Replication

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Figure 1

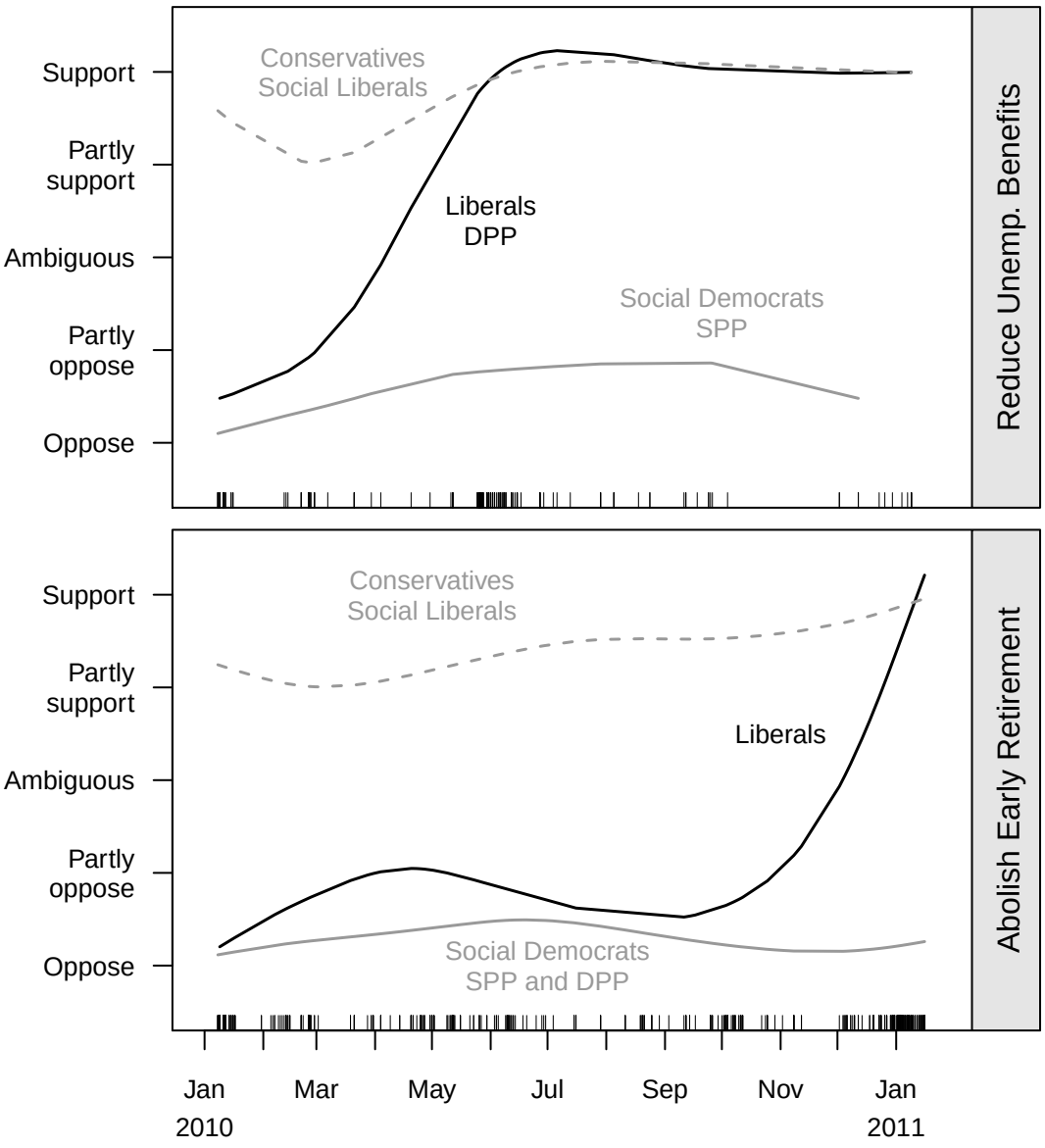


Figure 2

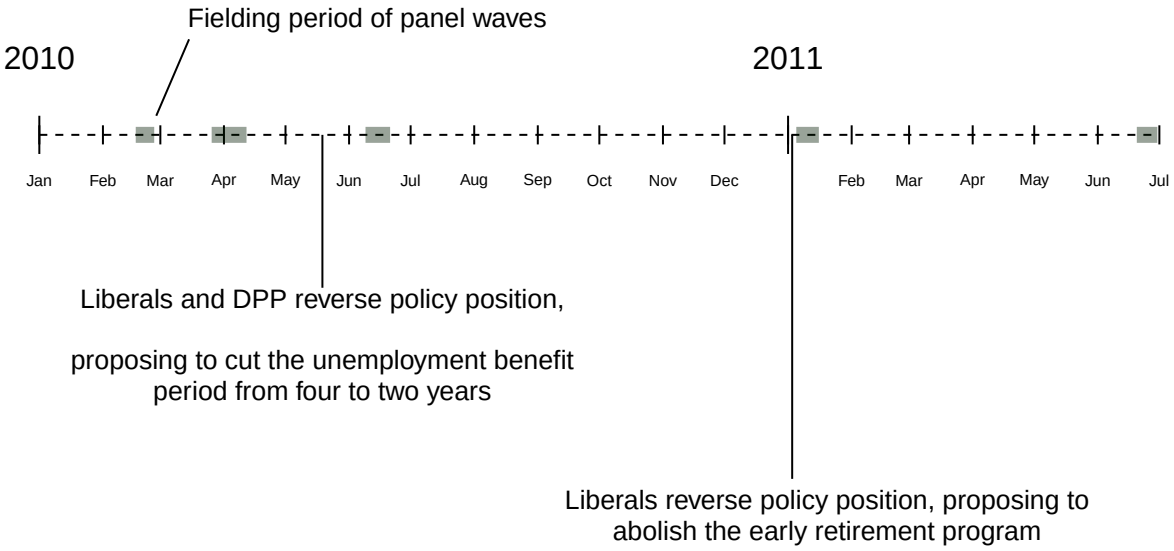


Figure 3

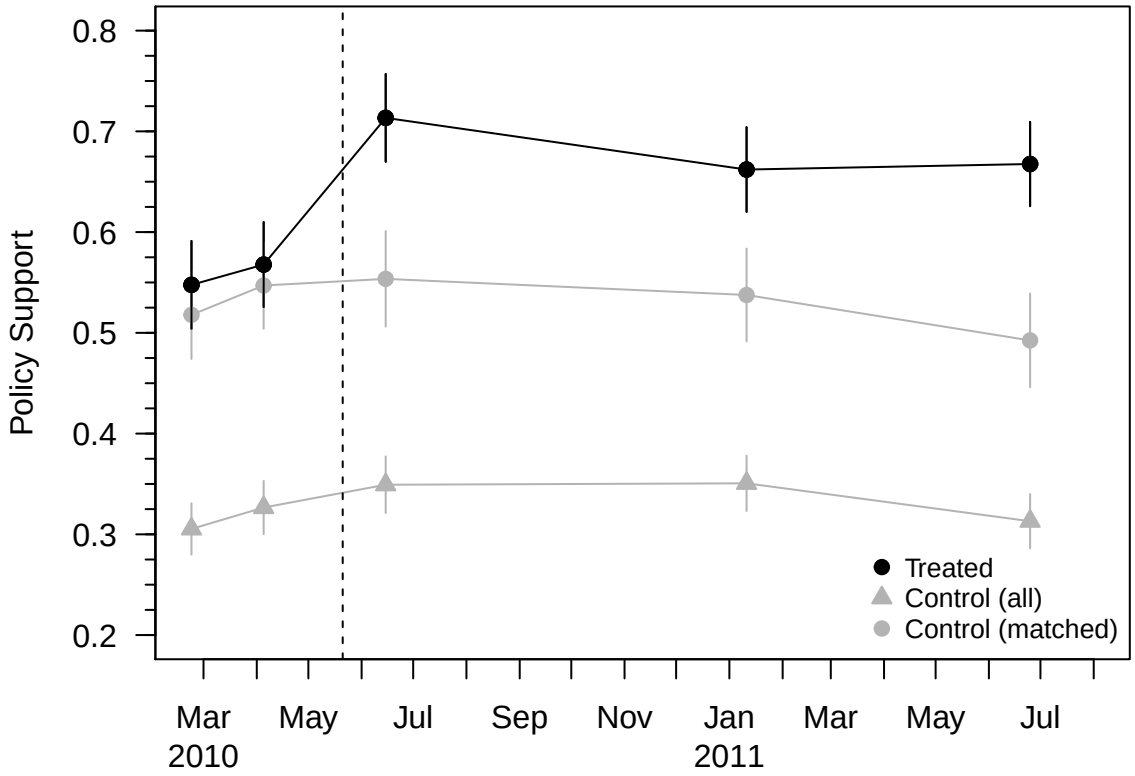


Table 1

% Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu
% Date and time: Wed, Nov 04, 2020 - 16:57:42

Table 1:

	.1	.2	.3	.4
DiD	0.12	0.11	0.14	0.12
	(0.02)	(0.02)	(0.03)	(0.03)
Units	991	985	539	539
Observations	1982	1941	1078	1067

Figure 4

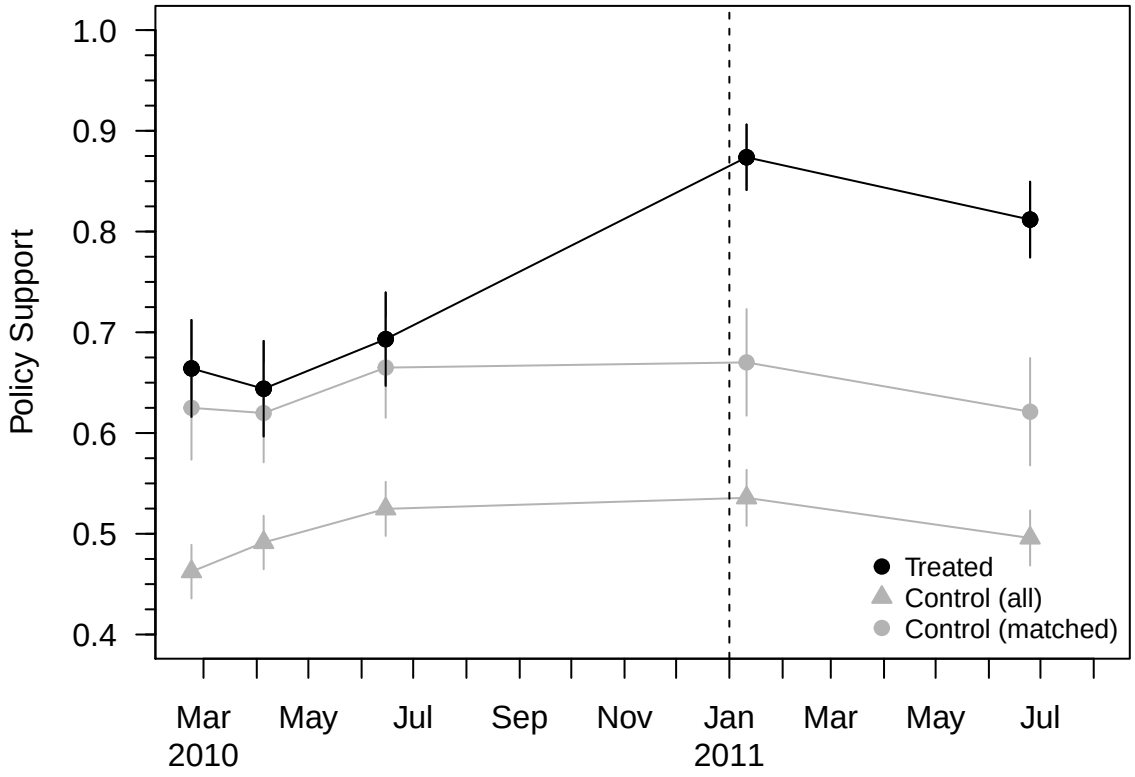


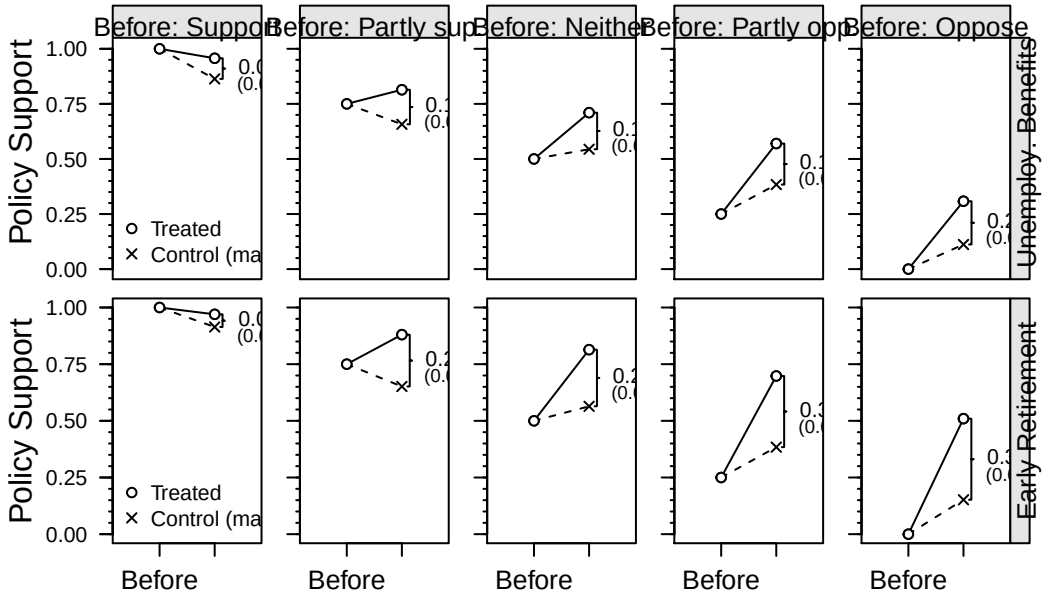
Table 2

% Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu
% Date and time: Wed, Nov 04, 2020 - 16:57:43

Table 2:

	.1	.2	.3	.4
DiD	0.17	0.19	0.18	0.18
	(0.02)	(0.02)	(0.03)	(0.03)
Units	976	975	392	391
Observations	1952	1933	784	778

Figure 5



Notes

We ran into obstacles with our backup paper being written in Stata, so our team has chosen to replicate How Political Parties Shape Public Opinion in the Real World. We have replicated all the main figure and tables in the main paper: Figures 1 through 5, along with Tables 1 and 2. Our replication paper will focus on expanding the difference-in-differences model displayed by Table 1 and Table 2. These tables demonstrate how Liberal identifiers altered their support for cutting the unemployment benefit period in half (Table 1) and abolishing early retirement (Table 2) after their affiliated party altered its position. These tables will be useful in our extension, in which we plan to control for other variables beyond prior partisan identification such as voter age. By including a new variable, this analysis can investigate a potential correlation between voter age and a political party's influence on altering public opinions. Figures 1 through 4 show the change in policy support and opposition during when the party's platform changed and Figure 1 is grouped by the shifts in each party. These will be useful for us in our extension by grouping the respondents by age and investigating the difference in policy support by age. The last figure (Figure 5) shows the average change in support split among the treated (group that identifies with a party that will change its platform) and control (group that identifies with a party that will not change its platform). Our extension will focus on investigating if age and other personal variables are also important in influencing the shift in public opinion outside of political parties.

Code

```
knitr::opts_chunk$set(echo = FALSE)

########################################
# HOW POLITICAL PARTIES SHAPE PUBLIC OPINION IN THE REAL WORLD
# AUTHORS: Martin Bisgaard & Rune Slothuus
# VERSION: SEPTEMBER 2020
# THIS SCRIPT: REPRODUCES ANALYSES IN MAIN ARTICLE
########################################

rm(list=ls())

#Set user specific directory
#setwd("/mydirectory")

#Sys.setenv(LANGUAGE="en")
#Sys.setlocale("LC_TIME", "English")


#installing required packages
#install.packages("rio")
#install.packages("foreign")
#install.packages("car")
#install.packages("plyr")
#install.packages("plm")
#install.packages("lme4")
#install.packages("lmtest")
#install.packages("stargazer")
#install.packages("xtable")
#install.packages("psych")
#install.packages("grDevices")
#install.packages("plyr")
#install.packages("reshape2")
#install.packages("pBrackets")
#install.packages("MatchIt")
#install.packages("sandwich")


#loading required packages
require(rio)
require(foreign)
require(car)
require(plyr)
require(plm)
require(lme4)
require(lmtest)
require(stargazer)
require(xtable)
require(psych)
require(grDevices)
require(plyr)
require(reshape2)
require(pBrackets)
```

```
require(MatchIt)
require(sandwich)


#load panel data
dat.balance<-read.dta("paneldata_long.dta",convert.factors=TRUE)
paneldat<-read.dta("paneldata_wide.dta",convert.factors=TRUE)
dat.balance$partyAll<-recode(dat.balance$partyAll,'"NA"=NA')
#fixing NA value on party variable

##loaded dataset is unbalanced. Store it as separate object to load it easily
##for future use.
dat<-dat.balance

################################
# ANALYSIS OF PARTY POSITIONS #
################################

#load data
mediadata   <-  import('partypositions.sav')
# dim(mediadata)

#how many articles? (number reported in footnote)
# length(unique(mediadata$ID))

#how many coded parti positions? (number reported in footnote)
# sum(table(unlist(mediadata[,22:28])))

#break up data file into each issue
retiredata <- mediadata[mediadata$issue==2,]
unempdata <- mediadata[mediadata$issue==1,]
# dim(retiredata)
# names(retiredata)
# dim(unempdata)
# names(unempdata)


#### ISSUE: UNEMPLOYMENT BENEFIT PERIOD

#Position of PM party + DPP
Vpos <- data.frame("tid"=unempdata$tid,"pos"=unempdata$posVny,"party"="V")
DPPpos<- data.frame("tid"=unempdata$tid,"pos"=unempdata$posDFny,"party"="DF")
treatment<-rbind(Vpos,DPPpos)

#CENTER-LEFT
SFpos <- data.frame("tid"=unempdata$tid,"pos"=unempdata$posSny,"party"="S")
Spos <- data.frame("tid"=unempdata$tid,"pos"=unempdata$posSFny,"party"="SF")
ELpos <- data.frame("tid"=unempdata$tid,"pos"=unempdata$posELny,"party"="EL")
centerLeft<-rbind(SFpos,Spos)

#CENTER-RIGHT
RVpos <- data.frame("tid"=unempdata$tid,"pos"=unempdata$posRVny,"party"="RV")
Kpos <- data.frame("tid"=unempdata$tid,"pos"=unempdata$posKny,"party"="K")
centerRight<-rbind(RVpos,Kpos)
```

```
#clean and convert date variable
treatment$date <- as.Date(as.character(treatment$tid),"%Y%m%d")
centerLeft$date <- as.Date(as.character(centerLeft$tid),"%Y%m%d")
centerRight$date <- as.Date(as.character(centerRight$tid),"%Y%m%d")

#remove '0' from vector (0 = position is not present in article)
treatment$pos[treatment$pos==0]<-NA
centerLeft$pos[centerLeft$pos==0]<-NA
centerRight$pos[centerRight$pos==0]<-NA

#drop NA cases
treatment   <-  na.omit(treatment)
centerLeft  <-  na.omit(centerLeft)
centerRight <-  na.omit(centerRight)
# dim(treatment)
# dim(centerLeft)
# dim(centerRight)


###
# REPRODUCING FIGURE 1
###

#pdf("benefitsCue.pdf",width=6,height=4)

cols1=rgb(.1,.1,1,alpha=.175)
cols2=rgb(1,.1,.1,alpha=.175)
cols3=rgb(0,.1,0,alpha=.1)

par(omd=c(.1,1,0,1))
plot(treatment$date,jitter(treatment$pos),col="white",yaxt='n',ylab="",xlab="",
     ylim=c(.5,5.5),xlim=c(as.Date("2010-01-01"),
                           as.Date("2011-03-01")),xaxt='n')
axis(2,at=1:5,las=2,labels=c("Oppose","Partly\noppose","Ambiguous",
                             "Partly\nsupport","Support"),cex.axis=.8)
m<-smooth.spline(treatment$pos~treatment$date,spar=1)
lines(m,lwd=1.5)
m<-smooth.spline(centerLeft$pos~centerLeft$date,spar=1)
lines(m,lwd=1.5,col="grey60")
m<-smooth.spline(centerRight$pos~centerRight$date,spar=1)
lines(m,lwd=1.5,lty=2,col="grey60")
text(x=as.Date("2010-06-01"),y=3.4,label="Liberals\nDPP",cex=.8)
text(x=as.Date("2010-10-01"),y=2.4,label="Social Democrats\nSPP",cex=.8,
     col="grey60")
text(x=as.Date("2010-03-15"),y=5,label="Conservatives\nSocial Liberals",cex=.8,col="grey60")
rng<-par("usr")
rect(15015,rng[3],rng[2],rng[4],col="grey90")
mtext(4,line=-1.35,text="Reduce Unemp. Benefits")

    dens<-c(centerRight$date,centerLeft$date,treatment$date)
    rug(dens)
```

```
#dev.off()


##########
# PARTY POSITIONS ON OTHER ISSUE: ABOLISHING EARLY RETIREMENT


#Position of PM party (liberals)
treatment <- data.frame("tid"=retiredata$tid,"pos"=retiredata$posVny,"party"="V")

#Position of CENTER LEFT opposition + DPP
SFpos <- data.frame("tid"=retiredata$tid,"pos"=retiredata$posSny,"party"="S")
Spos <- data.frame("tid"=retiredata$tid,"pos"=retiredata$posSFny,"party"="SF")
DPPpos <- data.frame("tid"=retiredata$tid,"pos"=retiredata$posDFny,"party"="DF")
centerLeft<-rbind(SFpos,Spos,DPPpos)

#Position of CENTER RIGHT
RVpos <- data.frame("tid"=retiredata$tid,"pos"=retiredata$posRVny,"party"="RV")
Kpos <- data.frame("tid"=retiredata$tid,"pos"=retiredata$posKny,"party"="K")
centerRight<-rbind(RVpos,Kpos)



#clean and convert date variable
centerLeft$date <- as.Date(as.character(centerLeft$tid),"%Y%m%d")
centerRight$date <- as.Date(as.character(centerRight$tid),"%Y%m%d")
treatment$date<-as.Date(as.character(treatment$tid),"%Y%m%d")

#remove missing data
treatment<-na.omit(treatment)
centerLeft  <-  na.omit(centerLeft)
centerRight <-  na.omit(centerRight)

#remove 0's
centerLeft$pos[centerLeft$pos==0]<-NA
centerRight$pos[centerRight$pos==0]<-NA
treatment$pos[treatment$pos==0]<-NA

cols3=rgb(0,.1,0,alpha=.1)

#pdf("retireCue.pdf",width=6,height=4)
    cols1=rgb(.1,.1,1,alpha=.175)
    cols2=rgb(1,.1,.1,alpha=.175)
    par(omd=c(.1,1,0,1))
    plot(treatment$date,jitter(treatment$pos),col="white",yaxt='n',ylab="",
         xlab="",ylim=c(.5,5.5),xlim=c(as.Date("2010-01-01"),
                                       as.Date("2011-03-01")),xaxt='n')
    axis(2,at=1:5,las=2,labels=c("Oppose","Partly\noppose","Ambiguous",
                                 "Partly\nsupport","Support"),cex.axis=.8)
    axis.Date(1,at=seq(as.Date("2010-01-01"),as.Date("2011-01-01"), by="month"), format="%b",las=1,cex.a
    axis.Date(1,at=c(as.Date("2010-01-01"),as.Date("2011-01-01")), format="%Y",las=1,line=1,tick="FALSE
    m<-smooth.spline(treatment$pos~treatment$date,spar=1)
    lines(m,lwd=1.5)
    m<-smooth.spline(centerLeft$pos~centerLeft$date,spar=1)
```

```
    lines(m,lwd=1.5,col="grey60")
    m<-smooth.spline(centerRight$pos~centerRight$date,spar=1)
    lines(m,lwd=1.5,col="grey60",lty=2)

    rng<-par("usr")
    rect(15015,rng[3],rng[2],rng[4],col="grey90")
    mtext(4,line=-1.35,text="Abolish Early Retirement")
    text(x=as.Date("2010-11-01"),y=3.5,label="Liberals",cex=.8)
    text(x=as.Date("2010-07-01"),y=1,label="Social Democrats\nSPP and DPP",cex=.8,col="grey60")
    text(x=as.Date("2010-5-01"),y=5,label="Conservatives\nSocial Liberals",cex=.8,col="grey60")

    dens<-c(centerRight$date,centerLeft$date,treatment$date)
    rug(dens)

#dev.off()


########################
# Reproducing Figure 2 #
########################

#pdf("timeline.pdf",height=2,width=6)

par(mai=c(.1,.1,.1,.1),omd=c(0,1,0,1),mfrow=c(1,1),lend=1)
period<-seq(as.Date("2010-01-01"),as.Date("2011-07-01"), by="month")
plot(0,axes=FALSE,ann=FALSE,xlim=c(as.Date("2010-01-01"),as.Date("2011-07-01")))
lines(c(as.Date("2010-01-01"),as.Date("2011-07-01")),c(.5,.5),lty=2)
lines(c(as.Date("2010-01-01"),as.Date("2010-01-01")),c(.55,.45))
lines(c(as.Date("2011-01-01"),as.Date("2011-01-01")),c(.55,.45))
text(as.Date("2010-01-01"),.7,"2010")
text(as.Date("2011-01-01"),.7,"2011")

for (i in 1:length(period)) lines(rep(period[i],2),c(.525,.475))
mn<-format(period,'%b')
mn[13]<-NA
text(x=period,y=rep(.38,length(period)),mn,cex=.5)

t=8
tc=rgb(0,.1,0,alpha=.4)
lines(c(as.Date("2010-02-17"),as.Date("2010-02-26")),c(.5,.5),lwd=t,col=tc)
lines(c(as.Date("2010-03-26"),as.Date("2010-04-12")),c(.5,.5),lwd=t,col=tc)
lines(c(as.Date("2010-06-09"),as.Date("2010-06-21")),c(.5,.5),lwd=t,col=tc)
lines(c(as.Date("2011-01-05"),as.Date("2011-01-16")),c(.5,.5),lwd=t,col=tc)
lines(c(as.Date("2011-06-20"),as.Date("2011-06-30")),c(.5,.5),lwd=t,col=tc)
lines(c(as.Date("2010-05-19"),as.Date("2010-05-19")),c(.5,.1),lty=1)
text(as.Date("2010-05-19"),.1,"Liberals and DPP reverse policy position,
     \nproposing to cut the unemployment benefit\nperiod from four to two years",pos=1,cex=.8,xpd=T)
lines(c(as.Date("2011-01-03"),as.Date("2011-01-03")),c(.5,-.4),lty=1)
text(as.Date("2011-01-20"),-.4,"Liberals reverse policy position, proposing to\nabolish the early retir
text(as.Date("2010-03-05"),.8,"Fielding period of panel waves",cex=.8,pos=4)
segments(as.Date("2010-02-27"),0.55,as.Date("2010-03-15"),.75)

#dev.off()
```

```
#############################################################################
# Response rates reported in section "Panel Survey Data and Measures" #
#############################################################################

#the calculated response rate (55%) reported in text was obtained from the
#polling Company, Epinion.

#re-contact acceptance rate (reported in text)
# prop.table(table(paneldat$recontact))[1]

#calculation of completion rate (reported in text)
# prop.table(table(paneldat$completion))[2]


#####################################################################
# Descriptives on measures reported in Data and Design section #
#####################################################################

#how many partisans identify with a party that changes position?
# table(dat$partyAll[dat$completion==1]%in%c("V"))/5    #ID with liberals
# prop.table(table(dat$partyAll[dat$completion==1]%in%c("V"))) #percent

# table(dat$partyAll[dat$completion==1]%in%c("DF"))/5   #ID with DPP
# prop.table(table(dat$partyAll[dat$completion==1]%in%c("DF"))) #percent

#distribution on DVs (for whole sample)
# mean(dat.balance$benefitClean,na.rm=T)
# sd(dat.balance$benefitClean,na.rm=T)
# table(dat$benefit)[6]/sum(table(dat$benefit))

# mean(dat$retire_cutClean,na.rm=T)
# sd(dat$retire_cutClean,na.rm=T)
# table(dat$retire_cut)[6]/sum(table(dat$retire_cut))


########################
# Reproducing Figure 3 #
########################

#balancing panel
dat.balance<-dat
dat.balance<-dat.balance[!dat.balance$id %in% (dat.balance[is.na(dat.balance$benefitClean)|is.na(dat.ba
# dim(dat.balance)

## matched control group ##
    covariates<-c("pressure","education","sex","unemployed","age","income",
                  "benefitW1","benefitW2")
    dat_match<-dat.balance[,c(covariates,"partyAll","id","time")]
    dat_match<-dat_match[unique(dat_match$id)&dat_match$time==1,] #return to "wide" format
    dat_match<-na.omit(dat_match)
    dat_match$treated<-recode(dat_match$partyAll,'"V"=1;"DF"=1;else=0')
    #code treatment group vs. control pool
#   table(dat_match$treated)
```

```
    #get rid of danish letters on values on covariates
    dat_match$income<-as.numeric(as.factor(dat_match$income))
    dat_match$education<-as.factor(as.numeric(as.factor(dat_match$education)))

    match <- matchit(treated ~factor(education)+pressure+unemployed+sex+age+factor(income)+
                       factor(benefitW1)+factor(benefitW2),
                     method = "nearest", data = dat_match)

    #summary(match)
    #plot(match)

    dta_m<-match.data(match)
    matchID<-dta_m$id[dta_m$treated==0] #store ID of matched control group

## calculate quantities of interest for plotting

dat.balance$partygroup<-recode(dat.balance$partyAll,'"V"=1;"DF"=1;else=0')
dat.balance$partygroup<-factor(dat.balance$partygroup)
# table(dat.balance$partygroup)/5


dat.balance$partygroup_matched<-recode(dat.balance$partyAll,'"V"=1;"DF"=1;else=NA')
dat.balance$partygroup_matched[dat.balance$id%in%matchID] <- 0

#calculate quantities of interest
SE=function(x)sd(x)/sqrt(length(x)-1) #function to calculate naive SEs
out<-aggregate(benefitClean~partygroup*time,data=dat.balance,mean)
out.se<-aggregate(benefitClean~partygroup*time,data=dat.balance,SE)

outm<-aggregate(benefitClean~partygroup_matched*time,data=dat.balance,mean)
outm.se<-aggregate(benefitClean~partygroup_matched*time,data=dat.balance,SE)


######
# PLOTTING

#sets correct spacing between waves
x<-c("2010-02-22","2010-04-05","2010-06-15","2011-01-11","2011-06-25")
x<-as.Date(x)


c1="grey70"

#pdf('benefits_plot.pdf',width=6,height=4)
  par(omd=c(0.05,1,0,1),mai=c(1,1,.1,.1),mfrow=c(1,1))
  y=out[out$partygroup==1,3]
  se=out.se[out.se$partygroup==1,3]
  plot(x,y,ylim=c(.2,.8),xlim=c(x[1],as.Date("2011-08-01")),main="",
       xaxt="n",yaxt="n",ylab="",xlab="")
  segments(x,y+1.96*se,x,y-1.96*se)
  lines(x,y,lty=1)
  points(x,y,pch=21,bg="black")
  y=out[out$partygroup==0,3]
```

```
  se=out.se[out.se$partygroup==0,3]
  lines(x,y,lty=1,col=c1)
  points(x,y,pch=24,bg=c1,col=c1)
  segments(x,y+1.96*se,x,y-1.96*se,col=c1)
  y=outm[outm$partygroup==0,3]
  se=outm.se[outm.se$partygroup==0,3]
  lines(x,y,lty=1,col=c1)
  points(x,y,pch=21,bg=c1,col=c1)
  segments(x,y+1.96*se,x,y-1.96*se,col=c1)

#redraw CI's of treatment group (for overlap)
  y=out[out$partygroup==1,3]
  se=out.se[out.se$partygroup==1,3]
  segments(x,y+1.96*se,x,y-1.96*se)
  points(x,y,pch=21,bg="black")

  axis(2,las=2)
  axis(2,at=seq(0,1,.025),tck=-.015,labels=NA)
  mtext(2,text="Policy Support",line=3)
  axis.Date(1,at=seq(as.Date("2010-03-01"),as.Date("2011-08-01"), by="month"),format="%b",las=1,cex.axis
  axis.Date(1,at=c(as.Date("2010-03-01"),as.Date("2011-01-01")),format="%Y",
            las=1,cex.axis=1,line=1,tick="FALSE")
  abline(v=as.Date("2010-05-21"),lty=2)

  legend('bottomright',pch=c(21,24,21),pt.bg=c("black",c1,c1),
         col=c("black",c1,c1),legend=c("Treated","Control (all)","Control (matched)"),cex=.8,pt.cex=1,b

#dev.off()


######
# Change among DPP and Liberals
# Note: Exact numbers are not referenced in text, but the analysis is referred to
#####

out_lib<-aggregate(benefitClean~time,
                   data=dat.balance[dat.balance$partyAll=="V",],mean)
out_dpp<-aggregate(benefitClean~time,
                   data=dat.balance[dat.balance$partyAll=="DF",],mean)

# out_dpp[3,2]-out_dpp[2,2] #change among DPP
# out_lib[3,2]-out_lib[2,2] #change among liberals
# out[6,3]-out[4,3]       #aggregate


####
# no. of obs
# reported in caption of figure

# table(dat.balance$partygroup)
# table(dat.balance$partygroup_matched)

# (table(dat.balance$partygroup)/5)
# (table(dat.balance$partygroup_matched)/5)
```

```
#####
# PLACEBO DID (reported in footnote)

pfit1<-plm(benefitClean~time*partygroup,
           data=dat.balance[dat.balance$time%in%c(1,2),],
           model="pooling",index=c("id","time"))
# coeftest(pfit1, vcov=vcovHC(pfit1,cluster="group"))[4,]

####
# FD among Lib and DPP voters (reported in text)

pfit1<-plm(benefitClean~time,
           data=dat.balance[dat.balance$time%in%c(2,3)&dat.balance$partygroup==1,],
           model="pooling",index=c("id","time"))

# coef(pfit1)[1]    #level before change in policy position
# sum(coef(pfit1))  #level after change in policy position
# coeftest(pfit1, vcov=vcovHC(pfit1,cluster="group"))[2,] #change


###################################
# Reproducing results in Table 1  #
# DiD models                      #
###################################

pfit1<-plm(benefitClean~partygroup*time,
           data=dat.balance[dat.balance$time%in%c(2,3),],
           model="pooling",index=c("id","time"))
    pfit1_out<-coeftest(pfit1,
                        vcov=vcovHC(pfit1,cluster="group"))["partygroup1:time3",]
    eff1<-pfit1_out[1]
    se1<-pfit1_out[2]

pfit2<-plm(benefitClean~partygroup*time+retire_cutClean+bb+ub,
           data=dat.balance[dat.balance$time%in%c(2,3),],
           model="pooling",index=c("id","time"))
    pfit2_out<-coeftest(pfit2,
                        vcov=vcovHC(pfit2,cluster="group"))["partygroup1:time3",]
    eff2<-pfit2_out[1]
    se2<-pfit2_out[2]

pfit3<-plm(benefitClean~partygroup_matched*time,
           data=dat.balance[dat.balance$time%in%c(2,3),],
           model="pooling",index=c("id","time"))
    pfit3_out<-coeftest(pfit3,
                        vcov=vcovHC(pfit3,cluster="group"))["partygroup_matched:time3",]
    eff3<-pfit3_out[1]
    se3<-pfit3_out[2]

pfit4<-plm(benefitClean~partygroup_matched*time+retire_cutClean+bb+ub,
           data=dat.balance[dat.balance$time%in%c(2,3),],
           model="pooling",index=c("id","time"))
    pfit4_out<-coeftest(pfit4,
```

```
                        vcov=vcovHC(pfit4,cluster="group"))["partygroup_matched:time3",]
    eff4<-pfit4_out[1]
    se4<-pfit4_out[2]


#constructing table
parenth <- function(x){paste0(paste0("(",x,")")} #small function for putting parentheses around numbers

tab<-round(cbind(pfit1_out,pfit2_out,pfit3_out,pfit4_out),2)[1:2,]
tab[2,]<-parenth(tab[2,])
rownames(tab)<-c("DiD","")
colnames(tab)<-rep("",ncol(tab))

obs<-cbind(pdim(pfit1)$nT[-2],pdim(pfit2)$nT[-2],
           pdim(pfit3)$nT[-2],pdim(pfit4)$nT[-2])
rownames(obs)<-c("Units","Observations")

stargazer(rbind(tab,obs))
#note: appearance of table has been edited manually


#p-values reported in text
# pfit1_out
# pfit3_out


########################
# Reproducing Figure 4 #
########################

#balancing panel for the issue
dat.balance<-dat
dat.balance<-dat.balance[!dat.balance$id %in% (dat.balance[is.na(dat.balance$retire_cutClean)|is.na(dat
# dim(dat.balance)

## matched control group ##
    covariates<-c("unemployed","pressure","education","sex","age",
                  "income","retireW1","retireW2","retireW3")
    dat_match<-dat.balance[,c(covariates,"partyAll","id","time")]
    dat_match<-dat_match[unique(dat_match$id)&dat_match$time==1,]
    #return to "wide" format
    dat_match<-na.omit(dat_match)
    dat_match$treated<-recode(dat_match$partyAll,'"V"=1;else=0')
    #code treatment group vs. control pool
#   table(dat_match$treated)

    #get rid of danish letters on values on covariates
    dat_match$income<-as.numeric(as.factor(dat_match$income))
    dat_match$education<-as.factor(as.numeric(as.factor(dat_match$education)))

    match <- matchit(treated ~ factor(retireW1)+factor(retireW2)+factor(retireW3)+
                       pressure+sex+unemployed+factor(income)+factor(education)+age,
                     method = "nearest", data = dat_match)
```

```
    #summary(match)
    #plot(match)

    dta_m<-match.data(match)
    matchID<-dta_m$id[dta_m$treated==0] #store ID of matched control group

## calculate quantities of interest for plotting

dat.balance$partygroup<-recode(dat.balance$partyAll,'"V"=1;else=0')
dat.balance$partygroup<-factor(dat.balance$partygroup)

dat.balance$partygroup_matched<-recode(dat.balance$partyAll,'"V"=1;else=NA')
dat.balance$partygroup_matched[dat.balance$id%in%matchID] <- 0

#calculate quantities of interest
SE=function(x)sd(x)/sqrt(length(x)-1) #function to calculate naive SEs
out<-aggregate(retire_cutClean~partygroup*time,data=dat.balance,mean)
out.se<-aggregate(retire_cutClean~partygroup*time,data=dat.balance,SE)

outm<-aggregate(retire_cutClean~partygroup_matched*time,data=dat.balance,mean)
outm.se<-aggregate(retire_cutClean~partygroup_matched*time,data=dat.balance,SE)


##########
#PLOTTING

c1="grey70"

#pdf('retire_plot.pdf',width=6,height=4)

  par(omd=c(0.05,1,0,1),mai=c(1,1,.1,.1),mfrow=c(1,1))
  y=out[out$partygroup==1,3]
  se=out.se[out.se$partygroup==1,3]
  plot(x,y,ylim=c(.4,1),xlim=c(x[1],as.Date("2011-08-01")),
       main="",xaxt="n",yaxt="n",ylab="",xlab="")
  segments(x,y+1.96*se,x,y-1.96*se)
  lines(x,y,lty=1)
  points(x,y,pch=21,bg="black")
  y=out[out$partygroup==0,3]
  se=out.se[out.se$partygroup==0,3]
  lines(x,y,lty=1,col=c1)
  points(x,y,pch=24,bg=c1,col=c1)
  segments(x,y+1.96*se,x,y-1.96*se,col=c1)
  y=outm[outm$partygroup==0,3]
  se=outm.se[outm.se$partygroup==0,3]
  lines(x,y,lty=1,col=c1)
  points(x,y,pch=21,bg=c1,col=c1)
  segments(x,y+1.96*se,x,y-1.96*se,col=c1)

#redraw CI's of treatment group (for overlap)
  y=out[out$partygroup==1,3]
  se=out.se[out.se$partygroup==1,3]
  segments(x,y+1.96*se,x,y-1.96*se)
  points(x,y,pch=21,bg="black")
```

```
  axis(2,las=2)
  axis(2,at=seq(0,1,.025),tck=-.015,labels=NA)
  mtext(2,text="Policy Support",line=3)
  axis.Date(1,at=seq(as.Date("2010-03-01"),as.Date("2011-08-01"), by="month"),format="%b",las=1,cex.axis
  axis.Date(1,at=c(as.Date("2010-03-01"),as.Date("2011-01-01")),
            format="%Y",las=1,cex.axis=1,line=1,tick="FALSE")
  abline(v=as.Date("2011-01-01"),lty=2)
  legend('bottomright',pch=c(21,24,21),pt.bg=c("black",c1,c1),
         col=c("black",c1,c1),legend=c("Treated","Control (all)","Control (matched)"),cex=.8,pt.cex=1,b

#dev.off()


####
# number of observations (reported in caption for figure 4)

# table(dat.balance$partygroup)
# table(dat.balance$partygroup_matched)

# table(dat.balance$partygroup)/5
# table(dat.balance$partygroup_matched)/5

####
# reported change

out<-aggregate(retire_cutClean~time,
               data=dat.balance[dat.balance$partyAll=="V",],mean)
# out[3,2] #pre
# out[4,2] #post


##
# placebo DiD (reported in footnote)

pfit1<-plm(retire_cutClean~partygroup*time,
           data=dat.balance[dat.balance$time%in%c(1,2),],
           model="pooling",index=c("id","time"))
# coeftest(pfit1,vcov=vcovHC(pfit1,cluster="group"))[4,]

pfit1<-plm(retire_cutClean~partygroup*time,
           data=dat.balance[dat.balance$time%in%c(2,3),],
           model="pooling",index=c("id","time"))
# coeftest(pfit1,vcov=vcovHC(pfit1,cluster="group"))[4,]

########################
# Reproducing Table 2 #
########################

pfit1<-plm(retire_cutClean~partygroup*time,
           data=dat.balance[dat.balance$time%in%c(3,4),],
           model="pooling",index=c("id","time"))
    pfit1_out<-coeftest(pfit1,
                        vcov=vcovHC(pfit1,cluster="group"))["partygroup1:time4",]
```

```
    eff1<-pfit1_out[1]
    se1<-pfit1_out[2]

pfit2<-plm(retire_cutClean~partygroup*time+benefitClean+bb+ub,
           data=dat.balance[dat.balance$time%in%c(3,4),],
           model="pooling",index=c("id","time"))
    pfit2_out<-coeftest(pfit2,
                        vcov=vcovHC(pfit2,cluster="group"))["partygroup1:time4",]
    eff2<-pfit2_out[1]
    se2<-pfit2_out[2]

pfit3<-plm(retire_cutClean~partygroup_matched*time,
           data=dat.balance[dat.balance$time%in%c(3,4),],
           model="pooling",index=c("id","time"))
    pfit3_out<-coeftest(pfit3,
                        vcov=vcovHC(pfit3,cluster="group"))["partygroup_matched:time4",]
    eff3<-pfit3_out[1]
    se3<-pfit3_out[2]

pfit4<-plm(retire_cutClean~partygroup_matched*time+benefitClean+bb+ub,
           data=dat.balance[dat.balance$time%in%c(3,4),],
           model="pooling",index=c("id","time"))
    pfit4_out<-coeftest(pfit4,
                        vcov=vcovHC(pfit4,cluster="group"))["partygroup_matched:time4",]
    eff4<-pfit4_out[1]
    se4<-pfit4_out[2]


#constructing table
parenth <- function(x){paste0(paste0("(",x),")")} #small function for putting parentheses around numbers

tab<-round(cbind(pfit1_out,pfit2_out,pfit3_out,pfit4_out),2)[1:2,]
tab[2,]<-parenth(tab[2,])
rownames(tab)<-c("DiD","")
colnames(tab)<-rep("",ncol(tab))

obs<-cbind(pdim(pfit1)$nT[-2],pdim(pfit2)$nT[-2],
           pdim(pfit3)$nT[-2],pdim(pfit4)$nT[-2])
rownames(obs)<-c("Units","Observations")

stargazer(rbind(tab,obs)) #note: appearance of table has been edited manually

#p-values reported in text
# pfit1_out


################################################################
# PARTY CUE EFFECTS CONDITIONAL ON PRIOR POLICY SUPPORT #
################################################################

#distribution of policy opinons among Liberal and DPP voters in wave 2 (reported in text)

#ISSUE: UNEMPLOYMENT BENEFITS
dat.balance<-dat
```

```
tab1<-table(dat.balance$benefit[dat.balance$partyAll%in%c("V","DF")&dat.balance$time==2])

# tab1  #frequencies
# prop.table(tab1) #percentages
# sum(tab1[4:5]) #how many opposes policy proposal
# sum(tab1)     # total
# sum(tab1[4:5])/sum(tab1) # percentage

#ISSUE: EARLY RETIREMENT
tab1<-table(dat.balance$retire_cut[dat.balance$partyAll=="V"&dat.balance$time==3])
# tab1  #frequencies

# prop.table(tab1) #percentages
# sum(tab1[4:5]) #how many opposes
# sum(tab1)     # total
# sum(tab1[4:5])/sum(tab1) # percentage


##########
# Reproducing Figure 5
##########

dat.balance<-dat[!is.na(dat$partyAll),]
# dim(dat.balance)
dat.balance$benefitW2<-recode(dat.balance$benefitW2,'6=NA')

## matched control group ##
    covariates<-c("pressure","education","sex","unemployed",
                  "age","income","benefitW1","benefitW2")
    dat_match<-dat.balance[,c(covariates,"partyAll","id","time")]
    dat_match<-dat_match[unique(dat_match$id)&dat_match$time==1,]
    #return to "wide" format
    dat_match<-na.omit(dat_match)
    dat_match$treated<-recode(dat_match$partyAll,'"V"=1;"DF"=1;else=0')
    #code treatment group vs. control pool
#   table(dat_match$treated)

    #get rid of danish letters on values on covariates
    dat_match$income<-as.numeric(as.factor(dat_match$income))
    dat_match$education<-as.factor(as.numeric(as.factor(dat_match$education)))

    match <- matchit(treated ~factor(education)+pressure+unemployed+sex+age+factor(income)+
                       factor(benefitW1)+factor(benefitW2),
                     method = "nearest", data = dat_match)

    #summary(match)
    #plot(match)

    dta_m<-match.data(match)
    matchID<-dta_m$id[dta_m$treated==0] #store ID of matched control group

## calculate quantities of interest for plotting

dat.balance$partygroup_matched<-recode(dat.balance$partyAll,'"V"=1;"DF"=1;else=NA')
```

```
dat.balance$partygroup_matched[dat.balance$id%in%matchID] <- 0

#fit model
fit<-plm(benefitClean~partygroup_matched*time*factor(benefitW2),
         data=dat.balance[dat.balance$time%in%2:3,],
         index=c("id","time"),model="within")

#retrieve quantities of interest from panel model
cf<-coef(fit)
vmat<-vcovHC(fit,cluster="group")

did_est<-c(cf[2],cf[2]+cf[7],cf[2]+cf[8],cf[2]+cf[9],cf[2]+cf[10])
did_se<-c(sqrt(vmat[2,2]),sqrt(vmat[2,2]+vmat[7,7]+2*vmat[2,7]),
    sqrt(vmat[2,2]+vmat[8,8]+2*vmat[2,8]),
    sqrt(vmat[2,2]+vmat[9,9]+2*vmat[2,9]),
    sqrt(vmat[2,2]+vmat[10,10]+2*vmat[10,2]))

#means for plotting (levels etc)
benefit<-aggregate(benefitClean~partygroup_matched*time*factor(benefitW2),
                   data=dat.balance[dat.balance$time%in%2:3,],mean)


#############
# Effect among voters who supported cutbacks (reported in text)

# coeftest(fit,vcovHC(fit,cluster="group"))[2,]

############
# Effect among voters who opposed cutbacks (reported in text)

dat.balance$benefitW2f<-as.factor(dat.balance$benefitW2)
dat.balance$benefitW2f<-relevel(dat.balance$benefitW2f,ref='5')

fit<-plm(benefitClean~partygroup_matched*time*benefitW2f,
         data=dat.balance[dat.balance$time%in%2:3,],
         index=c("id","time"),model="within")
# coeftest(fit,vcovHC(fit,cluster="group"))[2,]




####
# ISSUE: EARLY RETIREMENT

dat.balance$retireW3<-recode(dat.balance$retireW3,'6=NA')

## matched control group ##
    covariates<-c("pressure","education","unemployed","sex",
                  "age","income","retireW1","retireW2","retireW3")
    dat_match<-dat.balance[,c(covariates,"partyAll","id","time")]
    dat_match<-dat_match[unique(dat_match$id)&dat_match$time==1,]
    #return to "wide" format
    dat_match<-na.omit(dat_match)
    dat_match$treated<-recode(dat_match$partyAll,'"V"=1;else=0')
```

```
    #code treatment group vs. control pool
#   table(dat_match$treated)

    #get rid of danish letters on values on covariates
    dat_match$income<-as.numeric(as.factor(dat_match$income))
    dat_match$education<-as.factor(as.numeric(as.factor(dat_match$education)))

    match <- matchit(treated ~ factor(retireW1)+factor(retireW2)+factor(retireW3)+
                       pressure+sex+unemployed+factor(income)+factor(education)+age,
                     method = "nearest", data = dat_match)


    #summary(match)
    #plot(match)

    dta_m<-match.data(match)
    matchID<-dta_m$id[dta_m$treated==0] #store ID of matched control group

## calculate quantities of interest for plotting

dat.balance$partygroup_matched<-recode(dat.balance$partyAll,'"V"=1;else=NA')
dat.balance$partygroup_matched[dat.balance$id%in%matchID] <- 0

#fit model
fit2<-plm(retire_cutClean~partygroup_matched*time*factor(retireW3),
          data=dat.balance[dat.balance$time%in%3:4,],
          index=c("id","time"),model="within")
# summary(fit2)

#retrieve quantities of interest from panel model
cf2<-coef(fit2)
vmat2<-vcovHC(fit2,cluster="group")

did_est2<-c(cf2[2],cf2[2]+cf2[7],cf2[2]+cf2[8],cf2[2]+cf2[9],cf2[2]+cf2[10])
did_se2<-c(sqrt(vmat2[2,2]),sqrt(vmat2[2,2]+vmat2[7,7]+2*vmat2[2,7]),
    sqrt(vmat2[2,2]+vmat2[8,8]+2*vmat2[2,8]),
    sqrt(vmat2[2,2]+vmat2[9,9]+2*vmat2[2,9]),
    sqrt(vmat2[2,2]+vmat2[10,10]+2*vmat2[10,2]))

#means for plotting (levels etc)
retire<-aggregate(retire_cutClean~partygroup_matched*time*factor(retireW3),
                  data=dat.balance[dat.balance$time%in%3:4,],mean)

#############
# Effect among voters who supported cutbacks (reported in text)

# coeftest(fit2,vcovHC(fit2,cluster="group"))[2,]

############
# Effect among voters who opposed cutbacks (reported in text)

dat.balance$retireW3f<-as.factor(dat.balance$retireW3)
dat.balance$retireW3f<-relevel(dat.balance$retireW3f,ref='5')
fit<-plm(retire_cutClean~partygroup_matched*time*retireW3f,
```

```
         data=dat.balance[dat.balance$time%in%3:4,],
         index=c("id","time"),model="within")
# coeftest(fit,vcovHC(fit,cluster="group"))[2,]




###########
#PLOTTING


m<-benefit[benefit$partygroup_matched==1,4]
c<-benefit[benefit$partygroup_matched==0,4]

m2<-retire[retire$partygroup_matched==1,4]
c2<-retire[retire$partygroup_matched==0,4]

#pdf('priorDV.pdf',width=11.25,height=5.25)

par(mfrow=c(2,5))
par(omd=c(0.15,.9,.1,1),mai=c(0.1,0.1,0.5,.1))
header<-c("Before: Support","Before: Partly sup.","Before: Neither",
          "Before: Partly opp.","Before: Oppose")
select<-matrix(c(1,3,5,7,9,2,4,6,8,10),nc=2)

for(i in 1:5){
plot(x=1:2,m[select[i,]],xlim=c(.25,2.75),ylim=c(0,1.15),
     xaxt='n',yaxt='n',ylab='',xlab='')

lines(1:2,m[select[i,]])
points(2,c[select[i,2]],pch=4)
lines(1:2,c(m[select[i,1]],c[select[i,2]]),lty=2)
points(1:2,m[select[i,]],pch=21,bg="white")

rng<-par('usr')
rect(rng[1],1.05,rng[2],rng[4],col="grey90")
mtext(3,line=-1.4,text=header[i],cex=.8)
axis(2,at=seq(0,1,.25),labels=NA)
axis(2,at=seq(0,1,.05),labels=NA,tck=-0.025)
if(i==1){
    axis(2,at=seq(0,1,.25),las=2)
    mtext(2,text="Policy Support",line=3)
    legend("bottomleft",legend=c("Treated","Control (matched)"),bty='n',pch=c(1,4),cex=1)
    }
brackets(2.1,m[select[i,]][2],2.1,c[select[i,2]],type=4)

text(2.2,(m[select[i,]][2]+c[select[i,2]])/2,
     labels=format(round(did_est[i],2),nsmall=2),pos=4)
text(2.175,(m[select[i,]][2]+c[select[i,2]])/2-.075,
     labels=paste0(paste0("(",round(did_se[i],2)),")"),pos=4,cex=.85)
}

rect(rng[2],1.05,3.2,rng[3],col="grey90",xpd=NA)
mtext(4,las=3,text="Unemploy. Benefits",line=0.2,cex=0.8,adj=.25)
```

```
par(mai=c(.75,.1,0,.1))

for(i in 1:5){
plot(x=1:2,m2[select[i,]],xlim=c(.25,2.75),ylim=c(0,1),
     xaxt='n',yaxt='n',ylab='',xlab='')
lines(1:2,m2[select[i,]])
points(2,c2[select[i,2]],pch=4)
lines(1:2,c(m2[select[i,1]],c2[select[i,2]]),lty=2)
points(1:2,m2[select[i,]],pch=21,bg="white")

rng<-par('usr')
axis(2,at=seq(0,1,.25),labels=NA)
axis(2,at=seq(0,1,.05),labels=NA,tck=-0.025)
axis(1,at=1:2,labels=c("Before","After"),cex.axis=1.25)
if(i==1){
    axis(2,at=seq(0,1,.25),las=2)
    mtext(2,text="Policy Support",line=3)
    legend("bottomleft",legend=c("Treated","Control (matched)"),bty='n',pch=c(1,4),cex=1)
    }

brackets(2.1,m2[select[i,]][2],2.1,c2[select[i,2]],type=4)
text(2.2,(m2[select[i,]][2]+c2[select[i,2]])/2,
     labels=format(round(did_est2[i],2), nsmall = 2),pos=4)
text(2.175,(m2[select[i,]][2]+c2[select[i,2]])/2-.075,
     labels=paste0(paste0("(",format(round(did_se2[i],2),nsmall=2),")")),
     pos=4,cex=.85)
}

rect(rng[2],rng[4],3.2,rng[3],col="grey90",xpd=NA)
mtext(4,las=3,text="Early Retirement",line=0.2,cex=0.8,adj=.5)

#dev.off()


#######
# END #
#######
```