

```
#####
#####Minorities overlooked: Group-based power-sharing and the exclusion-amid-inclusion dilemma#####
#####Replication Script#####
#####
```

```
library(plyr)
library(dplyr)
library(rms)
library(stargazer)
library(data.table)
library(matrixStats)
library(ggplot2)
library(ggpubr)
```

```
#####1. Data import#####
```

```
cpsd <- read.csv("****ENTER PATH TO DATA FILE****")
```

```
#####2. Descriptives#####
```

```
###2.1. Table 2: Table of maximum power-sharers###
```

```
table2 <- c| gwid      year      group      other      mminority ps1h_corp ps1h_corp ps1h_lib_g ps1h_lib_n
table2$ps1 table2$ps1h_lib_mo)
table2$ps1 digits = 1)
table2_lag <- table2
table2_lag$year <- table2_lag$year + 1
table2_lag$ps1h_mo_period_lag <- table2_lag$ps1h_mo_period
table2 <- ltable2_lag group      year      ps1h_mo_ by=c("cour group      year))
table2$ps1      -999 table2$ps1h_mo_period_lag)
table2$ps1      -999 table2$ps1h_mo_period)
table2$psc      1 0)
table2$psc      1 table2$pschange)
table2 <- t:group) %>% group      year) %>% mutate(period = cumsum(pschange))#dito
table2$ps1 NA      table2$ps1h_mo_period)
table2$status_no <- as.numeric(paste(table2$status_no))
#min      max for each period
table2 <- t:group      period) %>% group      period) %>% mutate(status_no = median(status_no))
table2 <- t:group      period) %>% group      period) %>% mutate(from = min(year))
table2 <- t:group      period) %>% group      period) %>% mutate(to = max(year))
table2 <- t:group      period) %>% group      period) %>% mutate(max_psh = max(ps1h_mo))
table2 <- t:group      period) %>% group      period) %>% mutate(min_self = min(ps1h_corp_g_strength))
table2$mir digits=2)
table2 <- t:group      period) %>% group      period) %>% mutate(max_self = max(ps1h_corp_g_strength))
table2$ma digits=2)
table2 <- t:group      period) %>% group      period) %>% mutate(min_lib = min(ps1h_lib_g_strength))
table2$mir digits=2)
table2 <- t:group      period) %>% group      period) %>% mutate(max_lib = max(ps1h_lib_g_strength))
```

```

table2$ma.digits=2)
#putting them together
table2$tim.paste(table2$to.sep="") table2$from)
table2$ps.paste(table2$ma.sep="") table2$max.self)
table2$ps.paste(table2$ma.sep="") table2$max.lib)
table2 <- t(table2$col.table2$per.table2$oth.table2$gr)
table2 <- u.group mminority time_peric ps_corp_s ps_lib status_no))
write.csv(t.file="table2.csv")

```

###2.2. Figure 1: Degree of corporate power-sharing of micro-minorities in different institutional regimes###

```

descriptive <- cpsd
#Creating factor variable for the type of institutionalized corporate power-sharing faced by each micro-minority
descriptive "No.accon.NA)
descriptive "Only.accon.descriptive$type_corp)
descriptive "Accommodated.descriptive$type_corp)
descriptive "Accommodated.descriptive$type_corp)
descriptive$type_corp <- as.factor(descriptive$type_corp)
#subset to only micro-minorities and summing up number of micro-minorities in each type
descriptive mminority == 1)
freq_corp.type_corp one))
freq_corp <- freq_corp %>% group_by(mminority) %>% arrange(mminority) %>% mutate(count_total = sum(one))
freq_corp.type_corp.type_corp %>% mutate(freq_type_corp = sum(one) / count_total)
freq_corp <- unique(freq_corp)
#Figure 1: Frequency plot
setwd("*****ENTER PATH TO EXPORT GRAPHS TO*****")
figure1 <- ggplot(aes(x=type_corp, y=freq_type_corp)) +
  geom_bar(stat="identity") +
  scale_x_discrete(labels=c("Accommodated", "Accommodated", "Only accommodation\nof other groups")) +
  theme(axis.text=element_text(family="Times")) +
  labs(x = "", y = "Frequency")
ggsave(file.figure1 width = 13 height = 5 units = "cm" dpi = 800)

```

###2.3. Figure 2: "Mean" status of micro-minorities in different institutional regimes###

```

#formula for statistical summary
min.mean.sd.max <- function(x) {
  r <- c(min, mean(x) - mean(x), mean(x) + max(x))
  names(r) = c("lower", "middle", "upper", "ymax")
  r
}
#subset on i.e. countries that have at least one micro-minority whose political status is coded by EPR (there is no)
descriptive mminority_exist_epr == 1)
descriptive2 <- data.frame(descriptive2)
figure2 <- ggplot(aes(x = factor(descriptive2$type_corp), y = freq_type_corp)) +
  geom_bar(stat="identity") +
  scale_x_discrete(labels=c("Accommodated", "Accommodated", "Only accommodation\nof other groups")) +
  theme(axis.text=element_text(family="Times"))
ggsave(file.figure2 width = 13 height = 5 units = "cm" dpi = 800)

```

#####3. Statistical Analysis#####

\$(again) su i.e. countries that have at least one micro-minority whose political status is coded by EPR (there is n
cpsd_epr < mminority_exist_epr == 1)

###3.1. Preliminaries###

#formula to decrease model size of glm's

```
stripGlmLR = function(cm) {
```

```
  cm$data = c()
```

```
  attr(cm$t.Environment) = c()
```

```
  attr(cm$f.Environment) = c()
```

```
  cm
```

```
}
```

#control variables to be included

```
control_vars <- "mminority + tek_state + geo_conc + ongoing_grp + d10_victory_neg + minoritysum + democrac
```

```
control_va "tek_state "geo_conc "ongoing_ "d10_vict "minoritys "democrac "loggdppc "logpop" "year")
```

###3.2. Models###

##a) Model 1: Country indices##

```
model1 <- country group gwgroupid year ps1h_corp ps1h_lib_n status_no included discriminat
```

```
model1$gwid <- as.factor(paste(model1$gwid))
```

```
model1 <- ]
```

```
dd=datadist(model1)
```

```
options(datadist="dd")
```

```
m1.1 <- lrm(control_va data=model1 x=T y=T tol=1e-9 maxit= 200)
```

```
m1.1 <- rol(model1$gwid)
```

```
cse_m1.1 <- data.frame(sqrt(diag(vcov(m1.1))))
```

```
m1.2 <- str(control_va family = bi data=model1)
```

```
cse_m1.2 <- as.integer( 2)
```

```
m1.3 <- str(control_va family = bi data=model1)
```

```
cse_m1.3 <- as.integer( 2)
```

##b) Mode interactions##

```
m2.1 <- lrm(control_va data=model1 x=T y=T tol=1e-9 maxit= 200)
```

```
m2.1 <- rol(model1$gwid)
```

```
cse_m2.1 <- data.frame(sqrt(diag(vcov(m2.1))))
```

```
m2.2 <- str(control_va family = bi data=model1)
```

```
cse_m2.2 <- as.integer( 2)
```

```
m2.3 <- str(control_va family = bi data=model1)
```

```
cse_m2.3 <- as.integer( 2)
```

##c) Model 3: Group corporate index##

```
model3 <- country group gwgroupid ps1h_corp ps1h_lib_n status_no included discriminat control_va
```

```
model3$gwid <- as.factor(paste(model3$gwid))
```

```
model3 <- ]
```

```
dd=datadist(model3)
```

```

options(datadist="dd")
m3.1 <- lrm(control_va ~ data=model3, x=T, y=T, tol=1e-9, maxit= 200)
m3.1 <- rol(model3$gwid)
cse_m3.1 <- data.frame(sqrt(diag(vcov(m3.1))))
m3.2 <- str(control_va ~ family = bi, data=model3)
cse_m3.2 <- as.integer( 2)
m3.3 <- str(control_va ~ family = bi, data=model3)
cse_m3.3 <- as.integer( 2)

```

##d) Mode interactions##

```

m4.1 <- lrm(control_va ~ data=model3, x=T, y=T, tol=1e-9, maxit= 200)
m4.1 <- rol(model3$gwid)
cse_m4.1 <- data.frame(sqrt(diag(vcov(m4.1))))
m4.2 <- str(control_va ~ family = bi, data=model3)
cse_m4.2 <- as.integer( 2)
m4.3 <- str(control_va ~ family = bi, data=model3)
cse_m4.3 <- as.integer( 2)

```

##e) Mode interaction strength of corporate index of other minorities##

```

model4 <- country ~ group ~ gwgroupid ~ ps1h_corp ~ ps1h_lib_g ~ ps1h_lib_n ~ ps1h_corp ~ ps1h_lib_n ~ status_no
model4$gwid <- as.factor(paste(model4$gwid))
model4 <- ]
dd=datadist(model4)
options(datadist="dd")
m5.1 <- lrm(control_va ~ data=model4, x=T, y=T, tol=1e-9, maxit= 200)
m5.1 <- rol(model4$gwid)
cse_m5.1 <- data.frame(sqrt(diag(vcov(m5.1))))
m5.2 <- str(control_va ~ family = bi, data=model4)
cse_m5.2 <- as.integer( 2)
m5.3 <- str(control_va ~ family = bi, data=model4)
cse_m5.3 <- as.integer( 2)

```

##f) Model interaction strength of corporate index of other minorities (interaction)##

```

m6.1 <- lrm(control_va ~ data=model4, x=T, y=T, tol=1e-9, maxit= 200)
m6.1 <- rol(model4$gwid)
cse_m6.1 <- data.frame(sqrt(diag(vcov(m6.1))))
m6.2 <- str(control_va ~ family = bi, data=model4)
cse_m6.2 <- as.integer( 2)
m6.3 <- str(control_va ~ family = bi, data=model4)
cse_m6.3 <- as.integer( 2)

```

##g) Mode interaction group libe strength o strength of liberal index of other minorities##

```

m7.1 <- lrm(control_va ~ data=model4, x=T, y=T, tol=1e-9, maxit= 200)
m7.1 <- rol(model4$gwid)
cse_m7.1 <- data.frame(sqrt(diag(vcov(m7.1))))
m7.2 <- str(control_va ~ family = bi, data=model4)
cse_m7.2 <- as.integer( 2)

```

```
m7.3 <- str control_va family = bi data=model4))
cse_m7.3 <- as.integer( 2])
```

###3.3. Export of models for the paper###

#main models

```
stargazer(t m1.1      m2.1      m3.1      m4.1      m5.1      m6.1      se=c(cse_1 cse_m2.1 cse_m3.1
```

#main models: included (appendix 4)

```
stargazer(t m1.2      m2.2      m3.2      m4.2      m5.2      m6.2      se=c(cse_1 cse_m2.2 cse_m3.2
```

#main models: discriminated (appendix 4)

```
stargazer(t m1.3      m2.3      m3.3      m4.3      m5.3      m6.3      se=c(cse_1 cse_m2.3 cse_m3.3
```

#further models: splitting of average liberal PS index (appendix 4)

```
stargazer(t m7.1      m7.2      m7.3      se=c(cse_1 cse_m7.2 cse_m7.3) title="The column.lal "Included'
```

###3.4. odds ratio###

```
exp(coef(m5.1))#odds ratio; ps1h_corp_g: 271.3467; ps1h_corp_g * mm: 0.06322925; liberal: 5.594386; corp_c
```

###3.5. Graphical test of parallel odds assumption (model 5.1)###

#cf <https://stats.idre.ucla.edu/r/dae/ordinal-logistic-regression/>

```
library(Hmisc)
```

```
sf <- function(y) {
```

```
  c('Y>=0' = qlogis(mean(y >= 0))
```

```
    'Y>=1' = qlogis(mean(y >= 1))
```

```
    'Y>=2' = qlogis(mean(y >= 2))
```

```
    'Y>=3' = qlogis(mean(y >= 3)))
```

```
}
```

```
(s <- with(r summary( fun=sf)))# including gwid
```

```
(s_small <- summary( fun=sf))#everything except FE's
```

```
png(file="f width=400 height=140 units="px" res=300)
```

```
op <- par(mfrow=c(2, 2) + 0.1)
```

```
p <- plot(s_which=1:4 pch=1:3 xlab='logit main=' ' xlim=c(-5, 2.730029))
```

```
p
```

```
dev.off()
```

```
png(file="f width=400 height=400 units="px" res=300)
```

```
op <- par(mfrow=c(2, 2) + 0.1)
```

```
p <- plot(s_which=1:4 pch=1:3 xlab='logit main=' ' xlim=c(-5, 2.730029))
```

```
p
```

```
dev.off()
```

###3.6. Predicted probabilities###

##obtaining the input independent variable values for the predictions##

```
prediction_gwid      group      year      "geo_conc" "d10_victr" "tek_state" "minority" ongoing_g loggdppc
```

```
prediction_year) %>% year) %>% na.rm=T))#PS institutions targeting each group within a given country year on
```

```
prediction_year) %>% year) %>% na.rm=T))#PS institutions targeting each group within a given country year on
```

```
prediction_year) %>% year) %>% na.rm=T))#PS institutions targeting each group within a given country year on
```

```
prediction_gwid      year      "geo_conc" "d10_victr" "tek_state" "minority" ongoing_g loggdppc logpop
```

##predicting the effect of corporate power-sharing

```

Belgium <- ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
Switzerland ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
South_Afri ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
Bosnia <- P ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
Kosovo <- I ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
Macedonia ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
Nepal <- Pr ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
Lebanon <- ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
Nigeria <- I ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
Malaysia < ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
prediction: "Switzerla "Bosnia" = "Kosovo": "Macedon "Lebanon" "Malaysia" "Nepal" = "South Afr "Nigeria" =

```

##predicting the effect of corporate power-sharing

```

Belgium2 < ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
Switzerland ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
South_Afri ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
Bosnia2 <- ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
Kosovo2 <- ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
Macedonia ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
Nepal2 <- I ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
Lebanon2 <- ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
Nigeria2 <- ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
Malaysia2 ps1h_corç      1 by=0.0050 mminority 1)      ps1h_corç ps1h_lib_ı geo_conc tek_state :
prediction: "Switzerla "Bosnia" = "Kosovo": "Macedon "Lebanon" "Malaysia" "Nepal" = "South Afr "Nigeria" =

```

##predicting the effect of liberal power-sharing##

```

Belgium3 < ps1h_lib_ı      1 by=0.0050 mminority 1)      ps1h_corç ps1h_corç geo_conc tek_state :
Switzerland ps1h_lib_ı      1 by=0.0050 mminority 1)      ps1h_corç ps1h_corç geo_conc tek_state :
South_Afri ps1h_lib_ı      1 by=0.0050 mminority 1)      ps1h_corç ps1h_corç geo_conc tek_state :
Bosnia3 <- ps1h_lib_ı      1 by=0.0050 mminority 1)      ps1h_corç ps1h_corç geo_conc tek_state :
Kosovo3 <- ps1h_lib_ı      1 by=0.0050 mminority 1)      ps1h_corç ps1h_corç geo_conc tek_state :
Macedonia ps1h_lib_ı      1 by=0.0050 mminority 1)      ps1h_corç ps1h_corç geo_conc tek_state :
Nepal3 <- I ps1h_lib_ı      1 by=0.0050 mminority 1)      ps1h_corç ps1h_corç geo_conc tek_state :
Lebanon3 <- ps1h_lib_ı      1 by=0.0050 mminority 1)      ps1h_corç ps1h_corç geo_conc tek_state :
Nigeria3 <- ps1h_lib_ı      1 by=0.0050 mminority 1)      ps1h_corç ps1h_corç geo_conc tek_state :
Malaysia3 ps1h_lib_ı      1 by=0.0050 mminority 1)      ps1h_corç ps1h_corç geo_conc tek_state :
prediction: "Switzerla "Bosnia" = "Kosovo": "Macedon "Lebanon" "Malaysia" "Nepal" = "South Afr "Nigeria" =

```

##figure 3a: corporate power-sharing (no corporate provisions for other groups)

```

figure3a <- ylab = "De xlab = "Str legend.lab 1)) +
  theme(leg axis.text = legend.tex plot.title = text=elem size = 8))

```

##figure 3b: corporate power-sharing (full corporate provisions for other groups)

```

figure3b <- ylab = "De xlab = "Str legend.lab 1)) +
  theme(leg axis.text = legend.tex plot.title = text=elem size = 8))

```

##figure 3c: liberal power-sharing (no corporate provisions for other groups)

```
figure3c <- ylab = "De xlab = "Str legend.lab 1)) +
  theme(legend.position = "right", legend.title = text="elem size = 8))
```

```
##arranging them in one figure
```

```
library(gridExtra)
```

```
library(grid)
```

```
grid_arrange(ncol = length(nrow = 1 position = "right")) {
```

```
  plots <- list(...)
```

```
  position <- match.arg(position)
```

```
  g <- ggplotGrob(plots[[1]] +
```

```
    theme(legend.position = position))$grobs
```

```
  legend <- function(x) x$name == "guide-box"]])
```

```
  lheight <- sum(legend$height)
```

```
  lwidth <- sum(legend$width)
```

```
  gl <- lapply(function(x) x +
```

```
    theme(legend.position = "none"))
```

```
  gl <- c(gl ncol = ncol nrow = nrow)
```

```
combined <- switch(position
```

```
  gl)
```

```
  ncol = 1
```

```
  "npc") - lh lheight))
```

```
  gl)
```

```
  ncol = 2
```

```
  "npc") - lw lwidth)))
```

```
grid.newpage()
```

```
grid.draw(combined)
```

```
# return gtable invisibly
```

```
invisible(combined)
```

```
}#function to arrange plots
```

```
figure3 <- {figure3b figure3c ncol=1 nrow=3)
```

```
ggsave(file figure3 width = 20 height = 1. units = "cm" dpi = 800)
```

#####

#####

#####

status_no)]

,

e))

o reliable data on the de-facto status of the added "other" groups)

) + ylab("'Mean' power status") +

o reliable data on the de-facto status of the added "other" groups)

cy + loggdppc + logpop + year"# + log(gdppc) + log(pop)

control_vars_inc)]

irs_inc)]

included discriminat control_vars_inc)]

```

cse_m4.1 cse_m5.1 cse_m6.1) title="Tabl column.lal "Power St "Power St "Power St "Power St "Power St
cse_m4.2 cse_m5.2 cse_m6.2) title="The column.lal "Included' "Included' "Included' "Included' "Included'
cse_m4.3 cse_m5.3 cse_m6.3) title="The column.lal "Discrimin "Discrimin "Discrimin "Discrimin "Discrimin
"Discrimin omit=c("gv dep.var.la add.lines= Yes Yes Yes)) style = "ajl notes.app notes.alig

```

```

others: 0.1274203;

```

```

logpop democracy year==2013))
average
average
average
democracy)))

```



```

omit=c("gv dep.var.la add.lines= Yes      Yes      Yes      Yes      Yes))      style = "ajl notes.app
omit=c("gv dep.var.la add.lines= Yes      Yes      Yes      Yes      Yes))      style = "ajl notes.app
omit=c("gv dep.var.la add.lines= Yes      Yes      Yes      Yes      Yes))      style = "ajl notes.app

notes = "Country-clustered errors in parentheses")

```


notes.align notes = "Country-clustered errors in parentheses")

notes.align notes = "Country-clustered errors in parentheses")

notes.align notes = "Country-clustered errors in parentheses")