

# Legal Access to Alcohol and Drug Related Automobile Accidents

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## Abstract:

Recent literature has shown that alcohol and drug use are substitutes. Given recent policy changes that have legalized recreational marijuana, the substitution between marijuana and alcohol consumption have led researchers to conclude that legalizing the recreational use of marijuana is likely to improve public health since the social costs of alcohol consumption outweigh the social costs of marijuana consumption. However, this conclusion ignores the potential interactive effects between drug and alcohol consumption. Particularly, if the interactive effect (impairment from both alcohol and drugs) outweighs the net scale effect (decrease in alcohol impairment and increase drug impairment), legalizing the recreational use of marijuana may decrease public health. In this paper we use the same “clearly-defined natural experiment” that others have used to show that alcohol and drugs are substitutes: a regression discontinuity approach that exploits the discontinuity in legal access to alcohol at the age 21 threshold. However, we focus our attention to drug impaired automobile accidents. We find that drug related accidents sharply increase when legal access to alcohol is permitted. This suggests that if alcohol and marijuana consumption are substitutes, the interactive effect of the combined impairment of drugs and alcohol outweighs the net scale effect. Since our identification strategy follows previous work, our local average treatment effect is directly comparable.