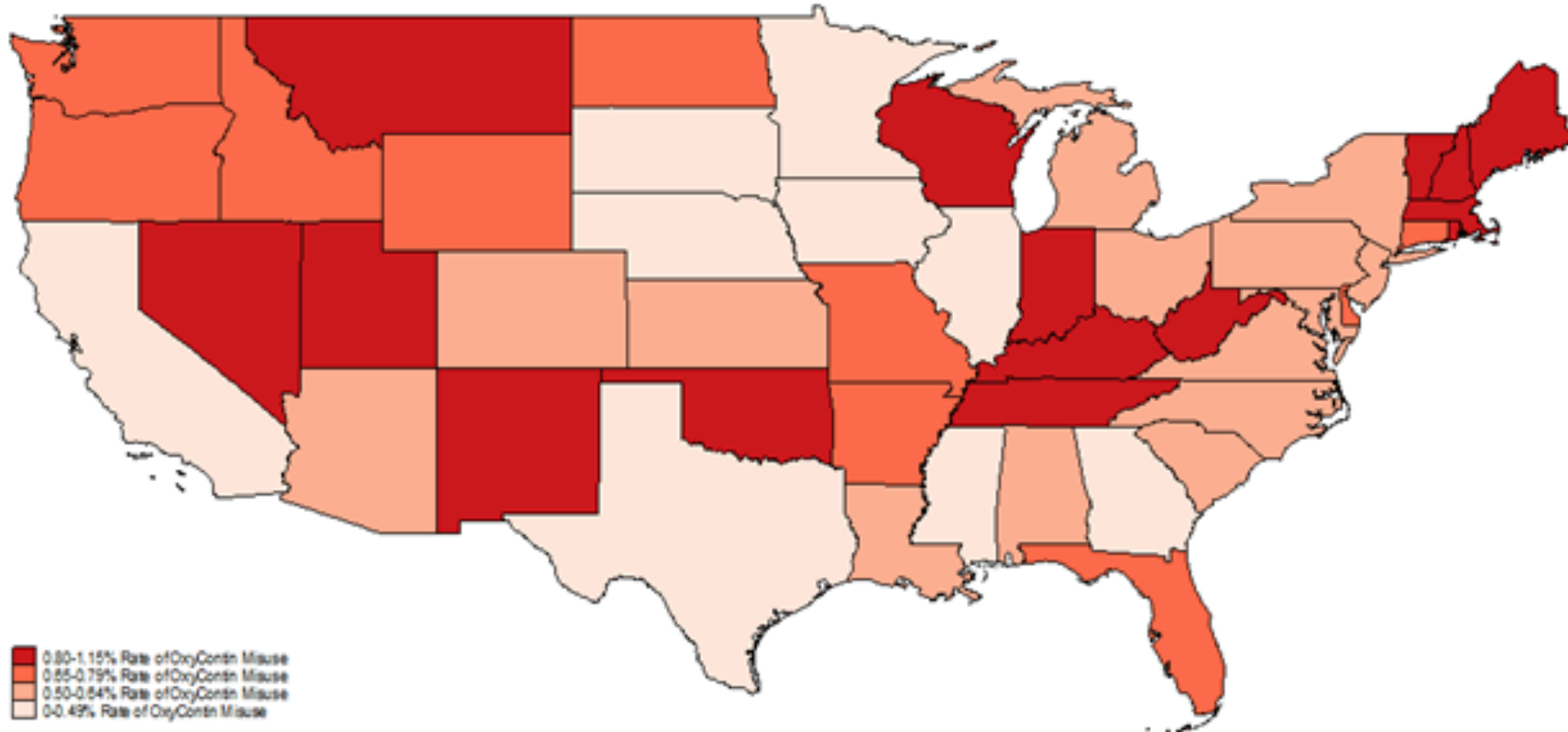
Background on OxyContin

- OxyContin (oxycodone) introduced by Purdue Pharma in 1996
 - Oxycodone is a semi-synthetic opioid, similar to morphine
 - Extended-release formula
 - If crushed or dissolved, 12 hours worth of oxycodone released immediately
- Reformulation
 - Harder to crush or dissolve
 - Removal of original formulation in August 2010

Data: OxyContin Misuse

- **National Survey of Drug Use and Health (NSDUH), 2004-2013**
 - Nationally representative survey of individuals 12+, sponsored by SAMHSA
 - State-level data for two year waves
 - Measures non-medical OxyContin use and non-medical pain reliever use in the past year
 - Measure of exposure to reformulation: 2004-2009 pooled rate of OxyContin misuse in the state
- **Current Population Study, 2001-2015**
 - % working and labor force participation for ages 18-64
- **SSA Fiscal Year Disability Claim Data, 2001-2015**
 - Focus on % applicants for ages 18-64
 - Also study % favorable determinations

Geographic Variation in OxyContin Misuse



Baseline Model

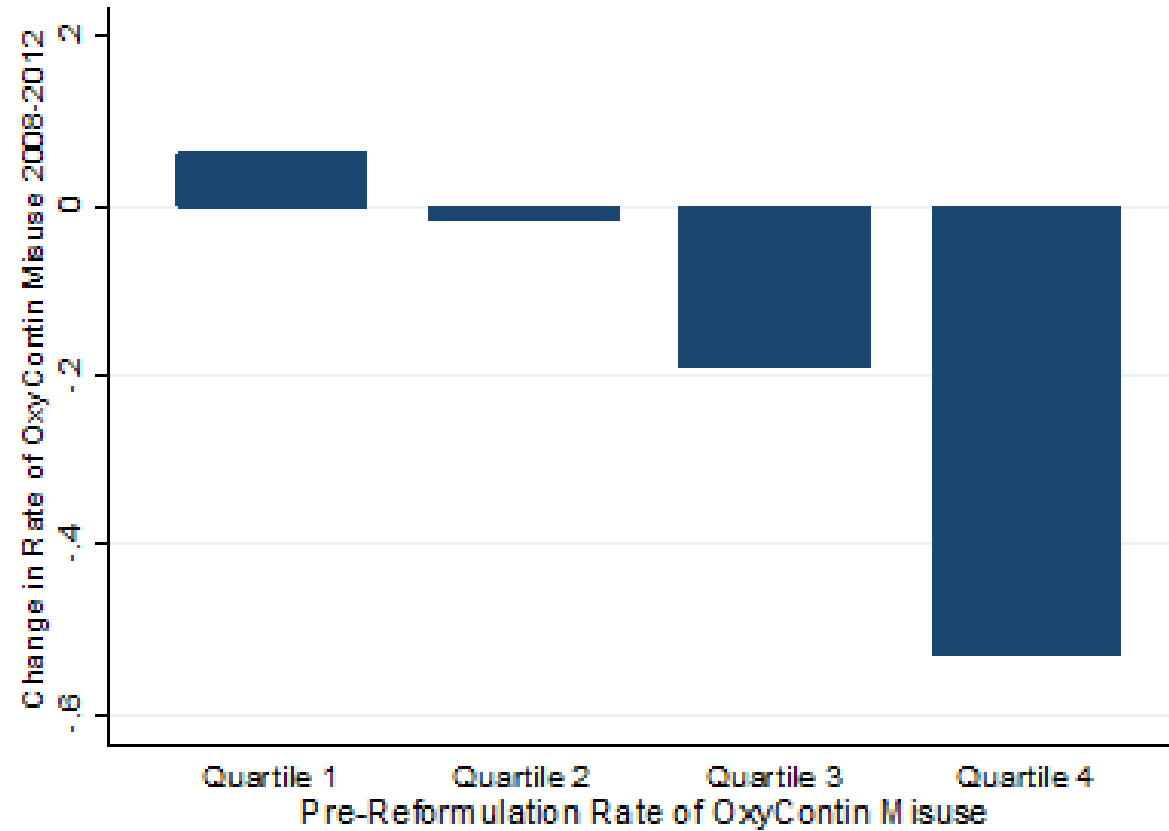
- Estimate relationship between DI application rates and pre-reformulation OxyContin misuse in each year

Event Study Specification:

$$Y_{st} = \alpha_s + \gamma_{rt} + \delta_t \times OxyRate_s^{Pre} + \theta_t \times PainRelieverRate_s^{Pre} + X'_{st}\varphi + \varepsilon_{st}$$

- $OxyRate_s^{Pre}$: non-medical OxyContin use
- $PainRelieverRate_s^{Pre}$: non-medical pain reliever use
- δ_t estimates normalized to 0 in 2009

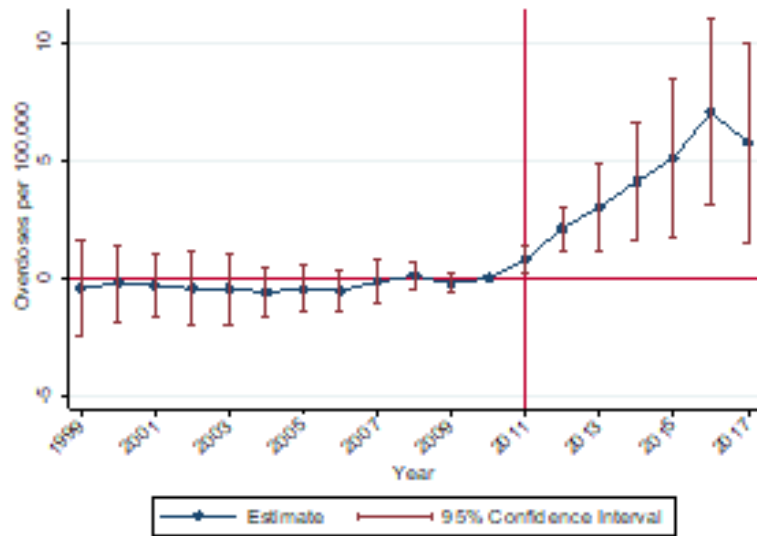
Changes in Misuse Rates



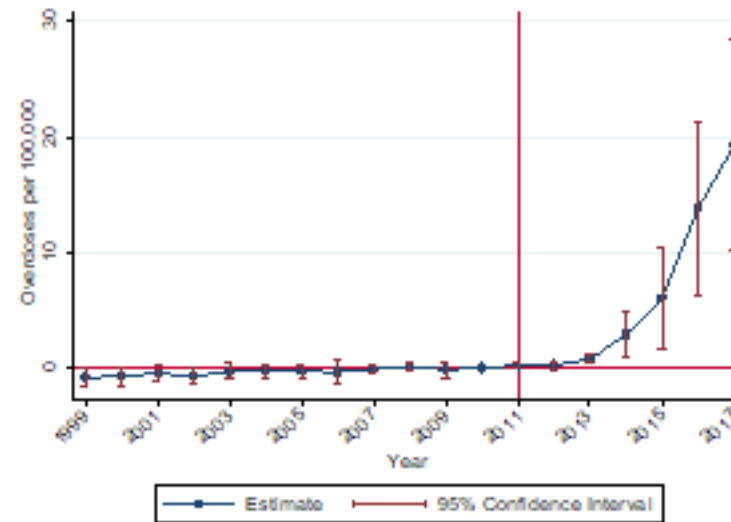
Source: Alpert et al. (2018)

Transition to Illicit Markets

Overdose Deaths

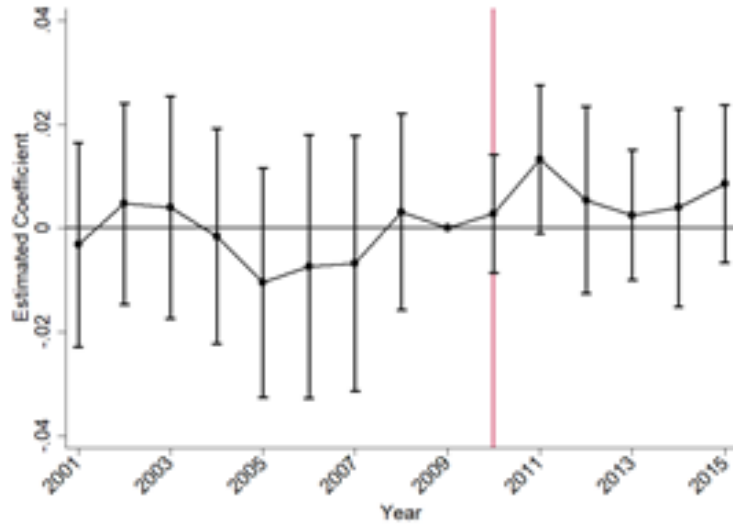


Heroin

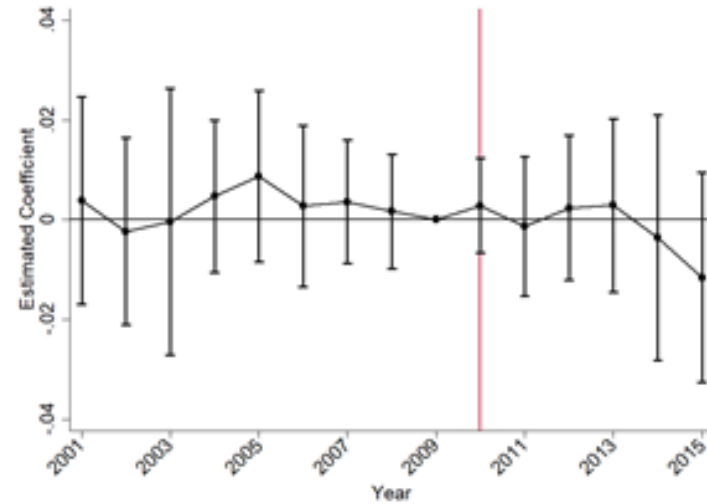


Synthetic Opioids

Labor Supply

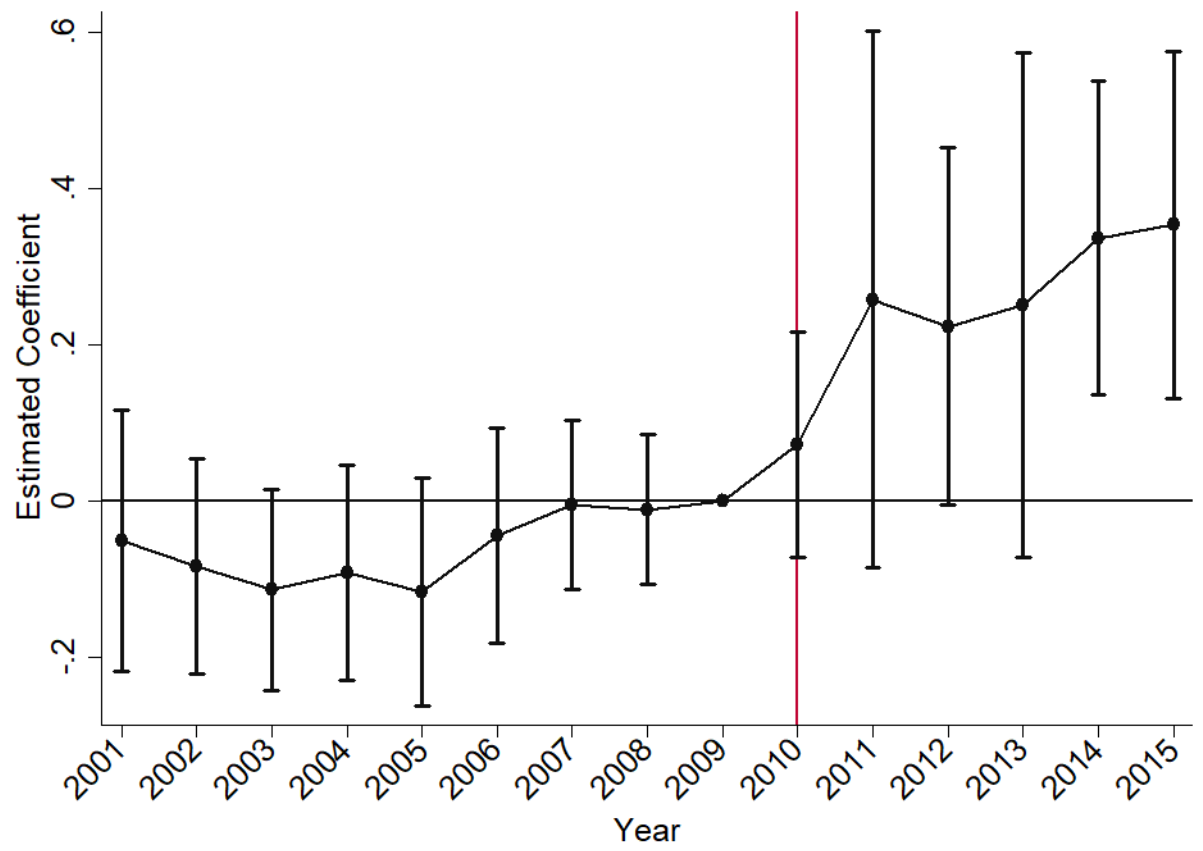


% Ages 18-64 Working

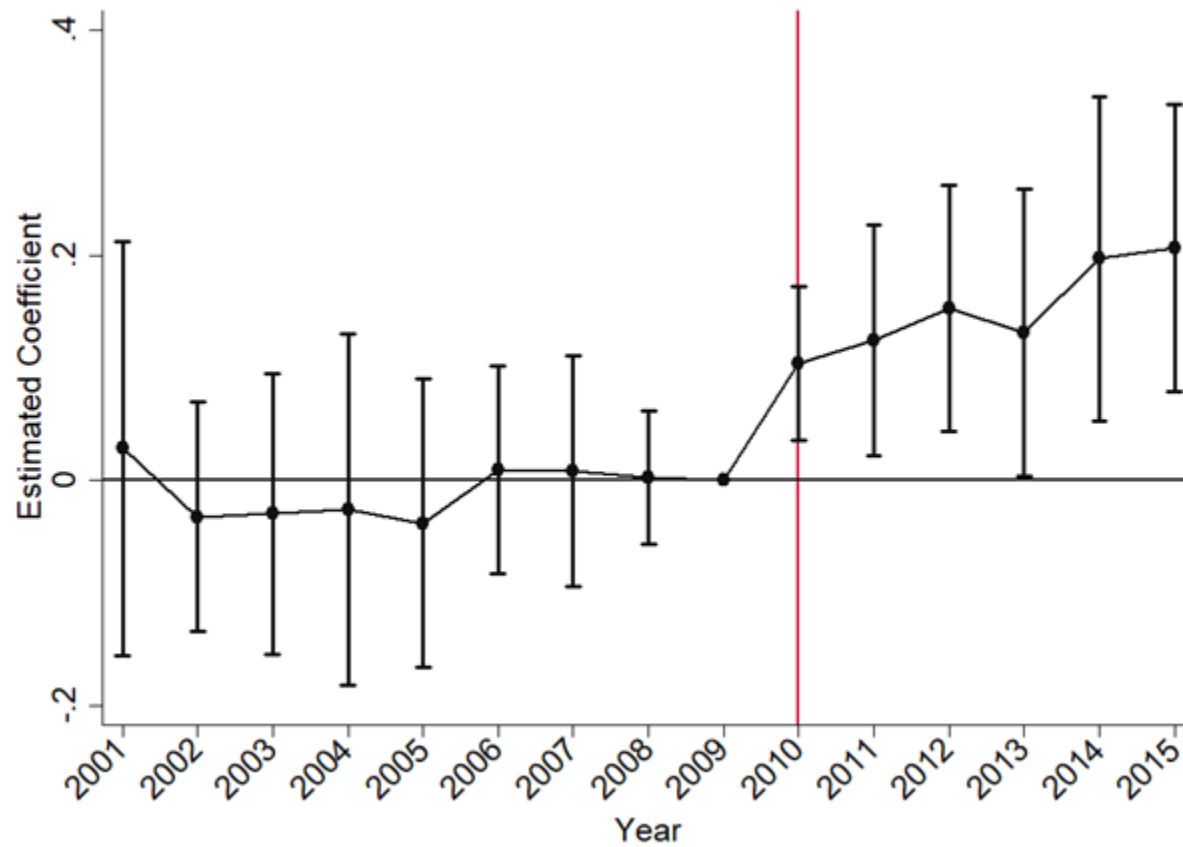


% Ages 18-64 Not in Labor Force

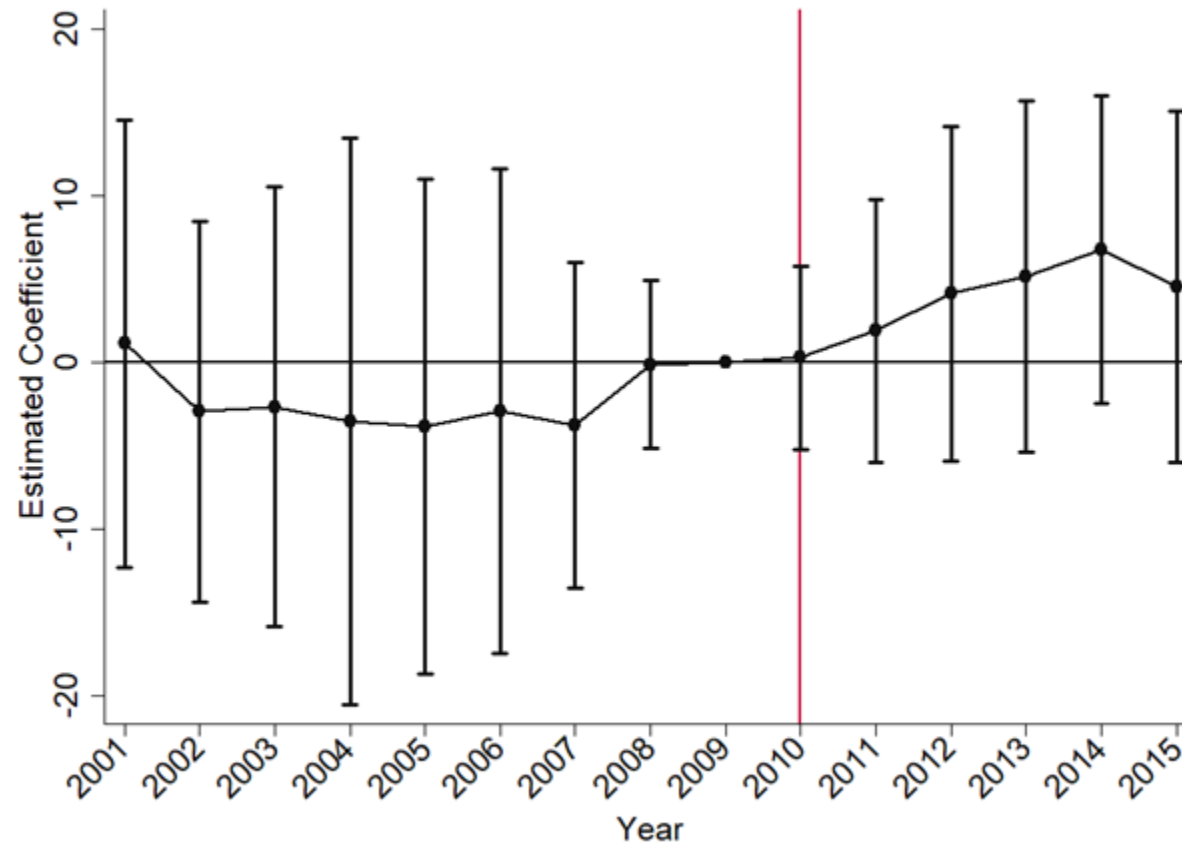
DI Application Rates



DI Favorable Determinations (as a percentage of eligible adults)



DI Favorable Determinations (as a percentage of applicants)



Conclusion

- Little evidence that the shift to illicit opioids is affecting broad measures of labor supply
- But economically meaningful effects on DI application rates
 - A state with a one standard deviation higher rate of non-medical OxyContin use experienced
 - an additional 5% increase in DI applicants
 - an additional 8% increase in favorable determinations
 - Results suggest that transition to illicit opioids increases DI applications
 - Some of these “new” applicants eventually qualify for benefits