Chapter 6 Question 3

Allen Church

November 6, 2019

library(openxlsx)  
dta <- read.xlsx("Battleground-65-Final-Dataset.xlsx",1)  
#View(dta)

Develop model that addresses relationship between views of civility and views of Trump. Do views about civility affect how democrats vs republicans view president differently?

CIVIL2 = civility DTID = approval of Trump PARTYID = need to convert to dummy variable equals 1 for republicans and 0 for non-republicans control other variables - no more than 2

#Use if else statement to create dummy column - if values in PARTYID are greater than 3, assign 0, else assign 1  
dta$partyid\_dummy <- ifelse(dta$PARTYID>3,0,1)

1. Initial difference of means test with dummy interaction

dta$duminteract <- dta$partyid\_dummy \* dta$CIVIL2  
ols <- lm(dta$DTID ~ dta$CIVIL2 + dta$partyid\_dummy + dta$duminteract)  
summary(ols)

##   
## Call:  
## lm(formula = dta$DTID ~ dta$CIVIL2 + dta$partyid\_dummy + dta$duminteract)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -2.8078 -0.5192 0.1922 0.1922 3.5648   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 4.03826 0.06622 60.982 < 2e-16 \*\*\*  
## dta$CIVIL2 -0.23048 0.03881 -5.939 3.95e-09 \*\*\*  
## dta$partyid\_dummy -2.49107 0.09546 -26.095 < 2e-16 \*\*\*  
## dta$duminteract 0.20248 0.05099 3.971 7.66e-05 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.8616 on 1007 degrees of freedom  
## Multiple R-squared: 0.626, Adjusted R-squared: 0.6249   
## F-statistic: 561.8 on 3 and 1007 DF, p-value: < 2.2e-16

The intercept in the initial model above suggests a mean approval of President Trump of 4.03826 units associated with non-Republicans. The model above indicates a decrease of 2.49107 in DTID units associated with Republicans. The intercept combined with the partyid\_dummy coefficient suggests the mean DTID value of President Trump is approximately 1.54719 units for Republicans. The dummy interaction coefficient suggests that Republicans are associated with a -0.028 decrease in DTID units per a 1 unit increase in civility. Further, the model indicates that the coefficient partyid\_dummy is statistically significant, with a t statistic of 26.095 and a p value of approximately 0, and that our dummy interaction variable is statistically significant with a t statistic of 3.971.

1. Difference of means test while controlling for 1 variable and restricting data to union members.

ols2 <- lm(DTID ~ CIVIL2 + partyid\_dummy + duminteract, data=dta[dta$UNION==1,])  
summary(ols2)

##   
## Call:  
## lm(formula = DTID ~ CIVIL2 + partyid\_dummy + duminteract, data = dta[dta$UNION ==   
## 1, ])  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -2.7365 -0.3856 0.2635 0.2635 2.6144   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 3.77624 0.15561 24.267 <2e-16 \*\*\*  
## CIVIL2 -0.03976 0.08966 -0.443 0.658   
## partyid\_dummy -2.44878 0.23999 -10.204 <2e-16 \*\*\*  
## duminteract 0.09791 0.11925 0.821 0.413   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.8022 on 133 degrees of freedom  
## Multiple R-squared: 0.6678, Adjusted R-squared: 0.6603   
## F-statistic: 89.13 on 3 and 133 DF, p-value: < 2.2e-16

The intercept in the model above suggests a mean approval of President Trump of 3.77624 units associated with non-Republican union members. The model above indicates a decrease of 2.44878 in DTID units associated with Republican union members - with a t statistic of 10.204 indicating statistical significance. The intercept combined with the partyid\_dummy coefficient suggests the mean DTID value of President Trump is approximately 1.32746 units for Republican union members. The dummy interaction coefficient suggests that Republican union members are associated with a 0.05815 increase in DTID units per a 1 unit increase in civility, however a t statistic of 0.821 indicates this coefficient is not statistically significant.

1. Difference of means test while controlling for economic class, and factoring this variable

ols3 <- lm(dta$DTID ~ dta$CIVIL2 + dta$partyid\_dummy + dta$duminteract + factor(dta$ECONCLA2))  
summary(ols3)

##   
## Call:  
## lm(formula = dta$DTID ~ dta$CIVIL2 + dta$partyid\_dummy + dta$duminteract +   
## factor(dta$ECONCLA2))  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -2.8312 -0.4670 0.1688 0.2541 3.5494   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 4.37069 0.11394 38.359 < 2e-16 \*\*\*  
## dta$CIVIL2 -0.23315 0.03884 -6.003 2.71e-09 \*\*\*  
## dta$partyid\_dummy -2.48235 0.09525 -26.060 < 2e-16 \*\*\*  
## dta$duminteract 0.20335 0.05098 3.989 7.11e-05 \*\*\*  
## factor(dta$ECONCLA2)2 -0.39159 0.10411 -3.761 0.000179 \*\*\*  
## factor(dta$ECONCLA2)3 -0.30632 0.11577 -2.646 0.008275 \*\*   
## factor(dta$ECONCLA2)4 -0.31853 0.12605 -2.527 0.011655 \*   
## factor(dta$ECONCLA2)5 -0.60806 0.39582 -1.536 0.124803   
## factor(dta$ECONCLA2)6 -0.26991 0.16143 -1.672 0.094841 .   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.8572 on 1002 degrees of freedom  
## Multiple R-squared: 0.6316, Adjusted R-squared: 0.6286   
## F-statistic: 214.7 on 8 and 1002 DF, p-value: < 2.2e-16

The intercept in the model above suggests a mean approval of President Trump of 4.37069 units associated with non-Republicans in the economic upper class, indicating statistical significance with a t statistic of 38.359. The model above indicates a decrease of 2.48235 in DTID units associated with Republicans in the economic upper class - with a t statistic of 26.060 indicating statistical significance. The intercept combined with the partyid\_dummy coefficient suggests the mean DTID value of President Trump is approximately 1.88834 units for Republicans in the economic upper class. The dummy interaction coefficient suggests that Republicans in the economic upper class are associated with a -0.0298 decrease in DTID units per a 1 unit increase in civility, indicating statistical significance with a t statistic of 3.989. Further, controlling for economic class suggests that being a Democrat in the middle class is associated with 3.9791 increase in DTID units, with a t statistic of 3.761 indicating statistical significance.