RM Assignment 2

Code

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```
library(stargazer)
```

```
Please cite as:

 Hlavac, Marek (2018). stargazer: Well-Formatted Regression and Summary Statistics Ta
bles.
 R package version 5.2.2. https://CRAN.R-project.org/package=stargazer
```

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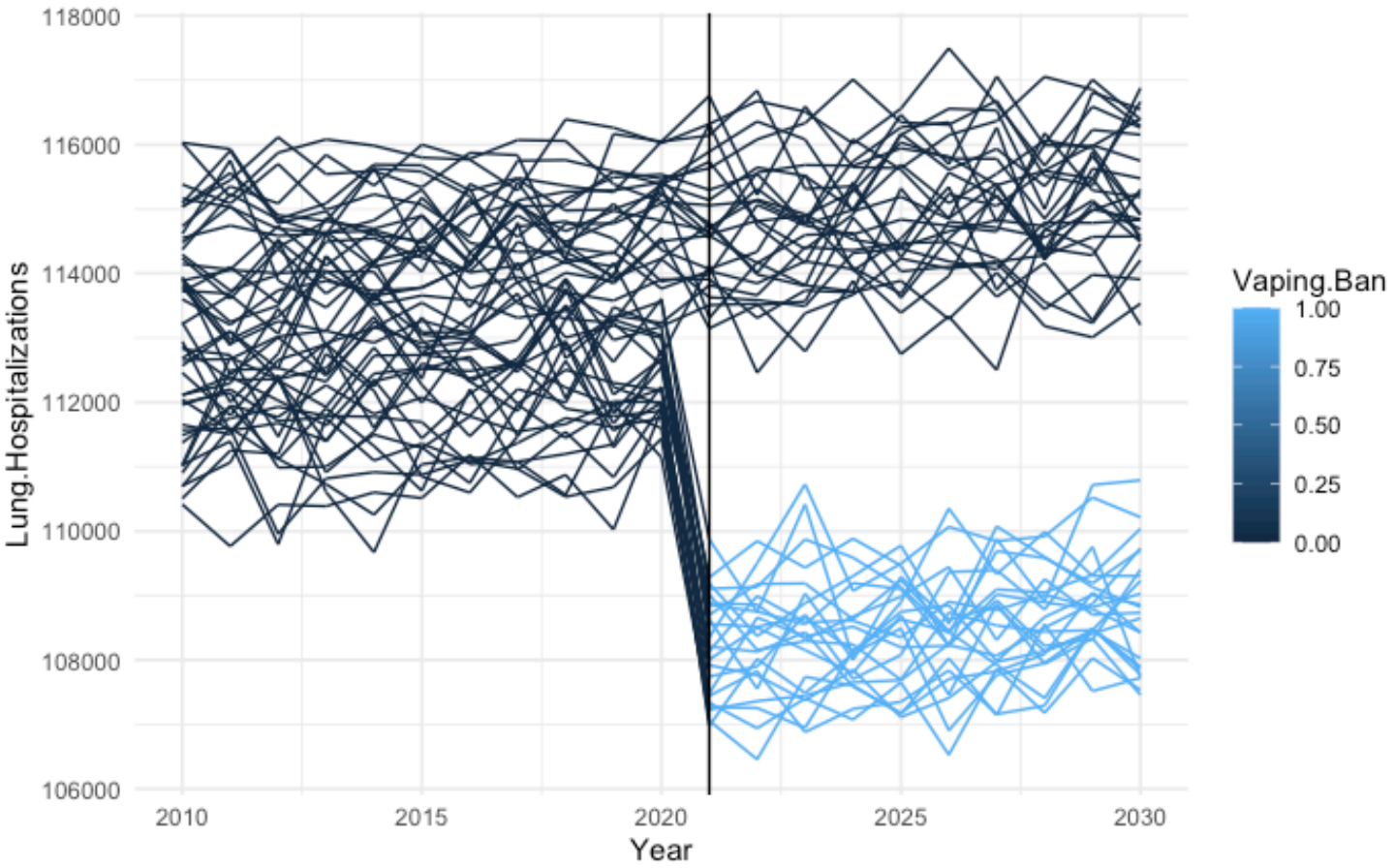
```
#plot in GGplot
ggplot(data,aes(Year,Lung.Hospitalizations,group=State.Id,color=Vaping.Ban))+stat_sum
mary(geom = 'line')+geom_vline(xintercept=2021)+theme_minimal()
```



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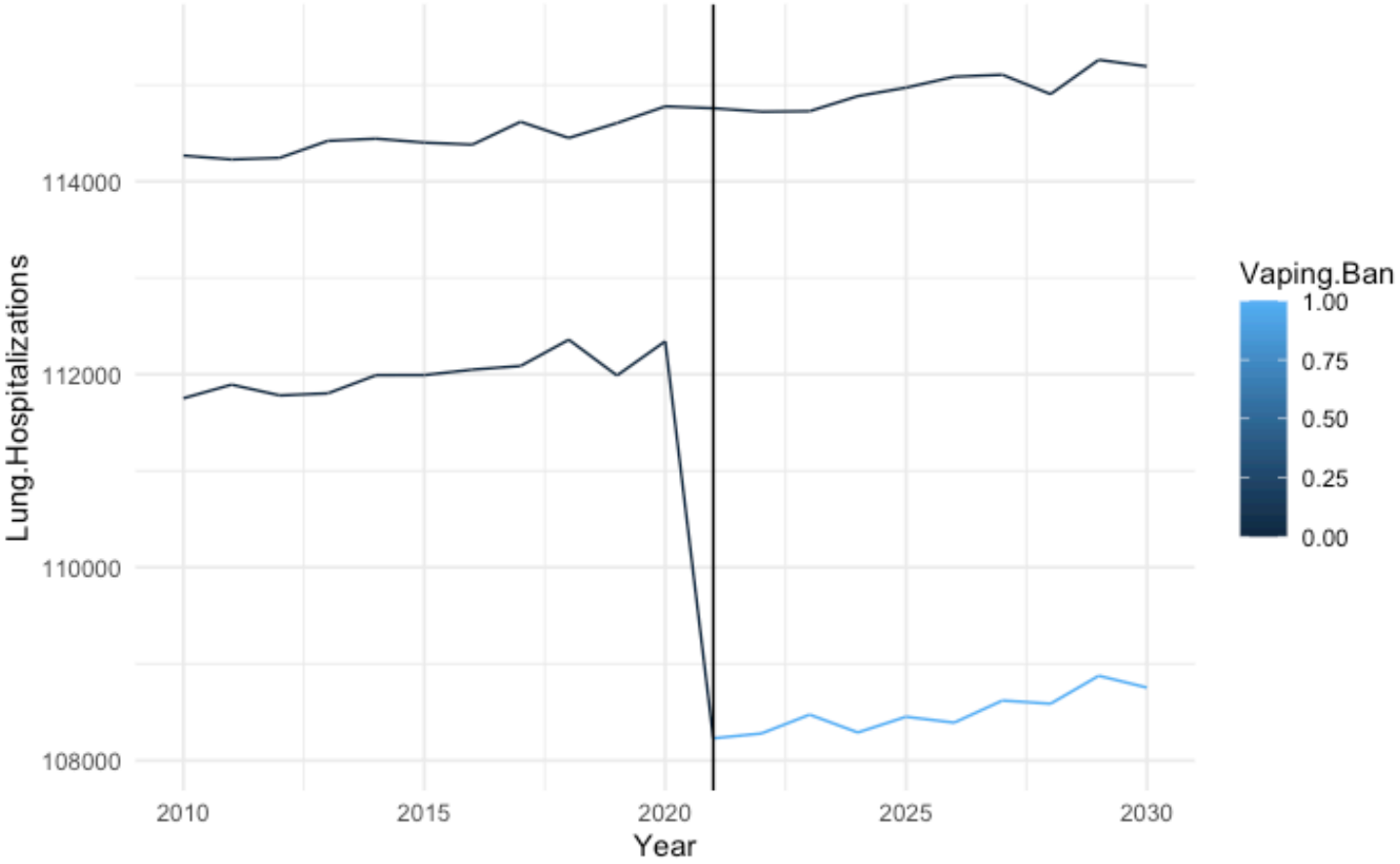
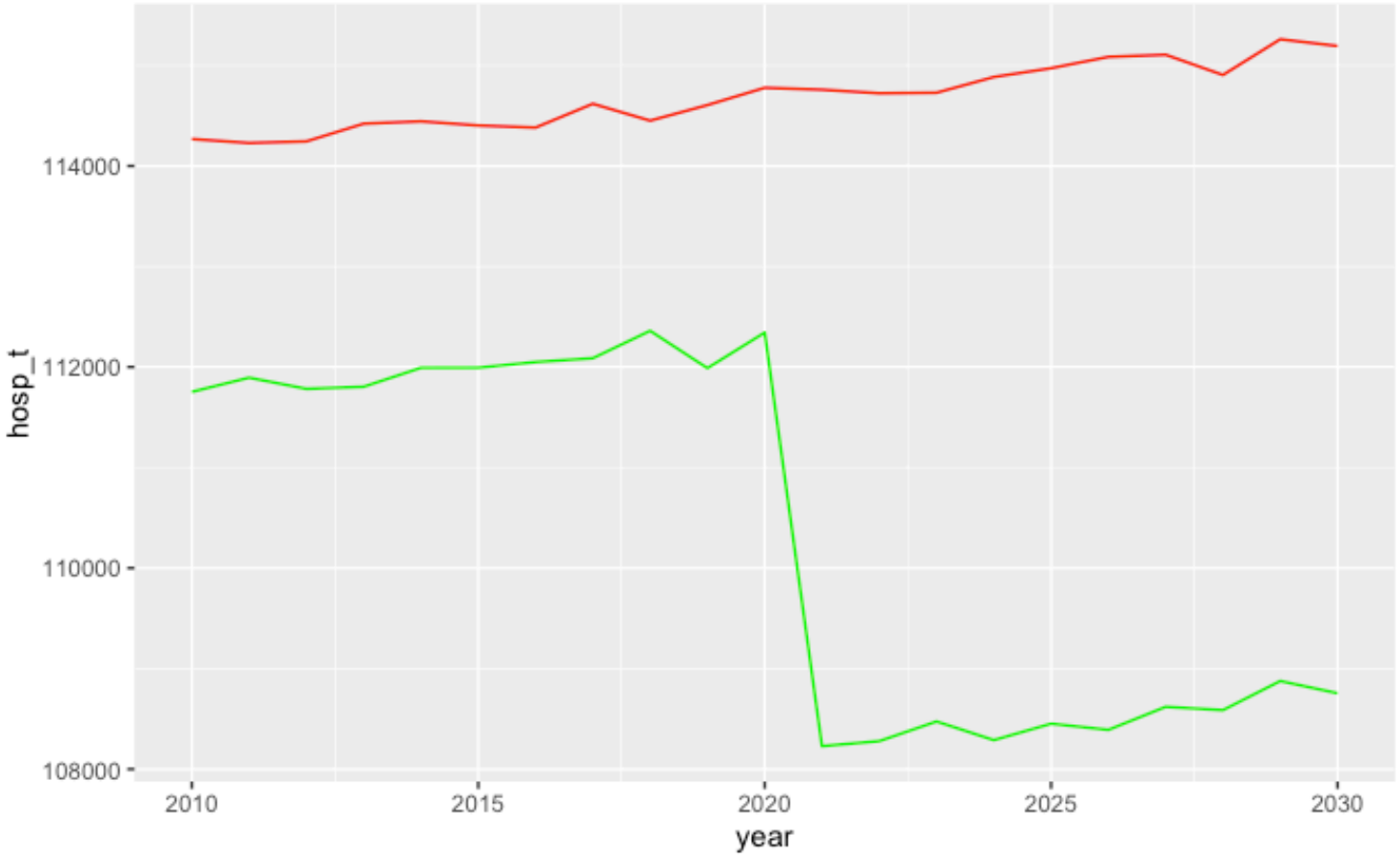
```
data$Group = factor(if_else(data$State.Id<=23,1,0))
ggplot(data,aes(Year,Lung.Hospitalizations,group=Group,color=Vaping.Ban))+stat_summar
y(geom = 'line')+geom_vline(xintercept=2021)+theme_minimal()
```





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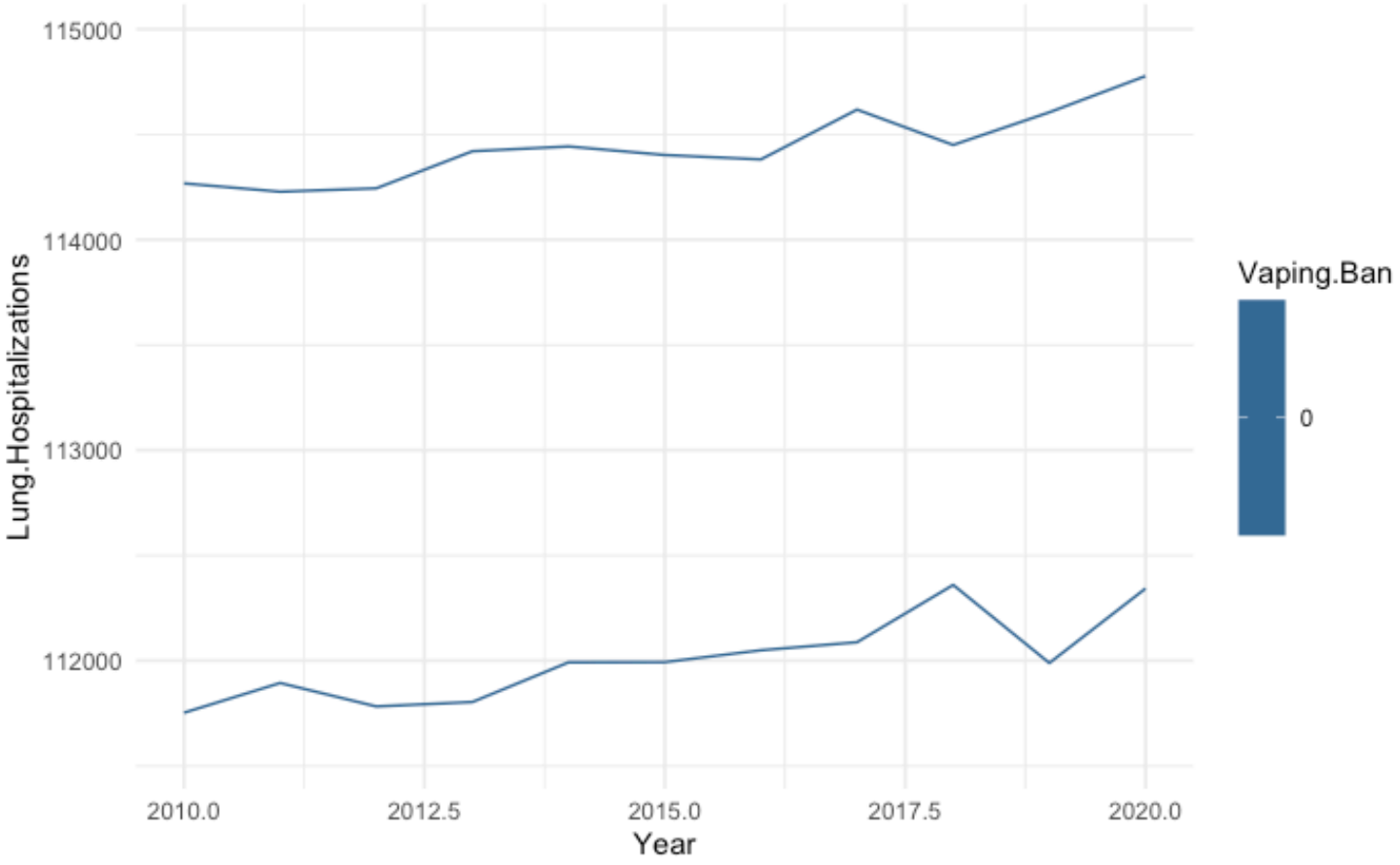
```
#analyze parallel trends

data2=filter(data,data$Year<2021)

ggplot(data2,aes(Year,Lung.Hospitalizations,group=Group,color=Vaping.Ban))+stat_summa
ry(geom = 'line')+theme_minimal()
```



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```
partrends=lm(data=data2,Lung.Hospitalizations ~ Year + Group + Year*Group)
summary(partrends)
```

```
Call:
lm(formula = Lung.Hospitalizations ~ Year + Group + Year * Group,
    data = data2)

Residuals:
     Min       1Q   Median       3Q      Max
-2514.65  -645.27    -9.93   649.51  2680.29

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  22671.360  33011.125   0.687  0.49251
Year            45.543     16.383   2.780  0.00562 **
Group1      -14856.099  48672.248  -0.305  0.76031
Year:Group1      6.164     24.155   0.255  0.79868
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 892.8 on 546 degrees of freedom
Multiple R-squared:  0.6542,    Adjusted R-squared:  0.6523
F-statistic: 344.3 on 3 and 546 DF,  p-value: < 2.2e-16
```

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```
stargazer(partrends, type='text', title= ' Table 1: Parallel Trends Analysis', out="P
arTrends.txt", digits=2, covariate.labels=c("Year","Treatment States", "Treatment Sta
tes by Year Interaction"), dep.var.labels=c("Number of Hospitalizations Per Year"))
```

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Table 1: Parallel Trends Analysis

	Dependent variable:
	Number of Hospitalizations Per Year
Year	45.54***
	(16.38)
Treatment States	-14,856.10
	(48,672.25)
Treatment States by Year Interaction	6.16
	(24.15)
Constant	22,671.36
	(33,011.12)
Observations	550
R2	0.65
Adjusted R2	0.65
Residual Std. Error	892.82 (df = 546)
F Statistic	344.34*** (df = 3; 546)
Note:	*p<0.1; **p<0.05; ***p<0.01

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```
#run DID regression
didreg=lm(data=data, data$Lung.Hospitalizations ~ data$Year*data$Vaping.Ban)
summary(didreg)
```

```
Call:
lm(formula = data$Lung.Hospitalizations ~ data$Year * data$Vaping.Ban,
    data = data)

Residuals:
    Min      1Q  Median      3Q     Max
-3905.1  -838.0    -8.1   928.6  3241.0

Coefficients:
                            Estimate Std. Error t value Pr(>|t|)
(Intercept)                -1.423e+05  1.563e+04  -9.103   <2e-16 ***
data$Year                   1.269e+02  7.743e+00  16.388   <2e-16 ***
data$Vaping.Ban             1.229e+05  6.192e+04   1.984   0.0475 *
data$Year:data$Vaping.Ban -6.375e+01  3.058e+01  -2.085   0.0373 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 1289 on 1046 degrees of freedom
Multiple R-squared:  0.764, Adjusted R-squared:  0.7633
F-statistic:  1129 on 3 and 1046 DF,  p-value: < 2.2e-16
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```
stargazer(didreg, type='text', title= ' Table 2: Difference in Difference Analysis',
out="DID.txt", digits=2, covariate.labels=c("Year","Vaping Ban Treatment", "Differenc
e in Difference Estimator"), dep.var.labels=c("Number of Hospitalizations Per Year"))
```

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Table 2: Difference in Difference Analysis

	Dependent variable:
	Number of Hospitalizations Per Year
Year	126.90***
	(7.74)
Vaping Ban Treatment	122,869.60**
	(61,924.37)
Difference in Difference Estimator	-63.75**
	(30.58)
Constant	-142,277.00***
	(15,629.96)
Observations	1,050
R2	0.76
Adjusted R2	0.76
Residual Std. Error	1,288.62 (df = 1046)
F Statistic	1,128.81*** (df = 3; 1046)
Note:	*p<0.1; **p<0.05; ***p<0.01

There are 2 state level fixed effect (vaping ban and state). The vaping ban results in a significant change in hospitalizations within the states that receive it. States 1-23 are significantly different than states 24-50 (i.e. the states that are to receive the ban are already different than the states that won't receive the ban). Yes, we reject the hypothesis that all state fixed effects are zero