project

2023-12-05

```
library(ggplot2)
library(stargazer)
```

```
##
## Please cite as:

##  Hlavac, Marek (2022). stargazer: Well-Formatted Regression and Summary Statistics Tables.

##  R package version 5.2.3. https://CRAN.R-project.org/package=stargazer
```

```
library(readxl)
library(tidyr)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
data2<-read_excel("driving.xlsx")
```

```
## New names:
## * `` -> `...1`
```

```
data<-read_excel("driving.xlsx")
```

```
## New names:
## * `` -> `...1`
```

Research Question

The research question in this paper is whether or not BAC 08 laws (laws that set the maximum legal Blood Alcohol threshold at .08) have a measured effect on traffic fatalities.

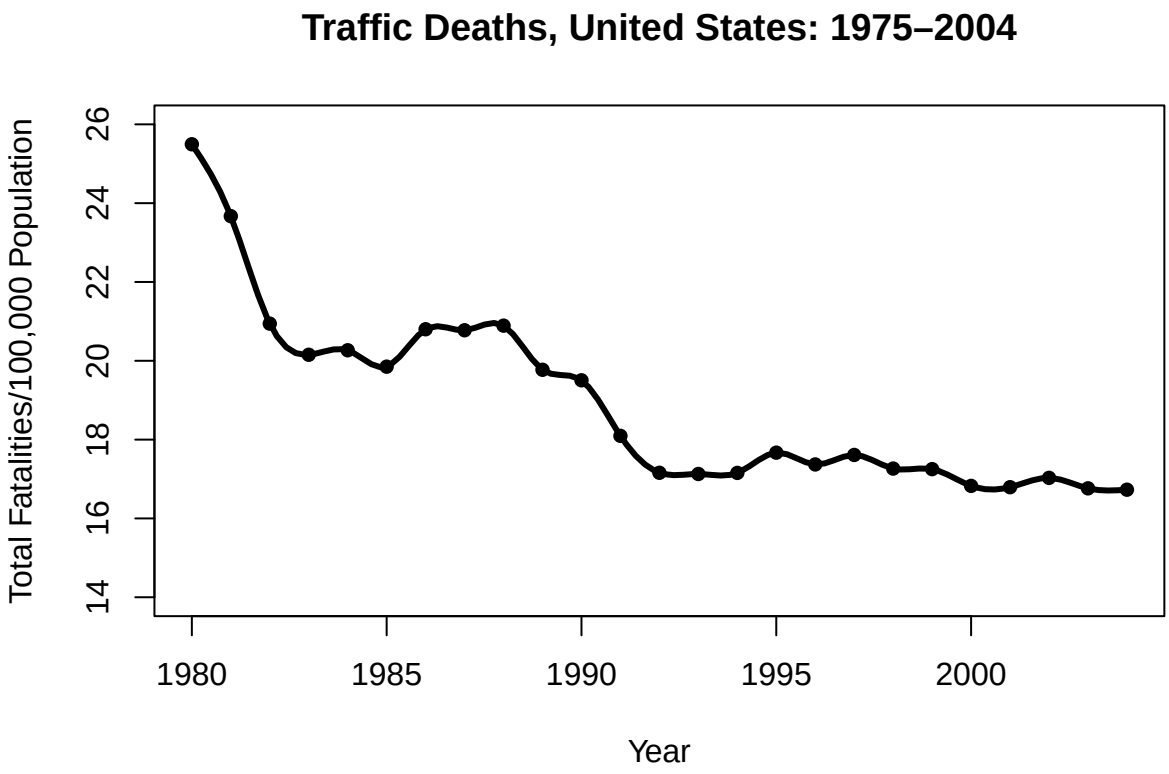
The importance of this question is that it will help lawmakers better understand whether this lower limit (previously was .10) is effective in reducing traffic accidents. The opposition to the .08 limit claims that

the lower level punishes "moderate drinkers" who are unlikely to cause an accident and also does nothing to prevent the "heavy drinkers" who are the likely ones to cause the accident. There is also the claim that the .08 limit may have some positive effect on saving lives but the cost is too high as the extra law enforcement costs and resulting criminal penalties far exceed the benefits from the law. Answering this question will allow for policymakers to be better informed when they are pressured by a side to either enforce or repeal the current legislation regarding drunk driving.

Next, we can look at the differences between this research paper and previous literature on this topic. A notable difference between this study and previous ones which also examined the effectiveness of BAC laws, Dee(2001) and Eisenberg (2003). is that this study utilizes more observations which is critical in analysis especially considering that some states have only had BAC 08 laws since 1993 which limited the amount of data to be examined in previous studies. Another crucial difference is that this study is the first to distinguish between states that adopted BAC early on their own and late state adopters (after 1999).Previous BAC studies such as Bertrand, Duflo, and Mullinainthan (2004) did not distinguish between the timing which is important to notice as many late state adopters did not pass the law under free will but under threat that they would lose federal highway funding if they did not. One more key difference between this study and previous literature is that our study found little to no effect could be attribited to the .08 BAC law when considering traffic fatalities.This goes against a previous analsyis by the U.S. General Accounting Office (1999) which found "some evidence" that the BAC .08 laws when combined with public education had an effect on reducing traffic fatalties. Similarly, the National Highway Traffic Safety Administration (1994), noted significant improvement in numerous measures of alcohol related deaths after the passing of BAC .08 laws in California, Maine, Oregon, Utah, and Vermont. Our study focuses on all continental states not just these 5 as was done in the NHTSA study.

Data

```
#Replicating Figure 1
data <-data %>%
  group_by(year) %>%
  summarise(meanByYear = mean(totfatrte, na.rm = TRUE))
data <- merge(data,data, by = "year", suffixes = c("", "_mean"))
plot(data$year, data$meanByYear, pch = 16, col = "black", main = "Traffic Deaths, United States: 1975-2
smooth_line <- spline(data$year, data$meanByYear, n = 100, method = "natural")
lines(smooth_line, col = "black", lwd = 3)
```




```
#Here we can see that traffic deaths plunged initially after the initial reform, but that there has bee


#Replicating Table 1 (which summarizes the dataset)

data82<-data2[data2$year==1982,]
data04<-data2[data2$year==2004,]

table2 <- data.frame(
  Indicator = c("BAC 08", "BAC 08", "BAC 10", "BAC 10", "ALR", "ALR", "Seat belt (primary enforcement)"
  Year = c(1982, 2004),
  States_Adopting = c(sum(data82$bac08>.49), sum(data04$bac08>.49), sum(data82$bac10>.49), sum(data04$ba
)
#Also very odd mechanics when deciding if .5 is counted or not, the article is inconsistent with this m
table(data04$seatbelt)#There is an error in the table printed with the seatbelt primary and secondary d
```

```
##
##  0  1  2
##  1 19 28
```

```
table1<- data.frame(
  Variable = rep(c("Total fatalities per 100,000 population", "Weekend night per 100,000 population", "U
  Year = c(1982,2004),
  Mean = c(mean(data82$totfatrte), mean(data04$totfatrte), mean(data82$wkndfatrte), mean(data04$wkndfati
  SD = c(sd(data82$totfatrte), sd(data04$totfatrte), sd(data82$wkndfatrte), sd(data04$wkndfatrte),sd(da
```

```
  Maximum = c(paste(max(data82$totfatrte),"New Mexico"),paste(max(data04$totfatrte),"Wyoming"),
              paste(max(data82$wkndfatrte),"New Mexico"),paste(max(data04$wkndfatrte),"Mississippi"),
              paste(max(data82$unem),"Michigan"),paste(max(data04$unem),"Michigan"),
              paste(max(data82$vehicmiles),"California"),paste(max(data04$vehicmiles),"California"),
              paste(max(data82$perc14_24),"South Carolina"),paste(max(data04$perc14_24),"Utah")),
  Minimum = c(paste(min(data82$totfatrte),"Rhode, Illinois"),paste(min(data04$totfatrte),"Massachusets"),
              paste(min(data82$wkndfatrte),"Massachssetts"),paste(min(data04$wkndfatrte),"New York"),
              paste(min(data82$unem),"South Dakota"),paste(min(data04$unem),"New Hampshire"),
              paste(min(data82$vehicmiles),"Vermont"),paste(min(data04$vehicmiles),"North Dakota"),
              paste(min(data82$perc14_24),"Florida"),paste(min(data04$perc14_24),"Florida"))
)
library(knitr)
kable(table1, format = "html", caption = "Table1")
```

Table1

Variable

Year

Mean

SD

Maximum

Minimum

Total fatalities per 100,000 population

1982

20.9

6.72

42.3099975585938 New Mexico

11 Rhode, Illinois

Total fatalities per 100,000 population

2004

16.7

6.28

32.3499984741211 Wyoming

7.42000007629395 Massachusets

Weekend night per 100,000 population

1982

5.9

1.81

13.2700004577637 New Mexico

3.40000009536743 Massachssetts

Weekend night per 100,000 population

2004

3.6

1.44

7.34000015258789 Mississippi

1.64000010490417 New York

Unemployment rate

1982

9.3

2.31

15.5 Michigan

5.5 South Dakota

Unemployment rate

2004

5.0

0.97

7.5 Michigan

3.40000009536743 New Hampshire

Vehicle miles traveled (billions)

1982

61.4

61.59

170.295196533203 California

3.96296000480652 Vermont

Vehicle miles traveled (billions)

2004

61.4

61.59

329.600006103516 California

7.57575988769531 North Dakota

Population aged 14–24 (%)

1982

18.1

0.76

19.5 South Carolina

16 Florida

Population aged 14–24 (%)

2004

14.2

1.05

18.8999996185303 Utah

12.5 Florida

```
kable(table2, format = "html", caption = "Table1")
```

Table1

Indicator

Year

States_Adopting

BAC 08

1982

0

BAC 08

2004

47

BAC 10

1982

18

BAC 10

2004

1

ALR

1982

0

ALR

2004

39

Seat belt (primary enforcement)

1982

0

Seat belt (primary enforcement)

2004

19

Seat belt (secondary enforcement)

1982

0

Seat belt (secondary enforcement)

2004

28

Graduated driver's license

1982

0

Graduated driver's license

2004

40

Maximum speed limit 70+

1982

0

Maximum speed limit 70+

2004

18

Data is not given on what percent of traffic deaths were alcohol related so we cannot include the dotted line which represents that. We can only examine the total fatalities/100,000 of the state population. Also data is not given from 1975-80, like in the figure, so we will start our data at 1980 and so will the figure. Also,for some reason the author of the study divided the mean and sd of total fatalities per 100k and weekend fatalities per 100k which is why their first couple entries are 10 times too small. This is one of several mistakes by the authors in their graphical output.

Works Cited (Throw this in after Conclusion)

Bertrand, M., E. Duflo, and S. Mullinainthan. "How Much Should We Trust Differences-in-Differences Estimates?" Quarterly Journal of Economics, 19, 2004, 249–75.

Dee, T. "Does Setting Limits Save Lives? The Case of 0.08 BAC Laws." Journal of Policy Analysis and Management, 20, 2001, 111–28.

Eisenberg, D. "Evaluating the Effectiveness of Policies Related to Drunk Driving." Journal of Policy Analysis and Management, 22, 2003, 249–74.

National Highway Traffic Safety Administration. A Preliminary Assessment of the Impact of Lowering the Illegal BAC per se Limit to .08 in Five States. Washington, DC: U.S. Department of Transportation, 1994

U.S. General Accounting Office. Highway Safety: Effectiveness of State .08 Blood Alcohol Laws. Washington, DC: GAO, RCED-99–179. 1999