

Discussion of : Spillover Effects of the Opioid Epidemic on Consumer Finance

Mark Jansen

Bronson Argyle¹

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¹Brigham Young University

What's the Basic Idea?

- Examine the effect that opioid abuse has on subprime auto loans:
 - the effects of opioid abuse on loan performance, and
 - the externalities of opioid abuse on subprime auto loan pricing, i.e.
 - the ability to price auto loans using traditional credit quality metrics in the face of opioid abuse.
- Exploit legalization of marijuana (Washington, Colorado, and Oregon) as an instrument for opioid use.

How does this relate to the active literature and other popular work in this space?

- Foundations of the Opioid Crisis
 - Paulozzi et al. (2014), Case & Deaton (2015, 2017), Charles et al. (2018), Fernandez & Zejcirovic (2018), Finkelstein et al. (2018), Ruhm et al. (2018).
- Effects of the Opioid Crisis
 - Florence et al. (2016), Monnat (2016), Harris et al. (2017), Krueger (2017), Currie et al (2018), Hitchcock, D. (2018), Radel et al. (2018), Cornaggia et al. (2019), D'Lima & Thibodeau (2019), Ouimet et al. (2019), Darolla & Tyler (2020).

Comments Outline

- Counterfactual/null hypothesis
- Specification/identification and potential endogeneity
- Context/smaller suggestions

What is the null Hypothesis?

- What's the counterfactual? That opioid abuse has no equilibrium effects on loan performance and pricing?
 - Should we be surprised at the fact that addiction risk is priced in a pooling equilibrium?
 - or is the fact that we are in a pooling equilibrium the point?
- Is there a policy or friction with which this exercise helps us grapple? Can we microfound the increase in drug-related default? (lose job? expensive inelastic preference? secondary psychological effects like increased ambivalence?).
- If this is less about the signs and more about the magnitudes, then getting the magnitudes right becomes very important if we want this elasticity measurement to inform policy.
 - Let's push on the identification strategy a little bit.

Specification

- The author regresses Default outcomes onto opioid abuse rates for marijuana-legal and marijuana-illegal states controlling for a predicted default rate (a hedonic regression of default onto borrower characteristics). My gut would be a more straight down the fairway DiD:

$$\begin{aligned} \mathbb{I}[\text{Default}] = & \beta^1 \text{treat}_{\text{marijuana-legal}} \times \text{post}_{t>2011} \\ & + \beta^2 \text{post}_{t>2011} + \beta^3 \text{treat}_{\text{marijuana-legal}} \\ & + \text{borrower_controls} + \delta_{\text{county}} + \delta_{\text{year}} + \epsilon. \end{aligned}$$

- If the reason for using a predicted default rate is because we think that the loadings on borrower characteristics have completely changed after the onset of the opioid crisis, this is a testable proposal.
- We are stacking the econometric deck in our favor if impose that the coefficients from before widespread opioid abuse are unchanged out of sample.
- The major concerns I would have (in both a more traditional specification and that currently of the paper) are that 1) marijuana legalization affects default directly, not only through the opioid abuse channel, and 2) local economic shocks are driving both defaults and opioid abuse.

Exclusion Restriction of Using Marijuana Legalization as an Instrument for Opioid Abuse (1/2)

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- The author argues that the bias is against the results in the paper - if marijuana legalization pushes up default rates than the true opioid abuse effect is greater than reported. I think this assumption is debatable, but I'm willing to go along. (It seems totally plausible to me to spin stories of marijuana use helping people manage pain or anxiety and being less likely to default). Can we give an upper bound as well?

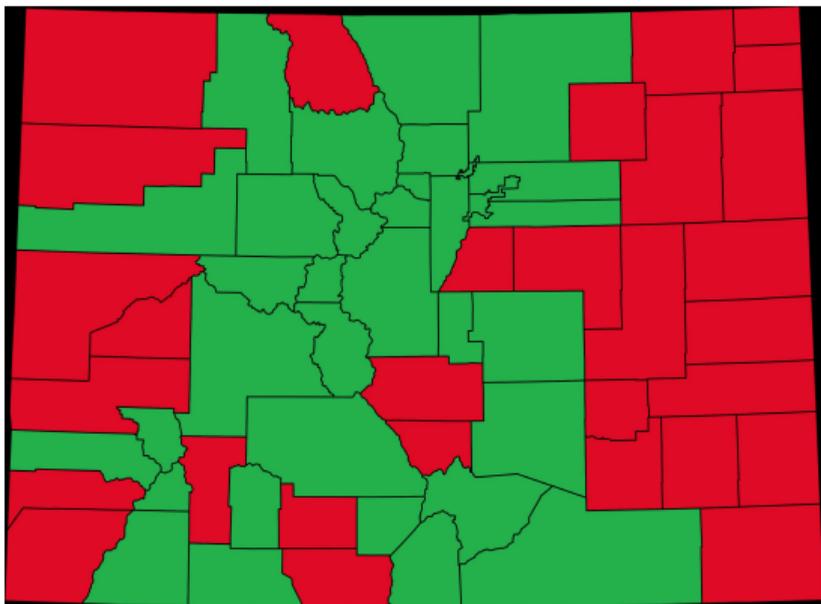
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- It seems to me that the argument that marijuana and opioids are suitable substitutes makes the exclusion restriction difficult to claim - whatever microfoundation we have for opioids affecting LHS variables (e.g., drug-induced financial and labor market irresponsibility) is also a potential channel for marijuana, by assumption.

Exclusion Restriction of Using Marijuana Legalization as an Instrument for Opioid Abuse (2/2)

- A possibly larger threat to identification is local economic conditions.
 - evidence examining the genesis of opioid abuse would confirm the connection to local economic factors (e.g., the local factory closes, and I am forced into a much lower paying job, and this fosters drug abuse). (Case & Deaton, 2015, 2017, and Charles et al, 2018)
- The author is aware of this and tries to control for local economic shocks using local unemployment and labor participation rates, but these are not really adequate to rule out the possibility that local economic shocks drive both opioid abuse and auto loan default rates (I leave my high paying job and go to a low-paying job and subsequently increase drug usage). Local income controls?
- So how could we get around this? Exploit municipalities that have different drug laws. For example, let's take a deeper look at the state of Colorado's marijuana legality.

Digging a little into Colorado's Amendment 64 (2012-2014)

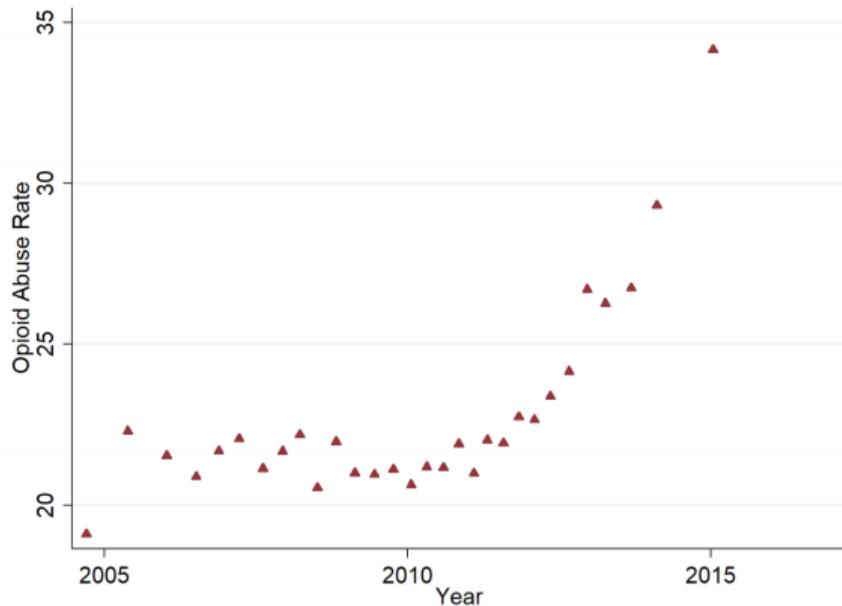


- As of April 2017, 176 of Colorado's 272 municipalities prohibit retail marijuana activity.
- Can we examine neighboring counties and compare outcomes before and after the law change?
 - Certainly people can drive across county lines, but this then becomes a comparison of treatment intensity.

Marijuana legalization in Colorado (2014), Washington (2014), & Oregon (2015)

- The decision to legalize marijuana is not random – at the state or county level. Is it exogenous to the LHS variables of the paper?
 - This legislation is a boon to state budgets (\$44 million in excise taxes raised in 2014 in Colorado from the fees associated with legal commercial sales). Did these three states have economic conditions that drove default rates and also pushed them, on the margin, to legalize marijuana as a source of revenue?
- So, this is not perfect, and it's really an instrument for marijuana's effects, but I think this is the right flavor of strategy.
- Can we exploit Florida's policy change (discussed in appendix C and used by Ouimet et al (2019) and a previous version) to shore up this concern about local economic shocks? I honestly find this approach more convincing than marijuana legalization.

Treatment Timing



- **What happened in 2011?**
- It would be nice to have more of a background for why the kink in abuse rates – i.e., microfunded change in the numerator or the denominator?

Other Thoughts/Small Technicals - In Some Particular Order

- **Frieden & Houry (2016) 1.82/1000 versus 24.82/1000 abuse rate**
- Consistency of specification FEs for all table and figures (county vs. state). Sometimes have dealership FEs?
- Sample size consistency and summary stats for sample actually used
- check denominator of opioid abuse in 1st stage (prescriptions onto instrument)

Conclusion

- I think this is an interesting and timely paper exploring the financial effects of opioid abuse.
- I wonder about the null hypothesis and plausible violations of the exclusion restriction.
- I think ruling out local economic shocks is key, and this suggests that exploiting variation across neighboring municipalities may be the way to go.

References

- Case, A. and Deaton, A. (2015). Rising morbidity and mortality in midlife among white nonHispanic Americans in the 21st century. *Proceedings of the National Academy of Sciences*, 112(49):15078–15083.
- Case, A. and Deaton, A. (2017). Mortality and Morbidity in the 21st Century. *Brookings Papers on Economic Activity*, Spring 2017.
- Charles, K. K., Hurst, E., and Schwartz, M. (2018). The Transformation of Manufacturing and the Decline in U.S. Employment. *NBER Working Paper #24468*.
- Cornaggia, K., Hund, J., Nguyen, G., and Ye, Z. (2019). "Opioid Crisis Effects On Municipal Finance" working paper.
- Currie, J., Jin, J. Y., and Schnell, M. (2018). U.S. Employment and Opioids: Is There a Connection? *NBER Working Paper #24440*.
- Darolla, R. and Tyler, J. (2020). "The opioid crisis and community-level spillovers onto children's education", *Brookings Institute Report*.
- D'Lima, W. and Thibodeau, M. (2019). "Opioid Crisis and Housing Market Effects" working paper.
- Fernandez, F., and Zejcirovic, D. (2018). "The Role of Pharmaceutical Promotion to Physicians in the Opioid Epidemic" working paper.
- Finkelstein, A., Gentzkow, M., and Williams, H. (2018). "What Drives Prescription Opioid Abuse? Evidence from Migration" working paper.
- Florence, C., Luo, F., Xu, L., and Zhou, C. (2016). "The Economic Burden of Prescription Opioid Overdose, Abuse and Dependence in the United States, 2013" *Medical Care*, 54: 901-906.
- Frieden, T. R., Houry, D., 2016. Reducing the risks of relief-the CDC opioid-prescribing guideline. *New England Journal of Medicine* 374, 1501–1504.
- Harris, M., Kessler, L., Murray, M., and Glenn, B. (2017). "Prescription Opioids and Labor Market Pains" working paper.
- Hitchcock, D. , "The Opioid Crisis Is Real, But Not Yet A Threat To State Credit Quality," *S&P Global Market Intelligence*.
- Krueger, A. (2017). "Where have all the workers gone? An inquiry into the decline of the U.S. labor force participation rate" *Brookings Paper on Economic Activity*.
- Monnat, S. (2016). "Deaths of despair and support for Trump in the 2016 presidential election" *Pennsylvania State University Department of Agricultural Economics Research Brief 5*.
- Ouimet, P., Simintzi, E., and Ye, K. (2019). "The Impact of the Opioid Crisis on Firm Value and Investment" Working Paper.
- Paulozzi, L., Mack, K., and Hockenberry, J. (2014). "Vital Signs: Variation Among States in Prescribing of Opioid Pain Relievers and Benzodiazepines — United States, 2014" *Morbidity and Mortality Weekly Report*, 63: 563-568.
- Radel, L., Baldwin, M., Crouse, G., Ghertner, R., and Waters, A. (2018). "Substance Use, the Opioid Epidemic, and the Child Welfare System: Key Findings from a Mixed Methods Study" *ASPE Research Brief*
- Ruhm, C. J. (2018). Deaths of Despair or Drug Problems. *NBER Working Paper #24188*.