

# TRAFFIC FATALITIES AND RECREATIONAL CANNABIS SALES

AN INTERRUPTED TIME SERIES STUDY OF LEGALISING STATES AND NEIGHBOURING JURISDICTIONS

TYLER LANE
INSURANCE, WORK AND HEALTH GROUP
MONASH UNIVERSITY



## LEGALISED POT AND AND TRAFFIC FATALITIES

#### DID LEGALISING RECREATIONAL CANNABIS SALES AFFECT TRAFFIC FATALITY RATES?

Cannabis impairs driving ability (Volkow et al 2016; Sewell et al 2009)

However, medicinal cannabis research finds a mixed effect, generally reducing road deaths (Anderson et al 2013; Santaella-Tenorio et al 2017)

Recreational cannabis legalisation (without sales) has not had a detectable effect (Aydelotte et al 2017)

#### THIS STUDY

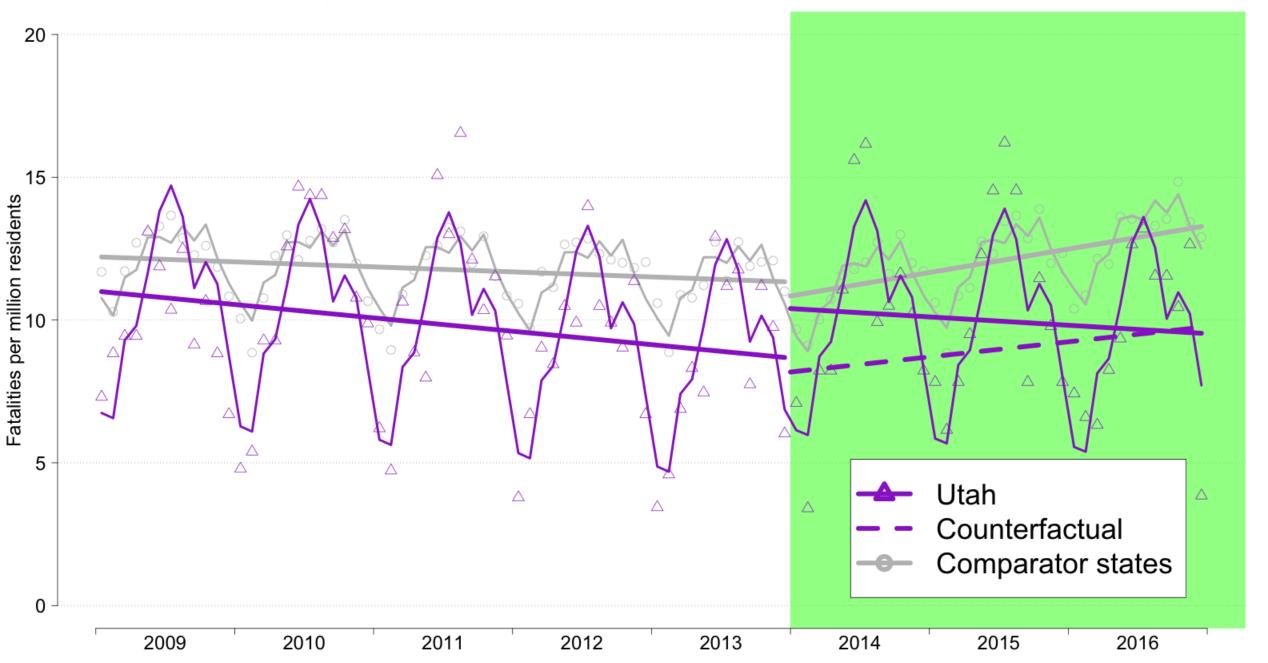
Impact of legalising recreational cannabis sales on:

- Legalising states (Colorado, Washington, Oregon)
- Neighbouring jurisdictions (Kansas, Nebraska, New Mexico, Oklahoma, Utah, British Columbia [CA], Oregon, California, Nevada)

Publicly available mortality data (CDC WONDER), interrupted time series with comparator and multiple baselines, and meta analysis to derive pooled results

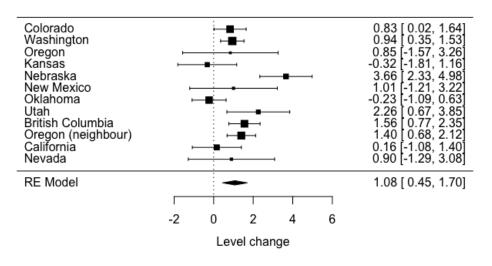


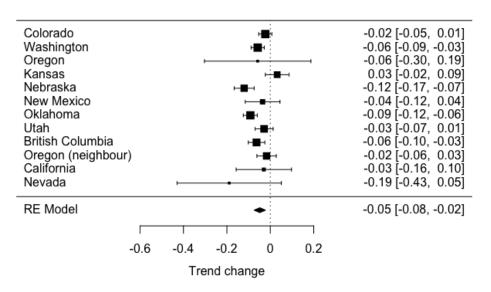
### Utah (Colorado neighbour - legalised Jan 2014)



## **OVERALL EFFECT AND IMPLICATIONS**

#### SURGE IN FATALITIES POST-LEGALISATION, DISSIPATES OVER TIME





Effect is similar (if slightly larger) among neighbours

- Neighbours: level: +1.15; trend: -0.06
- Legalisers: level: +0.90; trend: -0.05

Similar effects observed with six-month phase-in

• Level: 1.36; trend: -0.07

Detectable effects in British Columbia

- Suggests impact can cross borders!
- Canada legalised recreational cannabis sales last week!



### REFERENCES

- Anderson DM, Hansen B, Rees DI. Medical marijuana laws, traffic fatalities, and alcohol consumption. J Law Econ. 2013;56(2):333–69.
- Aydelotte JD, Brown LH, Luftman KM, Mardock AL, Teixeira PGR, Coopwood B, et al. Crash fatality rates after recreational marijuana legalization in Washington and Colorado. Am J Public Health. 2017;107(8):1329–31.
- Santaella-Tenorio J, Mauro CM, Wall MM, Kim JH, Cerdá M, Keyes KM, et al. US traffic fatalities, 1985 2014, and their relationship to medical marijuana laws. Am J Public Health. 2017;6(35):336–42.
- Sewell RA, Poling J, Sofuoglu M. The effect of cannabis compared with alcohol on driving. Am J Addict. 2009;18(3):185–93.
- Volkow ND, Baler RD, Compton WM, Susan RB. Adverse health effects of marijuana use. N Engl J Med. 2016;370(23):2219–27.

Thanks: to my co-author, Wayne Hall; David Reilly & Caroline Gao for statistical advice; Erie Martha Lane (my wife) for heroically watching our son as I worked on this in my spare time.

