```
> ## Section 5 of the Online Appendix: Specification checks
>
> library(haven)
> library(dplyr)
> library(ggplot2)
> library(gridExtra)
> library(grid)
> library(reshape2)
> library(grid)
> library(rdrobust)
> library(rdlocrand)
> library(lubridate)
>
>
> ## Clear workspace
>
> rm=list(ls())
>
> ## Set working directory
> setwd("~/Dropbox/Documents/Projects/Active_Projects/Compulsory_Voting_BR/Replication_Files/PSRM/")
>
> ##Opening the voting data:
>
> load("ReplicationData.RData")
>
> ## Turnout variable
> data2010$turnout <- as.numeric(data2010$VOTOU.1°.TURNO) - 1
>
> ####################
> ###### 2010 #########
> ####################
>
> ##############################################################################################
> ###  Inspection of baseline covariates at critical moments of interest: gender (ratio men/women) ###
> ##############################################################################################
>
> ## Create a dummy for female voters
>
> data2010$female <- as.numeric(data2010$GÊNERO == 'FEMININO')
> data2010$male <- as.numeric(data2010$GÊNERO == 'MASCULINO')
>
>
> ## Table S5.6
>
> ## Election Day: subsetting the 14-day window
>
> data.18.rddED <- dplyr::filter(data2010, (dob >= "1992-09-27" & dob <= "1992-10-10") & turnout == 1)
>
> DataRDDED18 <- data.18.rddED %>%
+   filter(GRAU.INSTRUÇÃO != "Analfabeto" | GÊNERO != 'NÃO INFORMADO') %>%
+   group_by(dob) %>%
+   summarise(voters = n(),
+             female = sum(female),
+             male = sum(male))
`summarise()` ungrouping output (override with `.groups` argument)
>
> DataRDDED18$daysToFrom <- seq(6, -7, by = -1)
>
> ##Identifying weekend days and holidays:
>
> DataRDDED18$WeekendHolidays <- as.numeric(weekdays(DataRDDED18$dob) %in% c("Saturday", "Sunday"))
>
> ##Excluding weekend days:
>
> DataRDDED18nowe <- DataRDDED18[ ! DataRDDED18$WeekendHolidays==1,]
>
> DataRDDED18nowe$obliged <- as.numeric(DataRDDED18nowe$daysToFrom >= 0)
>
> ##Difference in proportions:
>
> tPropWomenED18nowe <-
prop.test(x=c(sum(DataRDDED18nowe$female[DataRDDED18nowe$obliged==0]),sum(DataRDDED18nowe$female[DataRDDED18nowe$obliged==1])),
n=c(sum(DataRDDED18nowe$voters[DataRDDED18nowe$obliged==0]),sum(DataRDDED18nowe$voters[DataRDDED18nowe$obliged==1])))
>
> print(tPropWomenED18nowe)

    2-sample test for equality of proportions with continuity correction

data:  c(sum(DataRDDED18nowe$female[DataRDDED18nowe$obliged == 0]),  out of c(sum(DataRDDED18nowe$voters[DataRDDED18nowe$obliged ==
0]),     sum(DataRDDED18nowe$female[DataRDDED18nowe$obliged == 1])) out of     sum(DataRDDED18nowe$voters[DataRDDED18nowe$obliged
== 1]))
```

```
X-squared = 0.010555, df = 1, p-value = 0.9182
alternative hypothesis: two.sided
95 percent confidence interval:
 -0.008897819  0.007945558
sample estimates:
   prop 1    prop 2
0.5045142 0.5049904

>
>
>
> ## End-of-year: subsetting the 14-day window
>
> data.18.rddEoY <- dplyr::filter(data2010, (dob >= "1992-12-25" & dob <= "1993-01-07") & turnout == 1)
>
> DataRDDEoY18 <- data.18.rddEoY %>%
+   filter(GRAU.INSTRUÇÃO != "Analfabeto" | GÊNERO != 'NÃO INFORMADO') %>%
+   group_by(dob) %>%
+   summarise(voters = n(),
+             female = sum(female),
+             male = sum(male))
`summarise()` ungrouping output (override with `.groups` argument)
>
> DataRDDEoY18$daysToFrom <- seq(6, -7, by = -1)
>
> ##Identifying weekend days and holidays:
>
> DataRDDEoY18$WeekendHolidays <- as.numeric(weekdays(DataRDDEoY18$dob) %in% c("Saturday", "Sunday") |
DataRDDEoY18$dob=="1992-12-24" | DataRDDEoY18$dob=="1992-12-25" | DataRDDEoY18$dob=="1992-12-31" | DataRDDEoY18$dob=="1993-01-01")
>
> ##Excluding weekend days:
>
> DataRDDEoY18nowe <- DataRDDEoY18[ ! DataRDDEoY18$WeekendHolidays==1,]
>
> DataRDDEoY18nowe$obliged <- as.numeric(DataRDDEoY18nowe$daysToFrom >= 0)
>
> ##Difference in proportions:
>
> tPropWomenEoY18nowe <-
prop.test(x=c(sum(DataRDDEoY18nowe$female[DataRDDEoY18nowe$obliged==0]),sum(DataRDDEoY18nowe$female[DataRDDEoY18nowe$obliged==1])),
n=c(sum(DataRDDEoY18nowe$voters[DataRDDEoY18nowe$obliged==0]),sum(DataRDDEoY18nowe$voters[DataRDDEoY18nowe$obliged==1])))
>
> print(tPropWomenEoY18nowe)

    2-sample test for equality of proportions with continuity correction

data:  c(sum(DataRDDEoY18nowe$female[DataRDDEoY18nowe$obliged == 0]),  out of
c(sum(DataRDDEoY18nowe$voters[DataRDDEoY18nowe$obliged == 0]),     sum(DataRDDEoY18nowe$female[DataRDDEoY18nowe$obliged == 1])) out
of     sum(DataRDDEoY18nowe$voters[DataRDDEoY18nowe$obliged == 1]))
X-squared = 30.258, df = 1, p-value = 3.781e-08
alternative hypothesis: two.sided
95 percent confidence interval:
 0.0219008 0.0462800
sample estimates:
   prop 1    prop 2
0.5219277 0.4878373

>
>
>
> ## RDD by gender: Table S5.7
>
> ## Election Day
>
> ## Women
>
> rddED18noweWomen <- rdrandinf(DataRDDED18nowe$female, DataRDDED18nowe$daysToFrom, wl = -7, wr = 6, seed = 50, ci = .05)

Selected window = [-7;6]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            10
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
```

```
Window            =   set by user
H0:          tau  =            0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs           5           5
 Eff. number of obs           5           5
    Mean of outcome    2525.800    3035.800
    S.d. of outcome      75.463      66.579
             Window      -7.000       6.000

================================================================================
                               Finite sample            Large sample
                              -----------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  37.732
================================================================================
     Diff. in means    510.000        0.000        0.000                   0.134
================================================================================

95% confidence interval: [421.79,598.19]
>
> ## % increase
> rddED18noweWomen$obs.stat/rddED18noweWomen$sumstats[3,1]*100
[1] 20.19162
>
> ## % increase: lower bound
> rddED18noweWomen$ci[1]/rddED18noweWomen$sumstats[3,1]*100
[1] 16.69926
>
> ## % increase: upper bound
> rddED18noweWomen$ci[2]/rddED18noweWomen$sumstats[3,1]*100
[1] 23.68319
>
> ## Men
>
> rddED18noweMen <- rdrandinf(DataRDDED18nowe$male, DataRDDED18nowe$daysToFrom, wl = -7, wr = 6, seed = 50, ci = .05)

Selected window = [-7;6]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =           10
Order of poly     =            0
Kernel type       =      uniform
Reps              =          252
Window            =   set by user
H0:          tau  =            0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs           5           5
 Eff. number of obs           5           5
    Mean of outcome    2480.600    2975.800
    S.d. of outcome     122.763     112.764
             Window      -7.000       6.000

================================================================================
                               Finite sample            Large sample
                              -----------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  61.382
================================================================================
     Diff. in means    495.200        0.000        0.000                   0.131
================================================================================

95% confidence interval: [349.09,641.29]
>
> ## % increase
> rddED18noweMen$obs.stat/rddED18noweMen$sumstats[3,1]*100
[1] 19.96291
>
> ## % increase: lower bound
> rddED18noweMen$ci[1]/rddED18noweMen$sumstats[3,1]*100
[1] 14.0728
>
> ## % increase: upper bound
> rddED18noweMen$ci[2]/rddED18noweMen$sumstats[3,1]*100
```

```
[1] 25.85221
>
>
> ## End-of-year
>
> ## Women
> rddEoY18noweWomen <- rdrandinf(DataRDDEoY18nowe$female, DataRDDEoY18nowe$daysToFrom, wl = -7, wr = 6, seed = 50, ci = .05)

Selected window = [-7;6]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =             7
Order of poly     =             0
Kernel type       =       uniform
Reps              =            35
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs           4           3
 Eff. number of obs           4           3
    Mean of outcome    1865.500    1958.667
    S.d. of outcome      55.429      93.409
             Window      -7.000       6.000

================================================================================
                               Finite sample           Large sample
                             -----------------  --------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  27.714
================================================================================
     Diff. in means     93.167        0.143        0.124                   0.074
================================================================================

95% confidence interval: [-44.17,212.13]
>
> ## % increase
> rddEoY18noweWomen$obs.stat/rddEoY18noweWomen$sumstats[3,1]*100
[1] 4.994193
>
> ## % increase: lower bound
> rddEoY18noweWomen$ci[1]/rddEoY18noweWomen$sumstats[3,1]*100
[1] -2.36773
>
> ## % increase: upper bound
> rddEoY18noweWomen$ci[2]/rddEoY18noweWomen$sumstats[3,1]*100
[1] 11.37121
>
>
> ## Men
>
> rddEoY18noweMen <- rdrandinf(DataRDDEoY18nowe$male, DataRDDEoY18nowe$daysToFrom, wl = -7, wr = 6, seed = 50, ci = .05)

Selected window = [-7;6]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =             7
Order of poly     =             0
Kernel type       =       uniform
Reps              =            35
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs           4           3
 Eff. number of obs           4           3
    Mean of outcome    1708.750    2056.333
    S.d. of outcome      72.113      51.248
```

```
            Window      -7.000       6.000

================================================================================
                                 Finite sample            Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  36.056
================================================================================
     Diff. in means    347.583        0.029        0.000                   0.121
================================================================================

95% confidence interval: [242.93,387.03]
>
> ## % increase
> rddEoY18noweMen$obs.stat/rddEoY18noweMen$sumstats[3,1]*100
[1] 20.34138
>
> ## % increase: lower bound
> rddEoY18noweMen$ci[1]/rddEoY18noweMen$sumstats[3,1]*100
[1] 14.21683
>
> ## % increase: upper bound
> rddEoY18noweMen$ci[2]/rddEoY18noweMen$sumstats[3,1]*100
[1] 22.64989
>
>
>
> ## Gender differences: Online Appendix section S5.1
>
> print_labels(SurveyData$sex)

Labels:
 value  label
     1  Homem
     2 Mulher
>
> ## Knowledge by gender among young voters:
>
> ## Women
>
> DataWomen <- subset(SurveyData, (sex == 2 & age<25))
>
> ##Frequencies of knowledge questions: 1 correct answer, 0 otherwise
>
> DataWomen$know1 <- as.numeric(DataWomen$P5A.1 == 1)
> know1Women <- table(DataWomen$know1)
> prop.table(know1Women)*100

        0         1
 5.299539 94.700461
>
> DataWomen$know3 <- as.numeric(DataWomen$P5B.1 == 2)
> know3Women <- table(DataWomen$know3)
> prop.table(know3Women)*100

       0        1
61.95652 38.04348
>
>
> ## Men
>
> DataMen <- subset(SurveyData, (sex == 1 & age<25))
>
> ##Frequencies of knowledge questions: 1 correct answer, 0 otherwise
>
> DataMen$know1 <- as.numeric(DataMen$P5A.1 == 1)
> know1Men <- table(DataMen$know1)
> prop.table(know1Men)*100

        0         1
 8.424908 91.575092
>
> DataMen$know3 <- as.numeric(DataMen$P5B.1 == 2)
> know3Men <- table(DataMen$know3)
> prop.table(know3Men)*100

       0        1
70.49689 29.50311
>
>
> ## Women vs Men: binomial proportion test
>
```

```
> ## Knowledge item 1:
>
> Edup11 <- know1Women[2]/sum(know1Women)
> Edun11 <- sum(know1Women)
>
> Edup21 <- know1Men[2]/sum(know1Men)
> Edun21 <- sum(know1Men)
>
> Edup1 <- (Edun11 * Edup11 + Edun21 * Edup21)/ (Edun11 + Edun21)
> Eduz1 <- (Edup11 - Edup21) / sqrt(Edup1 * (1-Edup1) * (1/Edun11 + 1/Edun21))
> Eduz1
      1
1.64043
>
> (1 - pnorm(Eduz1, 0, 1))*2
        1
0.1009159
>
> ## Knowledge item 3:
>
> Edup13 <- know3Women[2]/sum(know3Women)
> Edun13 <- sum(know3Women)
>
> Edup23 <- know3Men[2]/sum(know3Men)
> Edun23 <- sum(know3Men)
>
> Edup3 <- (Edun13 * Edup13 + Edun23 * Edup23)/ (Edun13 + Edun23)
> Eduz3 <- (Edup13 - Edup23) / sqrt(Edup3 * (1-Edup3) * (1/Edun13 + 1/Edun23))
> Eduz3
       1
2.361639
>
> (1 - pnorm(Eduz3, 0, 1))*2
          1
0.01819433
>
>
>
> ######################
> ### Placebo tests ####
> ######################
>
> ## Table S5.8
>
> ## 17-year olds
>
> ## Election Day: subsetting the 14-day window
>
> data.17.rddED <- dplyr::filter(data2010, (dob >= "1993-09-27" & dob <= "1993-10-10") & turnout == 1)
>
> DataRDDED17 <- data.17.rddED %>%
+   filter(GRAU.INSTRUÇÃO != "Analfabeto") %>%
+   group_by(dob) %>%
+   summarise(voters = n())
`summarise()` ungrouping output (override with `.groups` argument)
>
> DataRDDED17$daysToFrom <- seq(6, -7, by = -1)
>
> ##Identifying weekend days and holidays:
>
> DataRDDED17$WeekendHolidays <- as.numeric(weekdays(DataRDDED17$dob) %in% c("Saturday", "Sunday"))
>
> ##Excluding weekend days:
>
> DataRDDED17nowe <- DataRDDED17[ ! DataRDDED17$WeekendHolidays==1,]
>
> ## RDD
>
> rddED17nowe <- rdrandinf(DataRDDED17nowe$voters, DataRDDED17nowe$daysToFrom, wl = -7, wr = 6, seed = 50, ci = .05)

Selected window = [-7;6]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            10
Order of poly     =             0
```

```
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs           5           5
 Eff. number of obs           5           5
    Mean of outcome    2932.400    2938.000
    S.d. of outcome     102.999      80.159
             Window      -7.000       6.000

================================================================================
                               Finite sample            Large sample
                             ------------------  -----------------------------
         Statistic          T        P>|T|        P>|T|    Power vs d =  51.500
================================================================================
     Diff. in means      5.600        0.952        0.924                   0.143
================================================================================

95% confidence interval: [-85.92,120]
>
> ## % increase
> rddED17nowe$obs.stat/rddED17nowe$sumstats[3,1]*100
[1] 0.1909699
>
> ## % increase: lower bound
> rddED17nowe$ci[1]/rddED17nowe$sumstats[3,1]*100
[1] -2.930023
>
> ## % increase: upper bound
> rddED17nowe$ci[2]/rddED17nowe$sumstats[3,1]*100
[1] 4.092211
>
>
> ## End-of-year: subsetting the 14-day window
>
> data.17.rddEoY <- dplyr::filter(data2010, (dob >= "1993-12-25" & dob <= "1994-01-07") & turnout == 1)
>
> DataRDDEoY17 <- data.17.rddEoY %>%
+   filter(GRAU.INSTRUÇÃO != "Analfabeto") %>%
+   group_by(dob) %>%
+   summarise(voters = n(),
+             female = sum(female),
+             male = sum(male))
`summarise()` ungrouping output (override with `.groups` argument)
>
> DataRDDEoY17$daysToFrom <- seq(6, -7, by = -1)
>
> ##Identifying weekend days and holidays:
>
> DataRDDEoY17$WeekendHolidays <- as.numeric(weekdays(DataRDDEoY17$dob) %in% c("Saturday", "Sunday") |
DataRDDEoY17$dob=="1993-12-24" | DataRDDEoY17$dob=="1993-12-25" | DataRDDEoY17$dob=="1993-12-31" | DataRDDEoY17$dob=="1994-01-01")
>
> ##Excluding weekend days:
>
> DataRDDEoY17nowe <- DataRDDEoY17[ ! DataRDDEoY17$WeekendHolidays==1,]
>
> ## RDD
>
> rddEoY17nowe <- rdrandinf(DataRDDEoY17nowe$voters, DataRDDEoY17nowe$daysToFrom, wl = -7, wr = 6, seed = 50, ci = .05)

Selected window = [-7;6]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =             9
Order of poly     =             0
Kernel type       =       uniform
Reps              =           126
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
```

```
      Number of obs           5           4
 Eff. number of obs           5           4
    Mean of outcome    2447.400    2499.000
    S.d. of outcome      26.595     147.336
             Window      -7.000       6.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  13.298
================================================================================
     Diff. in means     51.600        0.317        0.489                   0.054
================================================================================

95% confidence interval: [-102.56,160.33]
>
> ## % increase
> rddEoY17nowe$obs.stat/rddEoY17nowe$sumstats[3,1]*100
[1] 2.10836
>
> ## % increase: lower bound
> rddEoY17nowe$ci[1]/rddEoY17nowe$sumstats[3,1]*100
[1] -4.19057
>
> ## % increase: upper bound
> rddEoY17nowe$ci[2]/rddEoY17nowe$sumstats[3,1]*100
[1] 6.551034
>
>
> ## 19-year olds
>
> ## Election Day: subsetting the 14-day window
>
> data.19.rddED <- dplyr::filter(data2010, (dob >= "1991-09-27" & dob <= "1991-10-10") & turnout == 1)
>
> DataRDDED19 <- data.19.rddED %>%
+   filter(GRAU.INSTRUÇÃO != "Analfabeto") %>%
+   group_by(dob) %>%
+   summarise(voters = n())
`summarise()` ungrouping output (override with `.groups` argument)
>
> DataRDDED19$daysToFrom <- seq(6, -7, by = -1)
>
> ##Identifying weekend days and holidays:
>
> DataRDDED19$WeekendHolidays <- as.numeric(weekdays(DataRDDED19$dob) %in% c("Saturday", "Sunday"))
>
> ##Excluding weekend days:
>
> DataRDDED19nowe <- DataRDDED19[ ! DataRDDED19$WeekendHolidays==1,]
>
> ## RDD
>
> rddED19nowe <- rdrandinf(DataRDDED19nowe$voters, DataRDDED19nowe$daysToFrom, wl = -7, wr = 6, seed = 50, ci = .05)

Selected window = [-7;6]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            10
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs           5           5
 Eff. number of obs           5           5
    Mean of outcome    7498.800    7575.800
    S.d. of outcome     167.916     178.075
             Window      -7.000       6.000

================================================================================
                                 Finite sample           Large sample
```

```
                              ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  83.958
================================================================================
     Diff. in means     77.000        0.456        0.482                   0.120
================================================================================

95% confidence interval: [-103.12,343.68]
>
> ## % increase
> rddED19nowe$obs.stat/rddED19nowe$sumstats[3,1]*100
[1] 1.026831
>
> ## % increase: lower bound
> rddED19nowe$ci[1]/rddED19nowe$sumstats[3,1]*100
[1] -1.375153
>
> ## % increase: upper bound
> rddED19nowe$ci[2]/rddED19nowe$sumstats[3,1]*100
[1] 4.583133
>
>
> ## End-of-year: subsetting the 14-day window
>
> data.19.rddEoY <- dplyr::filter(data2010, (dob >= "1991-12-25" & dob <= "1992-01-07") & turnout == 1)
>
> DataRDDEoY19 <- data.19.rddEoY %>%
+   filter(GRAU.INSTRUÇÃO != "Analfabeto") %>%
+   group_by(dob) %>%
+   summarise(voters = n(),
+             female = sum(female),
+             male = sum(male))
`summarise()` ungrouping output (override with `.groups` argument)
>
> DataRDDEoY19$daysToFrom <- seq(6, -7, by = -1)
>
> ##Identifying weekend days and holidays:
>
> DataRDDEoY19$WeekendHolidays <- as.numeric(weekdays(DataRDDEoY19$dob) %in% c("Saturday", "Sunday") |
DataRDDEoY19$dob=="1991-12-24" | DataRDDEoY19$dob=="1991-12-25" | DataRDDEoY19$dob=="1991-12-31" | DataRDDEoY19$dob=="1992-01-01")
>
> ##Excluding weekend days:
>
> DataRDDEoY19nowe <- DataRDDEoY19[ ! DataRDDEoY19$WeekendHolidays==1,]
>
> ## RDD
>
> rddEoY19nowe <- rdrandinf(DataRDDEoY19nowe$voters, DataRDDEoY19nowe$daysToFrom, wl = -7, wr = 6, seed = 50, ci = .05)

Selected window = [-7;6]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =             7
Order of poly     =             0
Kernel type       =       uniform
Reps              =            35
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs           4           3
 Eff. number of obs           4           3
    Mean of outcome    7363.500    7292.667
    S.d. of outcome     234.610     424.408
             Window      -7.000       6.000

================================================================================
                               Finite sample            Large sample
                              ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d = 117.305
================================================================================
     Diff. in means    -70.833        0.800        0.794                   0.072
================================================================================

95% confidence interval: [-687.32,397.28]
```

```
>
> ## % increase
> rddEoY19nowe$obs.stat/rddEoY19nowe$sumstats[3,1]*100
[1] -0.961952
>
> ## % increase: lower bound
> rddEoY19nowe$ci[1]/rddEoY19nowe$sumstats[3,1]*100
[1] -9.334148
>
> ## % increase: upper bound
> rddEoY19nowe$ci[2]/rddEoY19nowe$sumstats[3,1]*100
[1] 5.39526
>
>
>
>
> ################################
> ### S5.3 Bandwidth analysis ####
> ################################
>
> ## Election Day: subsetting a 42-day window
>
> data.18.rddEDBand <- dplyr::filter(data2010, (dob >= "1992-09-13" & dob <= "1992-10-24") & turnout == 1)
>
> DataRDDED18Band <- data.18.rddEDBand %>%
+   filter(GRAU.INSTRUÇÃO != "Analfabeto") %>%
+   group_by(dob) %>%
+   summarise(voters = n())
`summarise()` ungrouping output (override with `.groups` argument)
>
> DataRDDED18Band$daysToFrom <- seq(20, -21, by = -1)
>
> ##Identifying weekend days and holidays:
>
> DataRDDED18Band$WeekendHolidays <- as.numeric(weekdays(DataRDDED18Band$dob) %in% c("Saturday", "Sunday") |
DataRDDED18Band$dob=="1992-10-12")
>
> ##Excluding weekend days:
>
> DataRDDED18Bandnowe <- DataRDDED18Band[ ! DataRDDED18Band$WeekendHolidays==1,]
>
> DataRDDED18Bandnowe$obliged <- as.numeric(DataRDDED18Bandnowe$daysToFrom >= 0)
>
> ##Using the rdrandinf package: starting at three obs on each side
>
> rddEstimatesED <- list(); estimatesEDyoung <- list(); pvalueEDyoung <- list(); windowEDyoung <- list()
>
> for (i in 4:21){
+
+     rddEstimatesED[[i]] <- rdrandinf(DataRDDED18Bandnowe$voters, DataRDDED18Bandnowe$daysToFrom, cutoff = 0, wl = -i, wr = i-1,
seed = 12345, ci = .05)
+
+     estimatesEDyoung[[i]] <- rddEstimatesED[[i]]$obs.stat[1]
+     pvalueEDyoung[[i]] <- rddEstimatesED[[i]]$p.value[1]
+     windowEDyoung[[i]] <- rddEstimatesED[[i]]$window
+
+ }

Selected window = [-4;3]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
Reps              =            20
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs           3           3
    Mean of outcome    5063.667    5915.667
    S.d. of outcome     233.222     153.004
             Window      -4.000       3.000
```

```
================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d = 116.611
================================================================================
     Diff. in means    852.000        0.150        0.000                  0.112
================================================================================

95% confidence interval: [432.42,1007.97]

Selected window = [-5;4]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
Reps              =            70
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs           4           4
    Mean of outcome    5042.500    5962.250
    S.d. of outcome     195.073     155.843
             Window      -5.000       4.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  97.537
================================================================================
     Diff. in means    919.750        0.000        0.000                  0.122
================================================================================

95% confidence interval: [613.26,1126.89]

Selected window = [-6;5]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs           5           5
    Mean of outcome    5006.400    6011.600
    S.d. of outcome     187.233     174.334
             Window      -6.000       5.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  93.617
================================================================================
     Diff. in means   1005.200        0.008        0.000                  0.130
================================================================================

95% confidence interval: [727.82,1162.16]

Selected window = [-7;6]
```

```
Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs           5           5
    Mean of outcome    5006.400    6011.600
    S.d. of outcome     187.233     174.334
             Window      -7.000       6.000

================================================================================
                               Finite sample            Large sample
                              -----------------  --------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  93.617
================================================================================
     Diff. in means   1005.200        0.008        0.000                   0.130
================================================================================

95% confidence interval: [780.96,1184.61]

Selected window = [-8;7]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs           5           5
    Mean of outcome    5006.400    6011.600
    S.d. of outcome     187.233     174.334
             Window      -8.000       7.000

================================================================================
                               Finite sample            Large sample
                              -----------------  --------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  93.617
================================================================================
     Diff. in means   1005.200        0.008        0.000                   0.130
================================================================================

95% confidence interval: [780.96,1184.61]

Selected window = [-9;8]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
Reps              =           462
Window            =   set by user
H0:          tau  =             0
```

```
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs           5           6
    Mean of outcome    5006.400    6070.833
    S.d. of outcome     187.233     212.991
             Window      -9.000       8.000

================================================================================
                                Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  93.617
================================================================================
     Diff. in means   1064.433        0.000        0.000                   0.121
================================================================================

95% confidence interval: [824.75,1256.21]

Selected window = [-10;9]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs           6           7
    Mean of outcome    4949.833    6044.857
    S.d. of outcome     217.356     206.223
             Window     -10.000       9.000

================================================================================
                                Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d = 108.678
================================================================================
     Diff. in means   1095.024        0.002        0.000                   0.151
================================================================================

95% confidence interval: [810.25,1266.65]

Selected window = [-11;10]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs           7           8
    Mean of outcome    4926.714    6068.250
    S.d. of outcome     207.632     202.065
             Window     -11.000      10.000

================================================================================
                                Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d = 103.816
```

```
================================================================================
     Diff. in means   1141.536        0.000        0.000                    0.165
================================================================================

95% confidence interval: [897.64,1295.08]

Selected window = [-12;11]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs           8           9
    Mean of outcome    4895.250    6105.111
    S.d. of outcome     211.831     218.987
             Window     -12.000      11.000

================================================================================
                               Finite sample            Large sample
                             ------------------  -----------------------------
         Statistic          T        P>|T|        P>|T|    Power vs d = 105.916
================================================================================
     Diff. in means   1209.861        0.000        0.000                    0.173
================================================================================

95% confidence interval: [966.83,1389.93]

Selected window = [-13;12]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs           9          10
    Mean of outcome    4876.889    6136.600
    S.d. of outcome     205.664     229.221
             Window     -13.000      12.000

================================================================================
                               Finite sample            Large sample
                             ------------------  -----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d = 102.832
================================================================================
     Diff. in means   1259.711        0.000        0.000                    0.178
================================================================================

95% confidence interval: [1035.16,1406.32]

Selected window = [-14;13]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.
```

```
Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs           9          10
    Mean of outcome    4876.889    6136.600
    S.d. of outcome     205.664     229.221
             Window     -14.000      13.000

================================================================================
                                Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d = 102.832
================================================================================
     Diff. in means   1259.711        0.000        0.000                   0.178
================================================================================

95% confidence interval: [1062.98,1417.13]

Selected window = [-15;14]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs           9          10
    Mean of outcome    4876.889    6136.600
    S.d. of outcome     205.664     229.221
             Window     -15.000      14.000

================================================================================
                                Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d = 102.832
================================================================================
     Diff. in means   1259.711        0.000        0.000                   0.178
================================================================================

95% confidence interval: [1062.98,1417.13]

Selected window = [-16;15]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs          10          11
```

```
    Mean of outcome    4839.500    6163.273
    S.d. of outcome     227.106     234.763
             Window     -16.000      15.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d = 113.553
================================================================================
     Diff. in means   1323.773        0.000        0.000                   0.203
================================================================================

95% confidence interval: [1090.55,1443.08]

Selected window = [-17;16]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs          11          12
    Mean of outcome    4835.364    6173.583
    S.d. of outcome     215.888     226.670
             Window     -17.000      16.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d = 107.944
================================================================================
     Diff. in means   1338.220        0.000        0.000                   0.216
================================================================================

95% confidence interval: [1143.69,1486.41]

Selected window = [-18;17]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs          12          13
    Mean of outcome    4809.917    6174.077
    S.d. of outcome     223.922     217.027
             Window     -18.000      17.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d = 111.961
================================================================================
     Diff. in means   1364.160        0.000        0.000                   0.245
================================================================================

95% confidence interval: [1164.86,1512.56]
```

```
Selected window = [-19;18]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs          13          14
    Mean of outcome    4779.923    6178.571
    S.d. of outcome     240.120     209.190
             Window     -19.000      18.000

================================================================================
                                Finite sample           Large sample
                               -----------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d = 120.060
================================================================================
     Diff. in means   1398.648        0.000        0.000                   0.282
================================================================================

95% confidence interval: [1202.05,1535.25]

Selected window = [-20;19]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs          14          15
    Mean of outcome    4768.500    6188.133
    S.d. of outcome     234.626     204.954
             Window     -20.000      19.000

================================================================================
                                Finite sample           Large sample
                               -----------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d = 117.313
================================================================================
     Diff. in means   1419.633        0.000        0.000                   0.298
================================================================================

95% confidence interval: [1243.42,1540.06]

Selected window = [-21;20]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            29
Order of poly     =             0
Kernel type       =       uniform
```

```
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          15
 Eff. number of obs          14          15
    Mean of outcome    4768.500    6188.133
    S.d. of outcome     234.626     204.954
             Window     -21.000      20.000

================================================================================
                               Finite sample            Large sample
                             ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d = 117.313
================================================================================
     Diff. in means   1419.633        0.000        0.000                   0.298
================================================================================

95% confidence interval: [1259.58,1579.68]
>
> EDyoung.estimates <- data.frame(matrix(unlist(estimatesEDyoung), nrow=length(Filter(Negate(is.null), estimatesEDyoung)),
byrow=T),stringsAsFactors=FALSE)
> EDyoung.pvalue <- data.frame(matrix(unlist(pvalueEDyoung), nrow=length(Filter(Negate(is.null), pvalueEDyoung)),
byrow=T),stringsAsFactors=FALSE)
> EDyoung.window <- data.frame(matrix(unlist(windowEDyoung), nrow=length(Filter(Negate(is.null), windowEDyoung)),
byrow=T),stringsAsFactors=FALSE)
>
>
> tmp <- data.frame(
+     bandwidth = seq(3, 20, by = 1),
+     EDyoung.estimates,
+     EDyoung.pvalue,
+     sig = factor(as.numeric(EDyoung.pvalue < .05), labels = c( "p-value \u2265 .05", "p-value < .05"))
+ )
>
> colnames(tmp)[2] <- "effect"
> colnames(tmp)[3] <- "pvalue"
>
> tmp$id <- factor(ifelse(tmp$bandwidth == 6, 1, 2), labels = c("nsns", "dve"))
>
> ## Plot effects: Figure S5.3
>
> EDBand2010 <- ggplot(tmp, aes(x=bandwidth, y=effect, colour = sig, shape = id)) + geom_point(size = 2) + ylim(500,1750) +
+     theme_bw() + ggtitle("Election Day") + labs(colour="Statistical significance") + xlab("Bandwidth (ignoring weekends and
holidays)") + ylab("Estimated treatment effect") +
+     theme(legend.position="bottom") + theme(legend.title = element_blank()) + scale_shape_manual(values = c(19, 17), guide =
FALSE)
>
> ggsave("~/Dropbox/Documents/Projects/Active_Projects/Compulsory_Voting_BR/Replication_files/PSRM/analysis_bandwidth_ED_2010.png",
plot = EDBand2010)
Saving 7 x 7 in image
>
>
> ## End-of-year: subsetting a 42-day window
>
> data.18.rddEoYBand <- dplyr::filter(data2010, (dob >= "1992-12-11" & dob <= "1993-01-21") & turnout == 1)
>
> DataRDDEoY18Band <- data.18.rddEoYBand %>%
+   filter(GRAU.INSTRUÇÃO != "Analfabeto") %>%
+   group_by(dob) %>%
+   summarise(voters = n())
`summarise()` ungrouping output (override with `.groups` argument)
>
> DataRDDEoY18Band$daysToFrom <- seq(20, -21, by = -1)
>
> ##Identifying weekend days and holidays:
>
> DataRDDEoY18Band$WeekendHolidays <- as.numeric(weekdays(DataRDDEoY18Band$dob) %in% c("Saturday", "Sunday") |
DataRDDEoY18Band$dob=="1992-12-24" | DataRDDEoY18Band$dob=="1992-12-25" | DataRDDEoY18Band$dob=="1992-12-31" |
DataRDDEoY18Band$dob=="1993-01-01")
>
> ##Excluding weekend days:
>
> DataRDDEoY18Bandnowe <- DataRDDEoY18Band[ ! DataRDDEoY18Band$WeekendHolidays==1,]
>
> DataRDDEoY18Bandnowe$obliged <- as.numeric(DataRDDEoY18Bandnowe$daysToFrom >= 0)
>
> ##Using the rdrandinf package: starting at three obs on each side
>
```

```
> rddEstimatesEoY <- list(); estimatesEoYyoung <- list(); pvalueEoYyoung <- list(); windowEoYyoung <- list()
>
> for (i in 6:21){
+
+     rddEstimatesEoY[[i]] <- rdrandinf(DataRDDEoY18Bandnowe$voters, DataRDDEoY18Bandnowe$daysToFrom, cutoff = 0, wl = -i, wr =
i-1, seed = 12345, ci = .05)
+
+     estimatesEoYyoung[[i]] <- rddEstimatesEoY[[i]]$obs.stat[1]
+     pvalueEoYyoung[[i]] <- rddEstimatesEoY[[i]]$p.value[1]
+     windowEoYyoung[[i]] <- rddEstimatesEoY[[i]]$window
+
+ }

Selected window = [-6;5]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            26
Order of poly     =             0
Kernel type       =       uniform
Reps              =            20
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          12
 Eff. number of obs           3           3
    Mean of outcome    3616.000    4015.000
    S.d. of outcome      97.893     139.216
             Window      -6.000       5.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  48.946
================================================================================
     Diff. in means    399.000        0.150        0.000                   0.079
================================================================================

95% confidence interval: [191.34,665.64]

Selected window = [-7;6]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            26
Order of poly     =             0
Kernel type       =       uniform
Reps              =            35
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          12
 Eff. number of obs           4           3
    Mean of outcome    3574.250    4015.000
    S.d. of outcome     115.589     139.216
             Window      -7.000       6.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  57.795
================================================================================
     Diff. in means    440.750        0.029        0.000                   0.090
================================================================================

95% confidence interval: [206.41,553.09]
```

```
Selected window = [-8;7]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            26
Order of poly     =             0
Kernel type       =       uniform
Reps              =            56
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          12
 Eff. number of obs           5           3
    Mean of outcome    3591.800    4015.000
    S.d. of outcome     107.521     139.216
             Window      -8.000       7.000

================================================================================
                                 Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  53.760
================================================================================
     Diff. in means    423.200        0.018        0.000                   0.089
================================================================================

95% confidence interval: [252.77,591.17]

Selected window = [-9;8]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            26
Order of poly     =             0
Kernel type       =       uniform
Reps              =           126
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          12
 Eff. number of obs           5           4
    Mean of outcome    3591.800    3948.500
    S.d. of outcome     107.521     174.956
             Window      -9.000       8.000

================================================================================
                                 Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  53.760
================================================================================
     Diff. in means    356.700        0.008        0.000                   0.084
================================================================================

95% confidence interval: [172.04,541.34]

Selected window = [-10;9]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            26
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
```

```
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          12
 Eff. number of obs           5           5
    Mean of outcome    3591.800    3979.400
    S.d. of outcome     107.521     166.527
             Window     -10.000       9.000

================================================================================
                                Finite sample           Large sample
                               -----------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  53.760
================================================================================
     Diff. in means    387.600        0.008        0.000                   0.093
================================================================================

95% confidence interval: [213.85,561.35]

Selected window = [-11;10]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            26
Order of poly     =             0
Kernel type       =       uniform
Reps              =           924
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          12
 Eff. number of obs           6           6
    Mean of outcome    3579.333    3994.000
    S.d. of outcome     100.901     153.180
             Window     -11.000      10.000

================================================================================
                                Finite sample           Large sample
                               -----------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  50.451
================================================================================
     Diff. in means    414.667        0.006        0.000                   0.103
================================================================================

95% confidence interval: [242.2,562.2]

Selected window = [-12;11]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            26
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          12
 Eff. number of obs           7           6
    Mean of outcome    3577.286    3994.000
    S.d. of outcome      92.269     153.180
             Window     -12.000      11.000

================================================================================
                                Finite sample           Large sample
```

```
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  46.135
================================================================================
     Diff. in means    416.714        0.000        0.000                   0.099
================================================================================

95% confidence interval: [267.9,561.4]

Selected window = [-13;12]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            26
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          12
 Eff. number of obs           8           6
    Mean of outcome    3567.625    3994.000
    S.d. of outcome      89.688     153.180
             Window     -13.000      12.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  44.844
================================================================================
     Diff. in means    426.375        0.001        0.000                   0.098
================================================================================

95% confidence interval: [281.79,551.59]

Selected window = [-14;13]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            26
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          12
 Eff. number of obs           9           7
    Mean of outcome    3555.444    3989.429
    S.d. of outcome      91.508     140.355
             Window     -14.000      13.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  45.754
================================================================================
     Diff. in means    433.984        0.000        0.000                   0.116
================================================================================

95% confidence interval: [304.28,515.87]

Selected window = [-15;14]

Running randomization-based test...
Randomization-based test complete.
```

```
Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            26
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          12
 Eff. number of obs          10           8
    Mean of outcome    3548.200    3991.375
    S.d. of outcome      89.265     130.060
             Window     -15.000      14.000

================================================================================
                               Finite sample            Large sample
                              ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  44.632
================================================================================
     Diff. in means    443.175        0.000        0.000                   0.131
================================================================================

95% confidence interval: [330.05,520.67]

Selected window = [-16;15]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            26
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          12
 Eff. number of obs          10           9
    Mean of outcome    3548.200    3987.889
    S.d. of outcome      89.265     122.109
             Window     -16.000      15.000

================================================================================
                               Finite sample            Large sample
                              ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  44.632
================================================================================
     Diff. in means    439.689        0.000        0.000                   0.147
================================================================================

95% confidence interval: [344.23,535.13]

Selected window = [-17;16]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            26
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
```

```
      Number of obs          14          12
 Eff. number of obs          10          10
    Mean of outcome    3548.200    3974.200
    S.d. of outcome      89.265     122.995
             Window     -17.000      16.000

================================================================================
                               Finite sample            Large sample
                             ------------------  -----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  44.632
================================================================================
     Diff. in means    426.000        0.000        0.000                   0.153
================================================================================

95% confidence interval: [331.81,501.37]

Selected window = [-18;17]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            26
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          12
 Eff. number of obs          11          11
    Mean of outcome    3550.000    3961.364
    S.d. of outcome      84.894     124.207
             Window     -18.000      17.000

================================================================================
                               Finite sample            Large sample
                             ------------------  -----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  42.447
================================================================================
     Diff. in means    411.364        0.000        0.000                   0.155
================================================================================

95% confidence interval: [319.77,487.89]

Selected window = [-19;18]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            26
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          12
 Eff. number of obs          12          11
    Mean of outcome    3544.417    3961.364
    S.d. of outcome      83.222     124.207
             Window     -19.000      18.000

================================================================================
                               Finite sample            Large sample
                             ------------------  -----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  41.611
================================================================================
     Diff. in means    416.947        0.000        0.000                   0.155
================================================================================
```

```
95% confidence interval: [322.45,500.25]

Selected window = [-20;19]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            26
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          12
 Eff. number of obs          13          11
    Mean of outcome    3551.846    3961.364
    S.d. of outcome      84.061     124.207
             Window     -20.000      19.000

================================================================================
                               Finite sample            Large sample
                             ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  42.031
================================================================================
     Diff. in means    409.517        0.000        0.000                   0.159
================================================================================

95% confidence interval: [331.24,502.64]

Selected window = [-21;20]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            26
Order of poly     =             0
Kernel type       =       uniform
Reps              =          1000
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    0.000   Left of c  Right of c
      Number of obs          14          12
 Eff. number of obs          14          12
    Mean of outcome    3536.357    3951.833
    S.d. of outcome      99.406     122.943
             Window     -21.000      20.000

================================================================================
                               Finite sample            Large sample
                             ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  49.703
================================================================================
     Diff. in means    415.476        0.000        0.000                   0.202
================================================================================

95% confidence interval: [318.01,481.91]
>
> EoYyoung.estimates <- data.frame(matrix(unlist(estimatesEoYyoung), nrow=length(Filter(Negate(is.null), estimatesEoYyoung)),
byrow=T),stringsAsFactors=FALSE)
> EoYyoung.pvalue <- data.frame(matrix(unlist(pvalueEoYyoung), nrow=length(Filter(Negate(is.null), pvalueEoYyoung)),
byrow=T),stringsAsFactors=FALSE)
> EoYyoung.window <- data.frame(matrix(unlist(windowEoYyoung), nrow=length(Filter(Negate(is.null), windowEoYyoung)),
byrow=T),stringsAsFactors=FALSE)
>
>
> tmp <- data.frame(
+     bandwidth = seq(3, 18, by = 1),
```

```
+     EoYyoung.estimates,
+     EoYyoung.pvalue,
+     sig = factor(as.numeric(EoYyoung.pvalue < .05), labels = c( "p-value \u2265 .05", "p-value < .05"))
+ )
>
> colnames(tmp)[2] <- "effect"
> colnames(tmp)[3] <- "pvalue"
>
> tmp$id <- factor(ifelse(tmp$bandwidth == 4, 1, 2), labels = c("nsns", "dve"))
>
> ## Plot effects: Figure S5.4
>
> EoYBand2010 <- ggplot(tmp, aes(x=bandwidth, y=effect, colour = sig, shape = id)) + geom_point(size = 2) + ylim(350,475) +
+     theme_bw() + ggtitle("End of Year") + labs(colour="Statistical significance") + xlab("Bandwidth (ignoring weekends and
holidays)") + ylab("Estimated treatment effect") +
+     theme(legend.position="bottom") + theme(legend.title = element_blank()) + scale_shape_manual(values = c(19, 17), guide =
FALSE)
>
> ggsave("~/Dropbox/Documents/Projects/Active_Projects/Compulsory_Voting_BR/Replication_files/PSRM/
analysis_bandwidth_EoY_2010.png", plot = EoYBand2010)
Saving 7 x 7 in image
>
>
>
> ##############################
> ## Evaluating other cutoffs ###
> ##############################
>
> ## Figures S5.5 and S5.6
>
> ## End-of-year: subsetting the 14-day window
>
> data.18.rddOthers <- dplyr::filter(data2010, (dob >= "1992-10-11" & dob <= "1993-02-08") & turnout == 1)
>
> DataRDDOthers18 <- data.18.rddOthers %>%
+   filter(GRAU.INSTRUÇÃO != "Analfabeto") %>%
+   group_by(dob) %>%
+   summarise(voters = n(),
+             female = sum(female),
+             male = sum(male))
`summarise()` ungrouping output (override with `.groups` argument)
>
> ## Reverse order of data
>
> DataRDDOthers18rev <- DataRDDOthers18[seq(dim(DataRDDOthers18)[1],1),]
>
> running <- seq(1, 121, by = 1)
>
> DataRDD18full <- cbind(DataRDDOthers18rev, running)
>
>
> ##Identifying weekend days and holidays:
>
> DataRDD18full$WeekendHolidays <- as.numeric(weekdays(DataRDD18full$dob) %in% c("Saturday", "Sunday") |
DataRDD18full$dob=="1992-10-12" | DataRDD18full$dob=="1992-11-02" | DataRDD18full$dob=="1992-11-15" |
DataRDD18full$dob=="1992-12-24" | DataRDD18full$dob=="1992-12-25" | DataRDD18full$dob=="1992-12-31" |
DataRDD18full$dob=="1993-01-01")
>
> ##Excluding weekend days:
>
> DataRDD18fullnowe <- DataRDD18full[ ! DataRDD18full$WeekendHolidays==1,]
>
>
> ## First period from 1992-10-11 to 1992-12-23
>
> DataRDD18fullnowe1 <- subset(DataRDD18fullnowe, running >= 48)
>
> ## RDD from 1992-10-18 to 1992-12-16
>
> rddEstimates1 <- list(); estimatesRDD1 <- list(); pvalueRDD1 <- list(); denominatorRDD1 <- list()
>
> for (i in 55:113){
+
+     rddEstimates1[[i]] <- rdrandinf(DataRDD18fullnowe1$voters, DataRDD18fullnowe1$running, cutoff = i, wl = i-7, wr = i+6, seed =
12345, ci = .05)
+
+     estimatesRDD1[[i]] <- rddEstimates1[[i]]$obs.stat[1]
+     pvalueRDD1[[i]] <- rddEstimates1[[i]]$p.value[1]
+     denominatorRDD1[[i]] <- rddEstimates1[[i]]$sumstats[3,1]
+
+ }
```

```
Selected window = [48;61]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   55.000   Left of c  Right of c
      Number of obs           5          46
 Eff. number of obs           5           5
    Mean of outcome    3977.200    3925.000
    S.d. of outcome     138.716     127.407
             Window      48.000      61.000

================================================================================
                                Finite sample           Large sample
                               -----------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  69.358
================================================================================
     Diff. in means    -52.200        0.508        0.535                   0.131
================================================================================

95% confidence interval: [-246.97,28.43]

Selected window = [49;62]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   56.000   Left of c  Right of c
      Number of obs           6          45
 Eff. number of obs           5           5
    Mean of outcome    4019.400    3903.200
    S.d. of outcome      63.807     129.233
             Window      49.000      62.000

================================================================================
                                Finite sample           Large sample
                               -----------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  31.903
================================================================================
     Diff. in means   -116.200        0.151        0.071                   0.079
================================================================================

95% confidence interval: [-203.71,40.19]

Selected window = [50;63]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
```

```
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   57.000   Left of c  Right of c
      Number of obs           7          44
 Eff. number of obs           5           5
    Mean of outcome    3969.000    3897.400
    S.d. of outcome      78.984     132.764
             Window      50.000      63.000

================================================================================
                               Finite sample            Large sample
                              ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  39.492
================================================================================
     Diff. in means    -71.600        0.349        0.300                   0.088
================================================================================

95% confidence interval: [-133.24,96.44]

Selected window = [51;64]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   58.000   Left of c  Right of c
      Number of obs           8          43
 Eff. number of obs           5           5
    Mean of outcome    3922.200    3916.600
    S.d. of outcome      75.655     127.978
             Window      51.000      64.000

================================================================================
                               Finite sample            Large sample
                              ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  37.828
================================================================================
     Diff. in means     -5.600        0.952        0.933                   0.088
================================================================================

95% confidence interval: [-135.91,124.69]

Selected window = [52;65]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   59.000   Left of c  Right of c
      Number of obs           8          43
 Eff. number of obs           5           5
    Mean of outcome    3922.200    3916.600
    S.d. of outcome      75.655     127.978
             Window      52.000      65.000

================================================================================
```

```
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  37.828
================================================================================
     Diff. in means     -5.600        0.952        0.933                   0.088
================================================================================

95% confidence interval: [-135.91,124.69]

Selected window = [53;66]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   60.000   Left of c  Right of c
      Number of obs           8          43
 Eff. number of obs           5           5
    Mean of outcome    3922.200    3916.600
    S.d. of outcome      75.655     127.978
             Window      53.000      66.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  37.828
================================================================================
     Diff. in means     -5.600        0.952        0.933                   0.088
================================================================================

95% confidence interval: [-141.75,150.45]

Selected window = [54;67]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   61.000   Left of c  Right of c
      Number of obs           9          42
 Eff. number of obs           5           5
    Mean of outcome    3899.200    3913.400
    S.d. of outcome      77.976     130.332
             Window      54.000      67.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  38.988
================================================================================
     Diff. in means     14.200        0.929        0.834                   0.089
================================================================================

95% confidence interval: [-98.38,151.91]

Selected window = [55;68]

Running randomization-based test...
Randomization-based test complete.
```

```
Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   62.000   Left of c  Right of c
      Number of obs          10          41
 Eff. number of obs           5           5
    Mean of outcome    3925.000    3834.000
    S.d. of outcome     127.407      68.695
             Window      55.000      68.000

================================================================================
                               Finite sample            Large sample
                             ------------------  -----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  63.703
================================================================================
     Diff. in means    -91.000        0.187        0.160                   0.166
================================================================================

95% confidence interval: [-224.79,31.8]

Selected window = [56;69]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   63.000   Left of c  Right of c
      Number of obs          11          40
 Eff. number of obs           5           5
    Mean of outcome    3903.200    3848.000
    S.d. of outcome     129.233      79.335
             Window      56.000      69.000

================================================================================
                               Finite sample            Large sample
                             ------------------  -----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  64.617
================================================================================
     Diff. in means    -55.200        0.500        0.416                   0.159
================================================================================

95% confidence interval: [-216.15,79.65]

Selected window = [57;70]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins
```

```
Cutoff c =   64.000   Left of c  Right of c
      Number of obs          12          39
 Eff. number of obs           5           5
    Mean of outcome    3897.400    3873.000
    S.d. of outcome     132.764      88.284
             Window      57.000      70.000

================================================================================
                                Finite sample            Large sample
                               -----------------  ----------------------------
         Statistic          T        P>|T|        P>|T|    Power vs d =  66.382
================================================================================
     Diff. in means    -24.400        0.754        0.732                   0.154
================================================================================

95% confidence interval: [-194.87,82.96]

Selected window = [58;71]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   65.000   Left of c  Right of c
      Number of obs          13          38
 Eff. number of obs           5           5
    Mean of outcome    3916.600    3895.000
    S.d. of outcome     127.978     115.300
             Window      58.000      71.000

================================================================================
                                Finite sample            Large sample
                               -----------------  ----------------------------
         Statistic          T        P>|T|        P>|T|    Power vs d =  63.989
================================================================================
     Diff. in means    -21.600        0.754        0.779                   0.132
================================================================================

95% confidence interval: [-172.59,99.21]

Selected window = [59;72]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   66.000   Left of c  Right of c
      Number of obs          13          38
 Eff. number of obs           5           5
    Mean of outcome    3916.600    3895.000
    S.d. of outcome     127.978     115.300
             Window      59.000      72.000

================================================================================
                                Finite sample            Large sample
                               -----------------  ----------------------------
         Statistic          T        P>|T|        P>|T|    Power vs d =  63.989
================================================================================
     Diff. in means    -21.600        0.754        0.779                   0.132
```

```
================================================================================

95% confidence interval: [-172.59,99.21]

Selected window = [60;73]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   67.000   Left of c  Right of c
      Number of obs          13          38
 Eff. number of obs           5           5
    Mean of outcome    3916.600    3895.000
    S.d. of outcome     127.978     115.300
             Window      60.000      73.000

================================================================================
                                Finite sample            Large sample
                               ----------------  ----------------------------
         Statistic          T        P>|T|        P>|T|    Power vs d =  63.989
================================================================================
     Diff. in means    -21.600        0.754        0.779                   0.132
================================================================================

95% confidence interval: [-205.78,94.46]

Selected window = [61;74]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   68.000   Left of c  Right of c
      Number of obs          14          37
 Eff. number of obs           5           5
    Mean of outcome    3913.400    3945.400
    S.d. of outcome     130.332     133.906
             Window      61.000      74.000

================================================================================
                                Finite sample            Large sample
                               ----------------  ----------------------------
         Statistic          T        P>|T|        P>|T|    Power vs d =  65.166
================================================================================
     Diff. in means     32.000        0.667        0.702                   0.122
================================================================================

95% confidence interval: [-52.38,198.81]

Selected window = [62;75]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.
```

```
Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   69.000   Left of c  Right of c
      Number of obs          15          36
 Eff. number of obs           5           5
    Mean of outcome    3834.000    4004.200
    S.d. of outcome      68.695      67.699
             Window      62.000      75.000

================================================================================
                               Finite sample            Large sample
                              -----------------  ---------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  34.347
================================================================================
     Diff. in means    170.200        0.028        0.000                   0.125
================================================================================

95% confidence interval: [79.06,250.78]

Selected window = [63;76]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   70.000   Left of c  Right of c
      Number of obs          16          35
 Eff. number of obs           5           5
    Mean of outcome    3848.000    4067.200
    S.d. of outcome      79.335     106.415
             Window      63.000      76.000

================================================================================
                               Finite sample            Large sample
                              -----------------  ---------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  39.667
================================================================================
     Diff. in means    219.200        0.008        0.000                   0.103
================================================================================

95% confidence interval: [81.57,317.64]

Selected window = [64;77]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   71.000   Left of c  Right of c
      Number of obs          17          34
 Eff. number of obs           5           5
    Mean of outcome    3873.000    4081.600
    S.d. of outcome      88.284      89.631
```

```
            Window      64.000      77.000

================================================================================
                                Finite sample           Large sample
                             ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  44.142
================================================================================
     Diff. in means    208.600        0.008        0.000                   0.123
================================================================================

95% confidence interval: [101.49,343.69]

Selected window = [65;78]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   72.000   Left of c  Right of c
      Number of obs          18          33
 Eff. number of obs           5           5
    Mean of outcome    3895.000    4104.400
    S.d. of outcome     115.300      90.580
             Window      65.000      78.000

================================================================================
                                Finite sample           Large sample
                             ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  57.650
================================================================================
     Diff. in means    209.400        0.028        0.001                   0.142
================================================================================

95% confidence interval: [80.88,337.88]

Selected window = [66;79]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   73.000   Left of c  Right of c
      Number of obs          18          33
 Eff. number of obs           5           5
    Mean of outcome    3895.000    4104.400
    S.d. of outcome     115.300      90.580
             Window      66.000      79.000

================================================================================
                                Finite sample           Large sample
                             ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  57.650
================================================================================
     Diff. in means    209.400        0.028        0.001                   0.142
================================================================================

95% confidence interval: [80.88,337.88]

Selected window = [67;80]
```

```
Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   74.000   Left of c  Right of c
      Number of obs          18          33
 Eff. number of obs           5           5
    Mean of outcome    3895.000    4104.400
    S.d. of outcome     115.300      90.580
             Window      67.000      80.000

================================================================================
                               Finite sample           Large sample
                             ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  57.650
================================================================================
     Diff. in means    209.400        0.028        0.001                   0.142
================================================================================

95% confidence interval: [52.07,306.5]

Selected window = [68;81]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   75.000   Left of c  Right of c
      Number of obs          19          32
 Eff. number of obs           5           5
    Mean of outcome    3945.400    4122.400
    S.d. of outcome     133.906      94.137
             Window      68.000      81.000

================================================================================
                               Finite sample           Large sample
                             ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  66.953
================================================================================
     Diff. in means    177.000        0.024        0.016                   0.150
================================================================================

95% confidence interval: [10.62,216.36]

Selected window = [69;82]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
```

```
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   76.000   Left of c  Right of c
      Number of obs          20          31
 Eff. number of obs           5           5
    Mean of outcome    4004.200    4148.400
    S.d. of outcome      67.699      79.378
             Window      69.000      82.000

================================================================================
                                Finite sample            Large sample
                              ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  33.850
================================================================================
     Diff. in means    144.200        0.052        0.002                   0.112
================================================================================

95% confidence interval: [30.58,197.62]

Selected window = [70;83]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   77.000   Left of c  Right of c
      Number of obs          21          30
 Eff. number of obs           5           5
    Mean of outcome    4067.200    4138.000
    S.d. of outcome     106.415      67.557
             Window      70.000      83.000

================================================================================
                                Finite sample            Large sample
                              ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  53.208
================================================================================
     Diff. in means     70.800        0.234        0.209                   0.157
================================================================================

95% confidence interval: [-65.24,125.56]

Selected window = [71;84]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   78.000   Left of c  Right of c
      Number of obs          22          29
 Eff. number of obs           5           5
    Mean of outcome    4081.600    4174.800
    S.d. of outcome      89.631      19.677
             Window      71.000      84.000

================================================================================
                                Finite sample            Large sample
                              ------------------  ------------------------------
```

```
          Statistic          T        P>|T|        P>|T|    Power vs d =  44.816
================================================================================
     Diff. in means     93.200        0.060        0.023                   0.194
================================================================================

95% confidence interval: [-5.53,153.05]

Selected window = [72;85]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   79.000   Left of c  Right of c
      Number of obs          23          28
 Eff. number of obs           5           5
    Mean of outcome    4104.400    4198.800
    S.d. of outcome      90.580      44.263
             Window      72.000      85.000

================================================================================
                                 Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  45.290
================================================================================
     Diff. in means     94.400        0.131        0.036                   0.171
================================================================================

95% confidence interval: [6.03,182.73]

Selected window = [73;86]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   80.000   Left of c  Right of c
      Number of obs          23          28
 Eff. number of obs           5           5
    Mean of outcome    4104.400    4198.800
    S.d. of outcome      90.580      44.263
             Window      73.000      86.000

================================================================================
                                 Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  45.290
================================================================================
     Diff. in means     94.400        0.131        0.036                   0.171
================================================================================

95% confidence interval: [6.03,182.73]

Selected window = [74;87]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
```

```
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   81.000   Left of c  Right of c
      Number of obs          23          28
 Eff. number of obs           5           5
    Mean of outcome    4104.400    4198.800
    S.d. of outcome      90.580      44.263
             Window      74.000      87.000

================================================================================
                                Finite sample           Large sample
                               -----------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  45.290
================================================================================
     Diff. in means     94.400        0.131        0.036                   0.171
================================================================================

95% confidence interval: [-10.44,168.66]

Selected window = [75;88]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   82.000   Left of c  Right of c
      Number of obs          24          27
 Eff. number of obs           5           5
    Mean of outcome    4122.400    4181.600
    S.d. of outcome      94.137      67.437
             Window      75.000      88.000

================================================================================
                                Finite sample           Large sample
                               -----------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  47.069
================================================================================
     Diff. in means     59.200        0.278        0.253                   0.149
================================================================================

95% confidence interval: [-66.93,119.01]

Selected window = [76;89]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   83.000   Left of c  Right of c
      Number of obs          25          26
```

```
 Eff. number of obs           5           5
    Mean of outcome    4148.400    4177.800
    S.d. of outcome      79.378      69.395
             Window      76.000      89.000

================================================================================
                                Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  39.689
================================================================================
     Diff. in means     29.400        0.615        0.533                   0.134
================================================================================

95% confidence interval: [-22.94,144.1]

Selected window = [77;90]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   84.000   Left of c  Right of c
      Number of obs          26          25
 Eff. number of obs           5           5
    Mean of outcome    4138.000    4188.400
    S.d. of outcome      67.557      74.443
             Window      77.000      90.000

================================================================================
                                Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  33.779
================================================================================
     Diff. in means     50.400        0.321        0.262                   0.117
================================================================================

95% confidence interval: [-54.26,95.54]

Selected window = [78;91]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   85.000   Left of c  Right of c
      Number of obs          27          24
 Eff. number of obs           5           5
    Mean of outcome    4174.800    4196.600
    S.d. of outcome      19.677      78.596
             Window      78.000      91.000

================================================================================
                                Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =   9.839
================================================================================
     Diff. in means     21.800        0.603        0.547                   0.058
================================================================================
```

```
95% confidence interval: [-63.26,95.94]

Selected window = [79;92]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   86.000   Left of c  Right of c
      Number of obs          28          23
 Eff. number of obs           5           5
    Mean of outcome    4198.800    4188.000
    S.d. of outcome      44.263      70.032
             Window      79.000      92.000

================================================================================
                               Finite sample            Large sample
                              ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  22.131
================================================================================
     Diff. in means    -10.800        0.802        0.771                   0.092
================================================================================

95% confidence interval: [-83.42,61.78]

Selected window = [80;93]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   87.000   Left of c  Right of c
      Number of obs          28          23
 Eff. number of obs           5           5
    Mean of outcome    4198.800    4188.000
    S.d. of outcome      44.263      70.032
             Window      80.000      93.000

================================================================================
                               Finite sample            Large sample
                              ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  22.131
================================================================================
     Diff. in means    -10.800        0.802        0.771                   0.092
================================================================================

95% confidence interval: [-83.42,61.78]

Selected window = [81;94]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
```

```
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   88.000   Left of c  Right of c
      Number of obs          28          23
 Eff. number of obs           5           5
    Mean of outcome    4198.800    4188.000
    S.d. of outcome      44.263      70.032
              Window      81.000      94.000

================================================================================
                               Finite sample            Large sample
                              ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  22.131
================================================================================
     Diff. in means    -10.800        0.802        0.771                    0.092
================================================================================

95% confidence interval: [-98.33,47.65]

Selected window = [82;95]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   89.000   Left of c  Right of c
      Number of obs          29          22
 Eff. number of obs           5           5
    Mean of outcome    4181.600    4202.600
    S.d. of outcome      67.437      47.789
              Window      82.000      95.000

================================================================================
                               Finite sample            Large sample
                              ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  33.719
================================================================================
     Diff. in means     21.000        0.631        0.570                    0.149
================================================================================

95% confidence interval: [-65.5,97.2]

Selected window = [83;96]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   90.000   Left of c  Right of c
      Number of obs          30          21
 Eff. number of obs           5           5
    Mean of outcome    4177.800    4220.400
    S.d. of outcome      69.395      34.224
              Window      83.000      96.000
```

```
================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  34.698
================================================================================
     Diff. in means     42.600        0.278        0.218                   0.171
================================================================================

95% confidence interval: [-32.68,105.65]

Selected window = [84;97]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   91.000   Left of c  Right of c
      Number of obs          31          20
 Eff. number of obs           5           5
    Mean of outcome    4188.400    4206.200
    S.d. of outcome      74.443      39.877
             Window      84.000      97.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  37.222
================================================================================
     Diff. in means     17.800        0.687        0.637                   0.167
================================================================================

95% confidence interval: [-62.09,88.3]

Selected window = [85;98]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   92.000   Left of c  Right of c
      Number of obs          32          19
 Eff. number of obs           5           5
    Mean of outcome    4196.600    4199.200
    S.d. of outcome      78.596      34.259
             Window      85.000      98.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  39.298
================================================================================
     Diff. in means      2.600        0.921        0.946                   0.176
================================================================================

95% confidence interval: [-52.19,80.83]

Selected window = [86;99]

Running randomization-based test...
```

```
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           126
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   93.000   Left of c  Right of c
      Number of obs          33          18
 Eff. number of obs           5           4
    Mean of outcome    4188.000    4191.500
    S.d. of outcome      70.032      34.200
             Window      86.000      99.000

================================================================================
                                Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  35.016
================================================================================
     Diff. in means      3.500        0.897        0.922                   0.165
================================================================================

95% confidence interval: [-72.07,79.03]

Selected window = [87;100]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           126
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   94.000   Left of c  Right of c
      Number of obs          33          18
 Eff. number of obs           5           4
    Mean of outcome    4188.000    4191.500
    S.d. of outcome      70.032      34.200
             Window      87.000     100.000

================================================================================
                                Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  35.016
================================================================================
     Diff. in means      3.500        0.897        0.922                   0.165
================================================================================

95% confidence interval: [-72.07,79.03]

Selected window = [88;101]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           126
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins
```

```
Cutoff c =   95.000   Left of c  Right of c
      Number of obs          33          18
 Eff. number of obs           5           4
    Mean of outcome    4188.000    4191.500
    S.d. of outcome      70.032      34.200
             Window      88.000     101.000

================================================================================
                                Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  35.016
================================================================================
     Diff. in means      3.500        0.897        0.922                   0.165
================================================================================

95% confidence interval: [-67.85,24.39]

Selected window = [89;102]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           126
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   96.000   Left of c  Right of c
      Number of obs          34          17
 Eff. number of obs           5           4
    Mean of outcome    4202.600    4268.500
    S.d. of outcome      47.789     135.712
             Window      89.000     102.000

================================================================================
                                Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  23.895
================================================================================
     Diff. in means     65.900        0.484        0.354                   0.063
================================================================================

95% confidence interval: [-59.94,189.09]

Selected window = [90;103]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           126
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   97.000   Left of c  Right of c
      Number of obs          35          16
 Eff. number of obs           5           4
    Mean of outcome    4220.400    4288.750
    S.d. of outcome      34.224     134.287
             Window      90.000     103.000

================================================================================
                                Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  17.112
================================================================================
```

```
     Diff. in means     68.350        0.357        0.321                    0.057
================================================================================

95% confidence interval: [-64.28,181.96]

Selected window = [91;104]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           126
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   98.000   Left of c  Right of c
      Number of obs          36          15
 Eff. number of obs           5           4
    Mean of outcome    4206.200    4408.500
    S.d. of outcome      39.877     190.250
             Window      91.000     104.000

================================================================================
                                Finite sample            Large sample
                               -----------------  --------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  19.939
================================================================================
     Diff. in means    202.300        0.032        0.037                    0.055
================================================================================

95% confidence interval: [59.49,364.05]

Selected window = [92;105]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           126
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   99.000   Left of c  Right of c
      Number of obs          37          14
 Eff. number of obs           5           4
    Mean of outcome    4199.200    4495.750
    S.d. of outcome      34.259     142.226
             Window      92.000     105.000

================================================================================
                                Finite sample            Large sample
                               -----------------  --------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  17.130
================================================================================
     Diff. in means    296.550        0.008        0.000                    0.056
================================================================================

95% confidence interval: [160.9,418.93]

Selected window = [93;106]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.
```

```
Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           126
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =  100.000   Left of c  Right of c
      Number of obs          37          14
 Eff. number of obs           4           5
    Mean of outcome    4191.500    4529.400
    S.d. of outcome      34.200     144.336
             Window      93.000     106.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  17.100
================================================================================
     Diff. in means    337.900        0.024        0.000                   0.058
================================================================================

95% confidence interval: [191.46,455.07]

Selected window = [94;107]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           126
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =  101.000   Left of c  Right of c
      Number of obs          37          14
 Eff. number of obs           4           5
    Mean of outcome    4191.500    4529.400
    S.d. of outcome      34.200     144.336
             Window      94.000     107.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  17.100
================================================================================
     Diff. in means    337.900        0.024        0.000                   0.058
================================================================================

95% confidence interval: [191.46,455.07]

Selected window = [95;108]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           126
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =  102.000   Left of c  Right of c
      Number of obs          37          14
 Eff. number of obs           4           5
    Mean of outcome    4191.500    4529.400
```

```
    S.d. of outcome      34.200     144.336
             Window      95.000     108.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  17.100
================================================================================
     Diff. in means    337.900        0.024        0.000                   0.058
================================================================================

95% confidence interval: [156.51,464.13]

Selected window = [96;109]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           126
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =  103.000   Left of c  Right of c
      Number of obs          38          13
 Eff. number of obs           4           5
    Mean of outcome    4268.500    4559.800
    S.d. of outcome     135.712     144.178
             Window      96.000     109.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  67.856
================================================================================
     Diff. in means    291.300        0.048        0.002                   0.112
================================================================================

95% confidence interval: [62.88,494.68]

Selected window = [97;110]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           126
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =  104.000   Left of c  Right of c
      Number of obs          39          12
 Eff. number of obs           4           5
    Mean of outcome    4288.750    4581.400
    S.d. of outcome     134.287      98.685
             Window      97.000     110.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  67.143
================================================================================
     Diff. in means    292.650        0.016        0.000                   0.133
================================================================================

95% confidence interval: [93.89,378.02]
```

```
Selected window = [98;111]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           126
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =  105.000   Left of c  Right of c
      Number of obs          40          11
 Eff. number of obs           4           5
    Mean of outcome    4408.500    4558.400
    S.d. of outcome     190.250      93.417
             Window      98.000     111.000

================================================================================
                                 Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  95.125
================================================================================
     Diff. in means    149.900        0.151        0.149                   0.150
================================================================================

95% confidence interval: [-92.32,259.08]

Selected window = [99;112]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           126
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =  106.000   Left of c  Right of c
      Number of obs          41          10
 Eff. number of obs           4           5
    Mean of outcome    4495.750    4605.600
    S.d. of outcome     142.226     140.779
             Window      99.000     112.000

================================================================================
                                 Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  71.113
================================================================================
     Diff. in means    109.850        0.270        0.247                   0.116
================================================================================

95% confidence interval: [-76.07,295.73]

Selected window = [100;113]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
```

```
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =  107.000   Left of c  Right of c
      Number of obs          42           9
 Eff. number of obs           5           5
    Mean of outcome    4529.400    4573.400
    S.d. of outcome     144.336     142.484
             Window     100.000     113.000

================================================================================
                                Finite sample           Large sample
                               -----------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  72.168
================================================================================
     Diff. in means     44.000        0.683        0.628                   0.125
================================================================================

95% confidence interval: [-133.78,186.26]

Selected window = [101;114]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =  108.000   Left of c  Right of c
      Number of obs          42           9
 Eff. number of obs           5           5
    Mean of outcome    4529.400    4573.400
    S.d. of outcome     144.336     142.484
             Window     101.000     114.000

================================================================================
                                Finite sample           Large sample
                               -----------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  72.168
================================================================================
     Diff. in means     44.000        0.683        0.628                   0.125
================================================================================

95% confidence interval: [-133.78,186.26]

Selected window = [102;115]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =  109.000   Left of c  Right of c
      Number of obs          42           9
 Eff. number of obs           5           5
    Mean of outcome    4529.400    4573.400
    S.d. of outcome     144.336     142.484
             Window     102.000     115.000

================================================================================
                                Finite sample           Large sample
```

```
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  72.168
================================================================================
     Diff. in means     44.000        0.683        0.628                  0.125
================================================================================

95% confidence interval: [-170.02,227.28]

Selected window = [103;116]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =  110.000   Left of c  Right of c
      Number of obs          43           8
 Eff. number of obs           5           5
    Mean of outcome    4559.800    4595.400
    S.d. of outcome     144.178     159.012
             Window     103.000     116.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  72.089
================================================================================
     Diff. in means     35.600        0.726        0.711                  0.117
================================================================================

95% confidence interval: [-189.31,136.59]

Selected window = [104;117]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =  111.000   Left of c  Right of c
      Number of obs          44           7
 Eff. number of obs           5           5
    Mean of outcome    4581.400    4646.400
    S.d. of outcome      98.685     126.199
             Window     104.000     117.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  49.343
================================================================================
     Diff. in means     65.000        0.460        0.364                  0.106
================================================================================

95% confidence interval: [-74.36,236.14]

Selected window = [105;118]

Running randomization-based test...
Randomization-based test complete.
```

```
Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =  112.000   Left of c  Right of c
      Number of obs          45           6
 Eff. number of obs           5           5
    Mean of outcome    4558.400    4698.000
    S.d. of outcome      93.417     119.262
             Window     105.000     118.000

================================================================================
                               Finite sample            Large sample
                             ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  46.709
================================================================================
     Diff. in means    139.600        0.071        0.039                   0.106
================================================================================

95% confidence interval: [-11.07,290.03]

Selected window = [106;119]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            51
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =  113.000   Left of c  Right of c
      Number of obs          46           5
 Eff. number of obs           5           5
    Mean of outcome    4605.600    4672.600
    S.d. of outcome     140.779     106.552
             Window     106.000     119.000

================================================================================
                               Finite sample            Large sample
                             ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  70.390
================================================================================
     Diff. in means     67.000        0.401        0.396                   0.145
================================================================================

95% confidence interval: [-90.85,254.05]
>
> RDD1.estimates <- data.frame(matrix(unlist(estimatesRDD1), nrow=length(Filter(Negate(is.null), estimatesRDD1)),
byrow=T),stringsAsFactors=FALSE)
>
> RDD1.pvalue <- data.frame(matrix(unlist(pvalueRDD1), nrow=length(Filter(Negate(is.null), pvalueRDD1)),
byrow=T),stringsAsFactors=FALSE)
>
> RDD1.denominator <- data.frame(matrix(unlist(denominatorRDD1), nrow=length(Filter(Negate(is.null), denominatorRDD1)),
byrow=T),stringsAsFactors=FALSE)
>
> RDD1data <- subset(DataRDD18full, (running >=55 & running <=113))
> RDD1 <- cbind(RDD1data, RDD1.estimates, RDD1.pvalue, RDD1.denominator)
> RDD1nowe <- RDD1[ ! RDD1$WeekendHolidays==1,]
>
> colnames(RDD1nowe)[7] <- "estimate"
> colnames(RDD1nowe)[8] <- "pvalue"
> colnames(RDD1nowe)[9] <- "denominator"
>
>
```

```
> ## Second period from 1993-01-07 to 1993-02-08
>
> DataRDD18fullnowe2 <- subset(DataRDD18fullnowe, running < 33)
>
> ## RDD from 1993-01-14 to 1993-02-01
>
> rddEstimates2 <- list(); estimatesRDD2 <- list(); pvalueRDD2 <- list(); denominatorRDD2 <- list()
>
> for (i in 8:26){
+
+     rddEstimates2[[i]] <- rdrandinf(DataRDD18fullnowe2$voters, DataRDD18fullnowe2$running, cutoff = i, wl = i-7, wr = i+6, seed =
12345, ci = .05)
+
+     estimatesRDD2[[i]] <- rddEstimates2[[i]]$obs.stat[1]
+     pvalueRDD2[[i]] <- rddEstimates2[[i]]$p.value[1]
+     denominatorRDD2[[i]] <- rddEstimates2[[i]]$sumstats[3,1]
+ }

Selected window = [1;14]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    8.000   Left of c  Right of c
      Number of obs           5          17
 Eff. number of obs           5           5
    Mean of outcome    3423.800    3371.400
    S.d. of outcome     136.450      42.548
             Window       1.000      14.000

================================================================================
                                Finite sample            Large sample
                               -----------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  68.225
================================================================================
     Diff. in means    -52.400        0.496        0.412                   0.187
================================================================================

95% confidence interval: [-87.97,73.31]

Selected window = [2;15]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =    9.000   Left of c  Right of c
      Number of obs           6          16
 Eff. number of obs           5           5
    Mean of outcome    3370.200    3395.200
    S.d. of outcome      94.004      50.361
             Window       2.000      15.000

================================================================================
                                Finite sample            Large sample
                               -----------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  47.002
================================================================================
```

```
     Diff. in means     25.000        0.698        0.600                    0.167
================================================================================

95% confidence interval: [-68.48,99.82]

Selected window = [3;16]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   10.000   Left of c  Right of c
      Number of obs           6          16
 Eff. number of obs           5           5
    Mean of outcome    3370.200    3395.200
    S.d. of outcome      94.004      50.361
             Window       3.000      16.000

================================================================================
                                Finite sample            Large sample
                               -----------------  --------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  47.002
================================================================================
     Diff. in means     25.000        0.698        0.600                    0.167
================================================================================

95% confidence interval: [-68.48,99.82]

Selected window = [4;17]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   11.000   Left of c  Right of c
      Number of obs           6          16
 Eff. number of obs           5           5
    Mean of outcome    3370.200    3395.200
    S.d. of outcome      94.004      50.361
             Window       4.000      17.000

================================================================================
                                Finite sample            Large sample
                               -----------------  --------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  47.002
================================================================================
     Diff. in means     25.000        0.698        0.600                    0.167
================================================================================

95% confidence interval: [-64.47,139.83]

Selected window = [5;18]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.
```

```
Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   12.000   Left of c  Right of c
      Number of obs           7          15
 Eff. number of obs           5           5
    Mean of outcome    3361.800    3377.200
    S.d. of outcome      90.126      69.894
             Window       5.000      18.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  45.063
================================================================================
     Diff. in means     15.400        0.810        0.763                   0.143
================================================================================

95% confidence interval: [-101.84,45.85]

Selected window = [6;19]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   13.000   Left of c  Right of c
      Number of obs           8          14
 Eff. number of obs           5           5
    Mean of outcome    3403.200    3358.600
    S.d. of outcome      46.040      65.213
             Window       6.000      19.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  23.020
================================================================================
     Diff. in means    -44.600        0.313        0.212                   0.099
================================================================================

95% confidence interval: [-119.19,22.65]

Selected window = [7;20]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   14.000   Left of c  Right of c
      Number of obs           9          13
 Eff. number of obs           5           5
    Mean of outcome    3383.800    3422.200
```

```
    S.d. of outcome      56.451     137.176
             Window       7.000      20.000

================================================================================
                                 Finite sample            Large sample
                               ------------------  -----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  28.225
================================================================================
     Diff. in means     38.400        0.647        0.563                   0.071
================================================================================

95% confidence interval: [-86.63,169.6]

Selected window = [8;21]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   15.000   Left of c  Right of c
      Number of obs          10          12
 Eff. number of obs           5           5
    Mean of outcome    3371.400    3440.600
    S.d. of outcome      42.548     138.112
             Window       8.000      21.000

================================================================================
                                 Finite sample            Large sample
                               ------------------  -----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  21.274
================================================================================
     Diff. in means     69.200        0.397        0.284                   0.062
================================================================================

95% confidence interval: [-81.93,174.21]

Selected window = [9;22]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   16.000   Left of c  Right of c
      Number of obs          11          11
 Eff. number of obs           5           5
    Mean of outcome    3395.200    3463.200
    S.d. of outcome      50.361     149.807
             Window       9.000      22.000

================================================================================
                                 Finite sample            Large sample
                               ------------------  -----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  25.180
================================================================================
     Diff. in means     68.000        0.389        0.336                   0.065
================================================================================

95% confidence interval: [-70.53,178.86]
```

```
Selected window = [10;23]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   17.000   Left of c  Right of c
      Number of obs          11          11
 Eff. number of obs           5           5
    Mean of outcome    3395.200    3463.200
    S.d. of outcome      50.361     149.807
             Window      10.000      23.000

================================================================================
                                 Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  25.180
================================================================================
     Diff. in means     68.000        0.389        0.336                   0.065
================================================================================

95% confidence interval: [-70.53,178.86]

Selected window = [11;24]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   18.000   Left of c  Right of c
      Number of obs          11          11
 Eff. number of obs           5           5
    Mean of outcome    3395.200    3463.200
    S.d. of outcome      50.361     149.807
             Window      11.000      24.000

================================================================================
                                 Finite sample            Large sample
                               ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  25.180
================================================================================
     Diff. in means     68.000        0.389        0.336                   0.065
================================================================================

95% confidence interval: [-92.87,220.73]

Selected window = [12;25]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
```

```
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   19.000   Left of c  Right of c
      Number of obs          12          10
 Eff. number of obs           5           5
    Mean of outcome    3377.200    3502.000
    S.d. of outcome      69.894     114.333
             Window      12.000      25.000

================================================================================
                                Finite sample           Large sample
                               -----------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  34.947
================================================================================
     Diff. in means    124.800        0.075        0.037                   0.090
================================================================================

95% confidence interval: [7.34,267.64]

Selected window = [13;26]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   20.000   Left of c  Right of c
      Number of obs          13           9
 Eff. number of obs           5           5
    Mean of outcome    3358.600    3526.600
    S.d. of outcome      65.213      76.337
             Window      13.000      26.000

================================================================================
                                Finite sample           Large sample
                               -----------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  32.607
================================================================================
     Diff. in means    168.000        0.008        0.000                   0.112
================================================================================

95% confidence interval: [61.29,256.89]

Selected window = [14;27]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   21.000   Left of c  Right of c
      Number of obs          14           8
 Eff. number of obs           5           5
    Mean of outcome    3422.200    3498.400
    S.d. of outcome     137.176      41.693
             Window      14.000      27.000

================================================================================
                                Finite sample           Large sample
```

```
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  68.588
================================================================================
     Diff. in means     76.200        0.234        0.235                  0.188
================================================================================

95% confidence interval: [-73.04,181.57]

Selected window = [15;28]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   22.000   Left of c  Right of c
      Number of obs          15           7
 Eff. number of obs           5           5
    Mean of outcome    3440.600    3514.800
    S.d. of outcome     138.112      49.515
             Window      15.000      28.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  69.056
================================================================================
     Diff. in means     74.200        0.282        0.258                  0.183
================================================================================

95% confidence interval: [-67.8,194.28]

Selected window = [16;29]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   23.000   Left of c  Right of c
      Number of obs          16           6
 Eff. number of obs           5           5
    Mean of outcome    3463.200    3504.600
    S.d. of outcome     149.807      40.191
             Window      16.000      29.000

================================================================================
                                 Finite sample           Large sample
                              ------------------  ----------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  74.904
================================================================================
     Diff. in means     41.400        0.544        0.551                  0.191
================================================================================

95% confidence interval: [-94.56,177.34]

Selected window = [17;30]

Running randomization-based test...
Randomization-based test complete.
```

```
Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   24.000   Left of c  Right of c
      Number of obs          16           6
 Eff. number of obs           5           5
    Mean of outcome    3463.200    3504.600
    S.d. of outcome     149.807      40.191
             Window      17.000      30.000

================================================================================
                               Finite sample            Large sample
                              ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  74.904
================================================================================
     Diff. in means     41.400        0.544        0.551                   0.191
================================================================================

95% confidence interval: [-94.56,177.34]

Selected window = [18;31]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   25.000   Left of c  Right of c
      Number of obs          16           6
 Eff. number of obs           5           5
    Mean of outcome    3463.200    3504.600
    S.d. of outcome     149.807      40.191
             Window      18.000      31.000

================================================================================
                               Finite sample            Large sample
                              ------------------  ------------------------------
          Statistic          T        P>|T|        P>|T|    Power vs d =  74.904
================================================================================
     Diff. in means     41.400        0.544        0.551                   0.191
================================================================================

95% confidence interval: [-122.14,93.86]

Selected window = [19;32]

Running randomization-based test...
Randomization-based test complete.

Running sensitivity analysis...
Sensitivity analysis complete.


Number of obs     =            22
Order of poly     =             0
Kernel type       =       uniform
Reps              =           252
Window            =   set by user
H0:          tau  =             0
Randomization     = fixed margins

Cutoff c =   26.000   Left of c  Right of c
```

```
     Number of obs          17           5
 Eff. number of obs          5           5
    Mean of outcome    3502.000    3540.400
    S.d. of outcome     114.333      78.040
             Window      19.000      32.000

================================================================================
                              Finite sample            Large sample
                            ------------------  -----------------------------
         Statistic          T        P>|T|        P>|T|    Power vs d =  57.166
================================================================================
     Diff. in means     38.400        0.516        0.535                   0.152
================================================================================

95% confidence interval: [-104.94,77.94]
>
> RDD2.estimates <- data.frame(matrix(unlist(estimatesRDD2), nrow=length(Filter(Negate(is.null), estimatesRDD2)),
byrow=T),stringsAsFactors=FALSE)
>
> RDD2.pvalue <- data.frame(matrix(unlist(pvalueRDD2), nrow=length(Filter(Negate(is.null), pvalueRDD2)),
byrow=T),stringsAsFactors=FALSE)
>
> RDD2.denominator <- data.frame(matrix(unlist(denominatorRDD2), nrow=length(Filter(Negate(is.null), denominatorRDD2)),
byrow=T),stringsAsFactors=FALSE)
>
> RDD2data <- subset(DataRDD18full, (running >=8 & running <=26))
> RDD2 <- cbind(RDD2data, RDD2.estimates, RDD2.pvalue, RDD2.denominator)
> RDD2nowe <- RDD2[ ! RDD2$WeekendHolidays==1,]
>
> colnames(RDD2nowe)[7] <- "estimate"
> colnames(RDD2nowe)[8] <- "pvalue"
> colnames(RDD2nowe)[9] <- "denominator"
>
>
> RDDFINAL <- rbind(RDD1nowe, RDD2nowe)
>
> RDDFINAL$increase <- RDDFINAL$estimate/RDDFINAL$denominator*100
>
> str(RDDFINAL)
'data.frame':    55 obs. of  10 variables:
 $ dob            : Date, format: "1992-12-16" "1992-12-15" "1992-12-14" "1992-12-11" ...
 $ voters         : int  3960 3851 3833 3847 4134 3851 3822 3929 3831 3737 ...
 $ female         : num  1992 1940 1919 1911 2053 ...
 $ male           : num  1968 1911 1914 1936 2081 ...
 $ running        : num  55 56 57 60 61 62 63 64 67 68 ...
 $ WeekendHolidays: num  0 0 0 0 0 0 0 0 0 0 ...
 $ estimate       : num  -52.2 -116.2 -71.6 -5.6 14.2 ...
 $ pvalue         : num  0.508 0.151 0.349 0.952 0.929 ...
 $ denominator    : num  3977 4019 3969 3922 3899 ...
 $ increase       : num  -1.312 -2.891 -1.804 -0.143 0.364 ...
>
> RDDFINAL$padj <- p.adjust(RDDFINAL$pvalue, method="holm")
>
> tmp <- data.frame(
+     dob = rep(RDDFINAL$dob, 2),
+     p = c(RDDFINAL$pvalue, RDDFINAL$padj),
+     type = factor(rep(c(1,2), each=nrow(RDDFINAL)), labels=c("Raw", "Adjusted (Holm)"))
+ )
>
>
> ## Plot p-values
>
> graph2010pvalue <- ggplot(tmp, aes(x=dob, y=p, colour=type)) + geom_point(pch=16) + geom_hline(yintercept=.05, col="gray50",
linetype="dotted", size=.5) +
+     theme_bw() + labs(colour="Adjustment Type") + xlab("Date of birth (in 1992/93)") + ylab("p-value")
>
> ggsave("~/Dropbox/Documents/Projects/Active_Projects/Compulsory_Voting_BR/Replication_files/PSRM/other_cutoffs_pvalues_2010.png",
plot = graph2010pvalue)
Saving 7 x 7 in image
>
>
> ## Average increase in percentage among the significant differences: Figure S5.6
>
> mean(RDDFINAL$increase[RDDFINAL$pvalue < .05])
[1] 5.690534
> RDDFINAL$increase[RDDFINAL$pvalue < .05]
 [1] 4.439228 5.696466 5.386006 5.376123 4.486237 4.809567 8.061553 6.824411 6.823667 5.002084
>
> tmp2 <- data.frame(
+     dob = RDDFINAL$dob,
+     i = RDDFINAL$increase,
```

```
+     p = RDDFINAL$pvalue
+ )
>
> graph2010increase <- ggplot(subset(tmp2, p < .05), aes(x=dob, y=i)) +
+     geom_point(pch=17) +
+     geom_hline(yintercept=20.1, col="gray50", linetype="longdash", size=.5) +
+     geom_hline(yintercept=12.3, col="gray50", linetype="longdash", size=.5) +
+     annotate(geom="text", x= as.Date("1993-01-15"), y=19.6, label="Election Day") +
+     annotate(geom="text", x= as.Date("1993-01-15"), y=11.8, label="End-of-year") +
+     theme_bw() + xlab("Date of birth (in 1992/93)") + ylab("Estimate increase in %")
>
> ggsave("~/Dropbox/Documents/Projects/Active_Projects/Compulsory_Voting_BR/Replication_files/PSRM/
other_cutoffs_estimates_2010.png", plot = graph2010increase)
Saving 7 x 7 in image
>
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