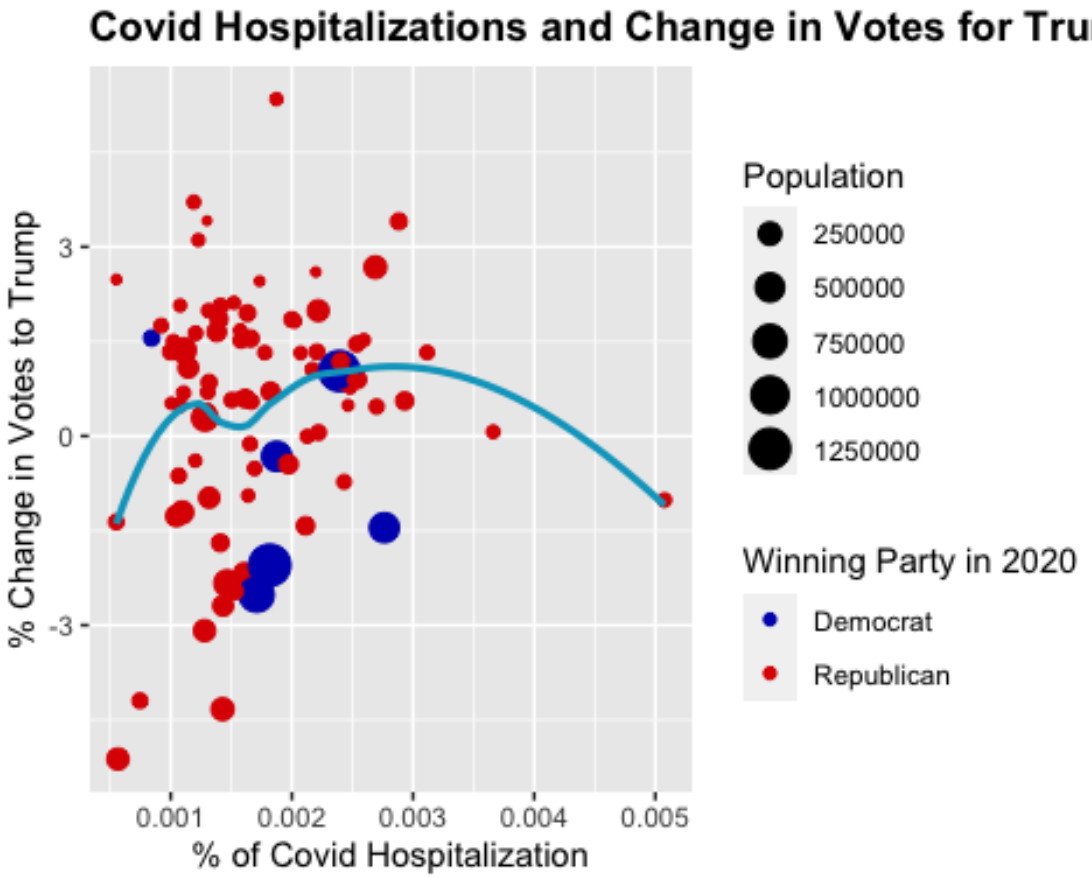
DATA300_Lab5_HanhPhan

Part 1: The percentage of covid hospitalizations was relatively small among all counties. There was no clear relationship between covid hospitalizations and change in two-party vote percentage.

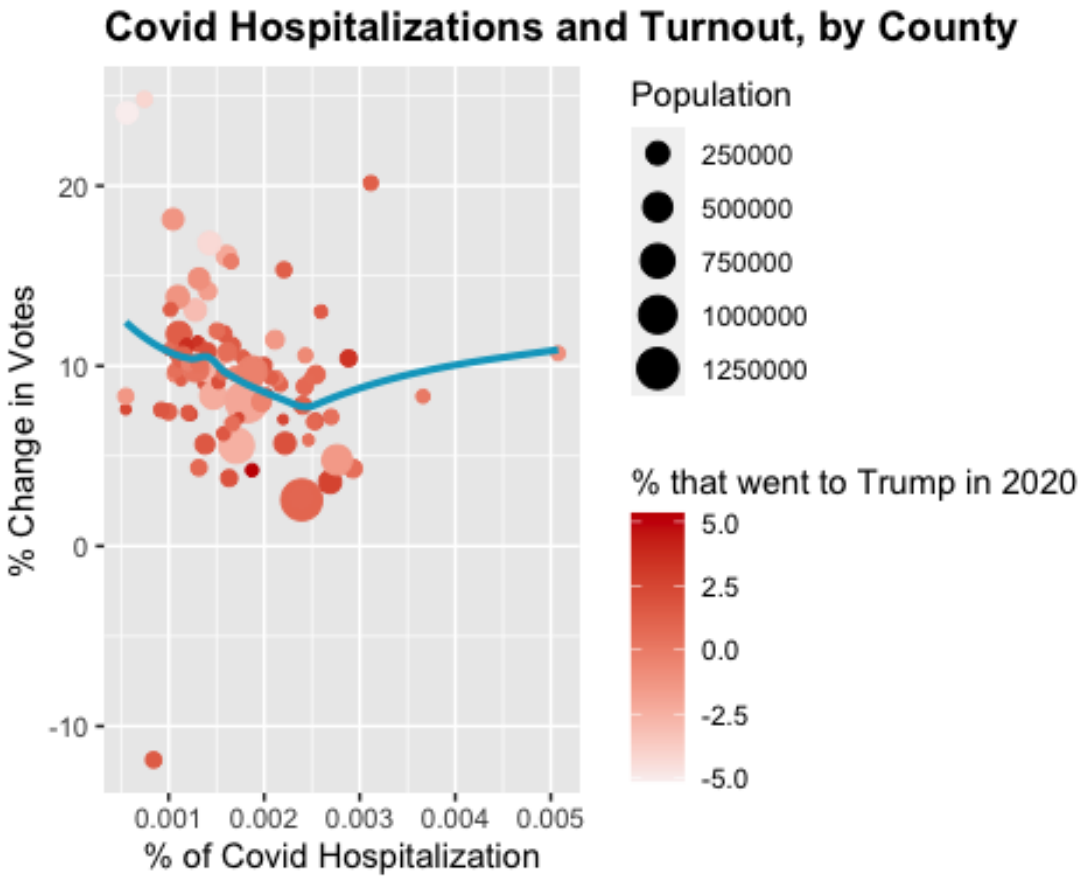
```
library(ggplot2)

mydata <- read.csv("ohio_election_data.csv")

#calculate the % change in votes for Trump
mydata$total_2016 <- mydata$trump_votes2016 + mydata$clinton_votes2016
mydata$total_2020 <- mydata$trump_votes2020 + mydata$biden_votes2020
mydata$trump_change <- mydata$trump_votes2020/mydata$total_2020*100 -
mydata$trump_votes2016/ mydata$total_2016*100

#calculate the % of covid hospitality
mydata$percent_covid_hosp <- mydata$covid_hosp / mydata$Population

#create a new variable for the winning party in 2020
mydata$more_votes_2020 <-
ifelse(mydata$trump_votes2020>mydata$biden_votes2020,"Republican","Democrat")

#customize color for Democrat and Republican by using scale_color_manual
G <- ggplot(data=mydata,mapping=aes(x=percent_covid_hosp,y=trump_change, size
= Population)) + geom_point(aes(color=more_votes_2020)) +
scale_color_manual(values = c("#0015BC", "#DE0100")) + geom_smooth(size=1.1,
color="#00a6c7", se=FALSE)

#add labels to the plot
G <- G + labs(title = "Covid Hospitalizations and Change in Votes for Trump,
by County", x="% of Covid Hospitalization", y = "% Change in Votes to Trump",
color="Winning Party in 2020" ) + theme(plot.title =
element_text(face="bold"))

G

## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```



Part 2: There was no clear relationship between covid hospitalizations and the change in number of people who voted.

```
#calculate the % of total vote changes between 2016 and 2020
mydata$vote_change <- (mydata$total_2020 -
mydata$total_2016)/mydata$total_2016*100

#make the plot with x,y axes and two indicators (size: population, color:
changes in votes for Trump)
G2 <- ggplot(data=mydata,mapping=aes(x=percent_covid_hosp,y=vote_change,
color = trump_change, size = Population)) + geom_point() +
geom_smooth(size=1.1, color="#00a6c7", se= FALSE)

#set gradient between two colors to show the % change in Trump's votes
G2 <- G2 + scale_color_gradient(low="#faf0f0", high="#c70000")

#add the label names
G2 <- G2 + labs(title = "Covid Hospitalizations and Turnout, by County", x="%
of Covid Hospitalization", y = "% Change in Votes", color="% that went to
Trump in 2020" ) + theme(plot.title = element_text(face="bold"))

G2
```

```
## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```



Part 3: It's notable that on average countries that didn't experience civil wars have higher GDP per capita than countries that experienced civil wars. GDP per capita in some countries without civil wars was unstable, but most tended to go up. GDP per capita in countries that experienced civil wars was overall increasing slowly over time.

```
df <- read.csv("world_bank.csv")

#create the plot with Time as the X-axis and GDP as the Y-axis. Show the
change in time by grouping the country.
G3 <- ggplot(data=df,mapping=aes(x=Time,y=gdp)) + geom_line(color="gray55",
aes(group=Country.Name)) + geom_smooth(size= 1.1, method ="loess",se=FALSE,
color ="#00a6c7" )

#break into 2 facets, assign label names to civil war values
cw.labs <- c("0" = "Without Civil War", "1" = "With Civil War")
G3 <- G3 + facet_wrap(~civilwar, ncol=2, labeller = labeller(.default =
cw.labs)) + theme(strip.text.x = element_text(size = 12, face = "bold"))

#add the label names
G3 <- G3 + labs(x = "Year", y="GDP per capita (thousand dollar)", title="GDP
per capita on countries with and without Civil War")+ theme(plot.title =
```

```
element_text(face="bold"))
G3
```

```
## `geom_smooth()` using formula 'y ~ x'
```

```
## Warning: Removed 784 rows containing non-finite values (stat_smooth).
```

```
## Warning: Removed 720 row(s) containing missing values (geom_path).
```