Running R Analysis Code

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We knit to show the output of running the analysis code.

```
#######################################
# DEMOCRATIC PEACE Survey 4 CODE

#The primary statement of our analysis plan is in our pre-analysis plan in Open
#Science Foundation Storage. In this GitHub repo, we have also included
#partially complete code and simulated data related to our pre-analysis plan;
#the pre-analysis plan supersedes the code in any areas of ambiguity or difference.

images_directory = NULL
output_print = TRUE
return_main = FALSE
# save images by specifying a images directory
# this is data simulated from Qualtric's "test survey" function
if (output_print) {
  print(paste0("Complied Date and Time: ", Sys.time()))
  }
```

```
## [1] "Complied Date and Time: 2015-07-01 11:48:03"
```

```
d4 <- read_spss(system.file("extdata", "confounding_democratic_peace_4_sim.sav",
                            package = "confounding"))
d <- d4[d4$workerid != "",] # only completed responses
#############################################3
# Treatment Assignments Variables
# Democracy Vignette
d$Z <- ifelse(d$d03==1 | d$d07==1 | d$d08==1 |
                d$d09==1 | d$d10==1 | d$d13==1 | d$d14==1, 1, 0)
d$Z[is.na(d$Z)] <- 0
d$Z <- factor(x = d$Z, labels = c("Non-democracy", "Democracy"))
# Vignette Types
d$V <- c()
# Basic
d$V[d$d02==1 | d$d03==1] <- 1
# Controlled Details
d$V[d$d04==1 | d$d05==1 | d$d06==1 |
      d$d07==1 | d$d08==1 | d$d09==1 |
      d$d10==1 | d$d11==1] <- 2
# ENE
d$V[d$d12==1 | d$d13==1 | d$d14==1 | d$d15==1] <- 3
# make a factor for d$V
d$V <- factor(x = d$V, labels = c("Basic", "Controlled Details", "ENE"))
d <- d[!is.na(d$V),]
# size of data set
if (output_print) {
  dim(d)
  }
```

```
## [1] 198 171
```

```
#############################################
# Placebo Test C: Regions of the World

# 1) Dimension Reduction
d$NoAm <- region.lab(d$regions_1_1_Group, d$regions_2_1_Group)
d$WeEu <- region.lab(d$regions_1_4_Group, d$regions_2_4_Group)
d$MiEa <- region.lab(d$regions_1_6_Group, d$regions_2_6_Group)
d$SuAf <- region.lab(d$regions_1_7_Group, d$regions_2_7_Group)
d$EaAs <- region.lab(d$regions_1_8_Group, d$regions_2_8_Group)
d$CeAs <- region.lab(d$regions_1_9_Group, d$regions_2_9_Group)
d$region <- d$NoAm+d$WeEu-d$MiEa-d$SuAf
# standardized
d$region.s <- vscale(var = d$region, vig = d$V)
# regression: standardized
region.s <- myreg(Y = d$region.s, Z = d$Z, V = d$V)
```

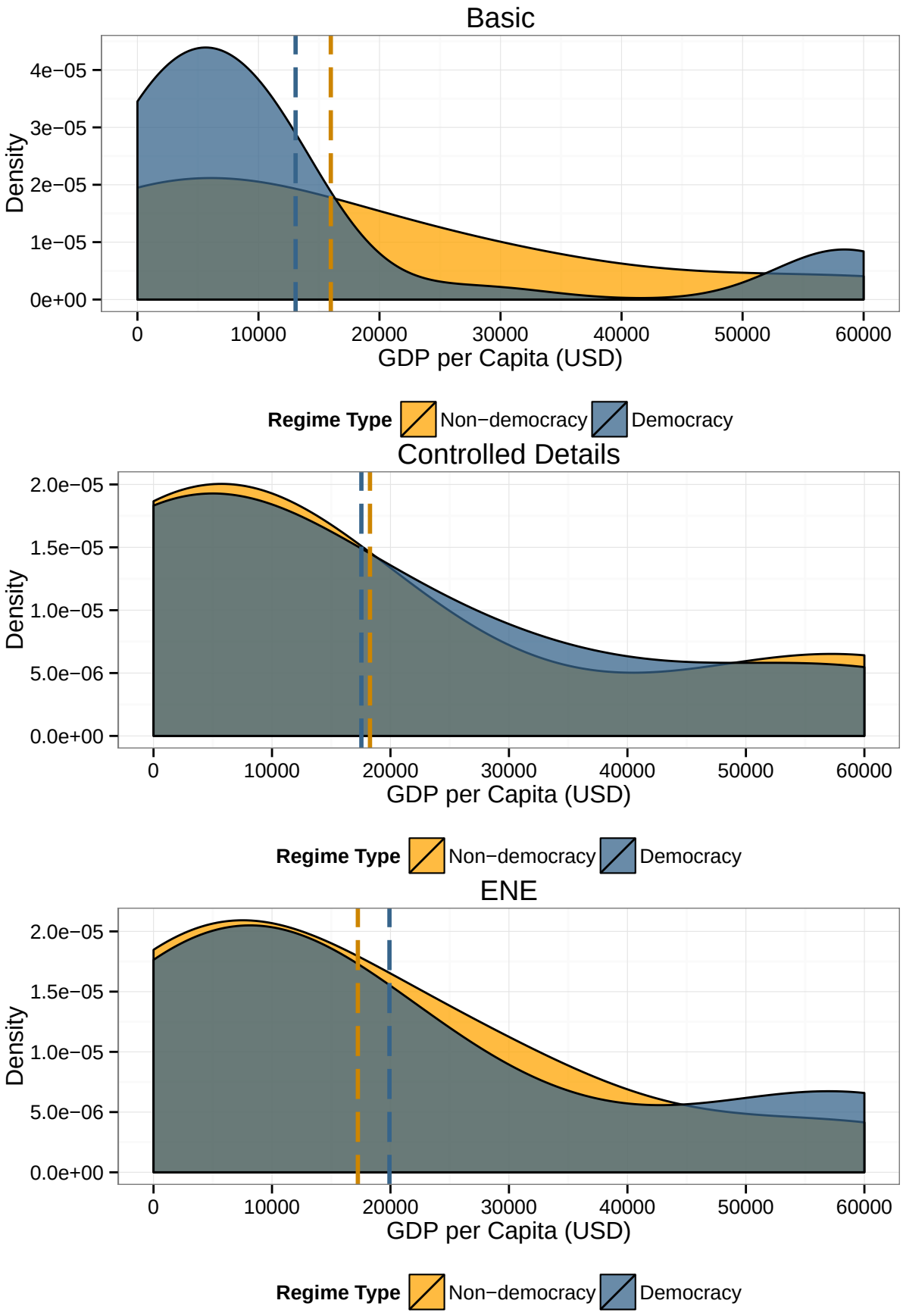
```
## Loading required package: sandwich
```

```
colnames(region.s) <- c("Coef", "SE")
# regression: non-standardized
region.n <- myreg(Y = d$region, , Z = d$Z, V = d$V)
colnames(region.n) <- c("Coef", "SE")
# regression with dummy variables and interactions
region.1 <- robustse(lm(formula = region ~ Z + V + Z:V, data = d))
region.2 <- robustse(lm(formula = region.s ~ Z + V + Z:V, data = d))
if (output_print) {
  print("Placebo Test C: Regions of the World")
  print(region.s)
  print(region.n)
  print(region.1)
  print(region.2)
  }
```

```
## [1] "Placebo Test C: Regions of the World"
##            Coef        SE
## [1,]  0.1601764 0.2525493
## [2,]  0.1683116 0.2541643
## [3,] -0.1477916 0.2486409
##            Coef        SE
## [1,]  0.1486742 0.2344140
## [2,]  0.1764706 0.2664850
## [3,] -0.1800357 0.3028875
##
## t test of coefficients:
##
##                                Estimate Std. Error t value Pr(>|t|)
## (Intercept)                   -0.242424   0.176944 -1.3701   0.1723
## ZDemocracy                     0.148674   0.234414  0.6342   0.5267
## VControlled Details            0.242424   0.285056  0.8504   0.3961
## VENE                           0.363636   0.264383  1.3754   0.1706
## ZDemocracy:VControlled Details 0.027796   0.354914  0.0783   0.9377
```

```
## ZDemocracy:VENE                -0.328710   0.383002 -0.8582   0.3918
##
##
## t test of coefficients:
##
##                                  Estimate Std. Error t value Pr(>|t|)
## (Intercept)                    -0.0788561  0.1906332 -0.4137   0.6796
## ZDemocracy                      0.1601764  0.2525493  0.6342   0.5267
## VControlled Details            -0.0078499  0.2859670 -0.0275   0.9781
## VENE                            0.1538548  0.2496906  0.6162   0.5385
## ZDemocracy:VControlled Details  0.0081353  0.3583024  0.0227   0.9819
## ZDemocracy:VENE                -0.3079680  0.3544058 -0.8690   0.3859
```

```
###########################################
# Placebo Test D: GDP per Capita
d$gdp <- ifelse(is.na(d$gdp_1), d$gdp_2, d$gdp_1)
# relabel
# real-world median values for each interval
qog <- read.dta(system.file("extdata", "qog_bas_ts_jan15.dta",
                            package = "confounding"))
r_gdp <- qog$gle_cgdpc[qog$year==2005]
d$gdp <- relab(old.var = d$gdp, old.labs = 1:7,
               new.labs = c(median(r_gdp[r_gdp < 500], TRUE),
                            median(r_gdp[r_gdp > 500 & r_gdp < 1001], TRUE),
                            median(r_gdp[r_gdp > 1000 & r_gdp < 5001], TRUE),
                            median(r_gdp[r_gdp > 5000 & r_gdp < 10001], TRUE),
                            median(r_gdp[r_gdp > 10000 & r_gdp < 20001], TRUE),
                            median(r_gdp[r_gdp > 20000 & r_gdp < 40001], TRUE),
                            median(r_gdp[r_gdp > 40000], TRUE)))
# standardize
d$gdp.s <- vscale(var = d$gdp, vig = d$V)
# graphing distribution
for (j in 1:3) {
  my_ggplot <- myden(Y=d$gdp, V=d$V, Z=d$Z, v = j, x.limits=c(0, 60000),
                     x.breaks=seq(0,60000,10000),
                     x.labels=seq(0,60000,10000),
                     title=levels(d$V)[j], xlab="GDP per Capita (USD)")
  if (!is.null(images_directory)) {
    ggsave(paste0(images_directory, "/gdp", j, ".pdf"), width=5, heigh=3.5)
    } else if (output_print) {
      print(my_ggplot)
      }
  }
```

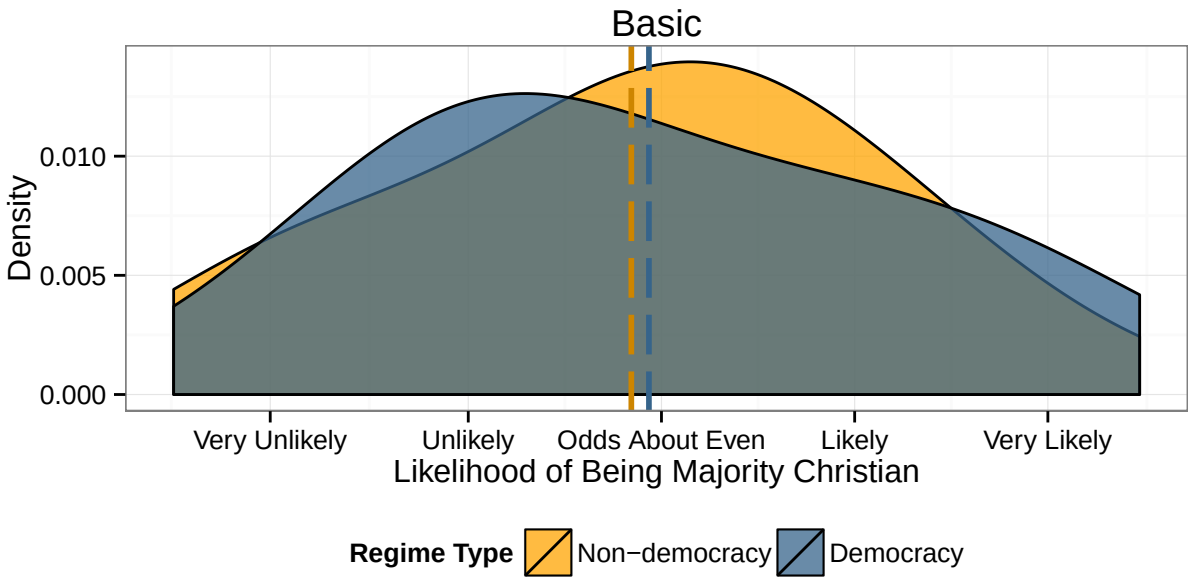

Basic
Density
4e−05
3e−05
2e−05
1e−05
0e+00
0
10000
20000
30000
40000
50000
60000
GDP per Capita (USD)
Regime Type
Non−democracy
Democracy
Controlled Details
Density
2.0e−05
1.5e−05
1.0e−05
5.0e−06
0.0e+00
0
10000
20000
30000
40000
50000
60000
GDP per Capita (USD)
Regime Type
Non−democracy
Democracy
ENE
Density
2.0e−05
1.5e−05
1.0e−05
5.0e−06
0.0e+00
0
10000
20000
30000
40000
50000
60000
GDP per Capita (USD)
Regime Type
Non−democracy
Democracy

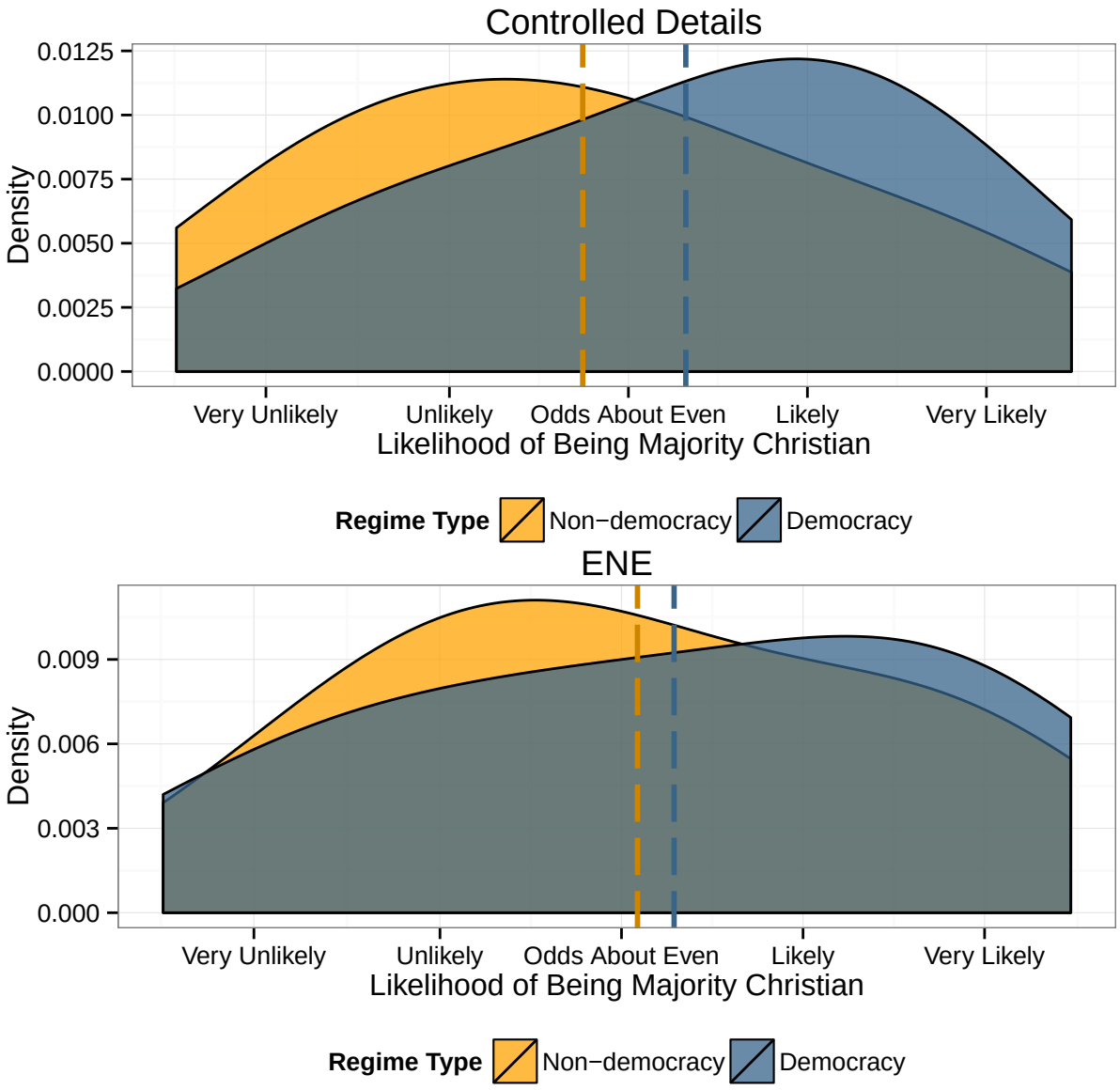
```r
# regression: standardized
gdp.s <- myreg(Y = d$gdp.s, Z = d$Z, V = d$V)
colnames(gdp.s) <- c("Coef", "SE")
# regression: non-standardized
gdp.n <- myreg(Y = d$gdp, Z = d$Z, V = d$V)
colnames(gdp.n) <- c("Coef", "SE")
# regression with dummy variables and interactions
gdp.1 <- robustse(lm(formula = gdp ~ Z + V + Z:V, data = d))
gdp.2 <- robustse(lm(formula = gdp.s ~ Z + V + Z:V, data = d))
if (output_print) {
  print("Placebo Test D: GDP per Capita")
  print(gdp.s)
  print(gdp.n)
  print(gdp.1)
  print(gdp.2)
  }
```

```
## [1] "Placebo Test D: GDP per Capita"
##             Coef        SE
## [1,] -0.15634747 0.2530683
## [2,] -0.03314614 0.2524164
## [3,]  0.13301169 0.2488952
##           Coef       SE
## [1,] -2909.028 4708.633
## [2,]  -727.535 5540.367
## [3,]  2666.414 4989.470
##
## t test of coefficients:
##
##                                Estimate Std. Error t value  Pr(>|t|)
## (Intercept)                     15976.8     3362.0  4.7521 3.937e-06 ***
## ZDemocracy                      -2909.0     4708.6 -0.6178    0.5374
## VControlled Details              2294.6     5279.6  0.4346    0.6643
## VENE                             1271.5     4709.1  0.2700    0.7874
## ZDemocracy:VControlled Details   2181.5     7271.0  0.3000    0.7645
## ZDemocracy:VENE                  5575.4     6860.5  0.8127    0.4174
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##                                Estimate Std. Error t value Pr(>|t|)
## (Intercept)                    0.076971   0.180695  0.4260   0.6706
## ZDemocracy                    -0.156347   0.253068 -0.6178   0.5374
## VControlled Details           -0.059896   0.258934 -0.2313   0.8173
## VENE                          -0.144470   0.244347 -0.5912   0.5551
## ZDemocracy:VControlled Details  0.123201   0.357432  0.3447   0.7307
## ZDemocracy:VENE                 0.289359   0.354954  0.8152   0.4160
```

```r
##############################################
# Placebo Test E: Religion
d$religion <- ifelse(is.na(d$religion_1), d$religion_2, d$religion_1)
```

```
# relabel
probint <- c(mean(0:20), mean(21:40), mean(41:60), mean(61:80), mean(81:100))
likelylab <- c("Very Unlikely", "Unlikely", "Odds About Even",
               "Likely", "Very Likely")
d$religion <- relab(old.var = d$religion, old.labs = 1:5,
                    new.labs = probint)
# standardize
d$religion.s <- vscale(var = d$religion, vig = d$V)
# graphing distribution
for (j in 1:3) {
  my_ggplot <- myden(Y=d$religion, V=d$V, Z=d$Z, v = j, x.limits=c(0, 100),
                     x.breaks=probint,
                     x.labels=likelylab,
                     title=levels(d$V)[j],
                     xlab="Likelihood of Being Majority Christian")
  if (!is.null(images_directory)) {
    ggsave(paste0(images_directory, "/religion", j, ".pdf"), width=5, heigh=3.5)
    } else if (output_print) {
      print(my_ggplot)
      }
  }
```



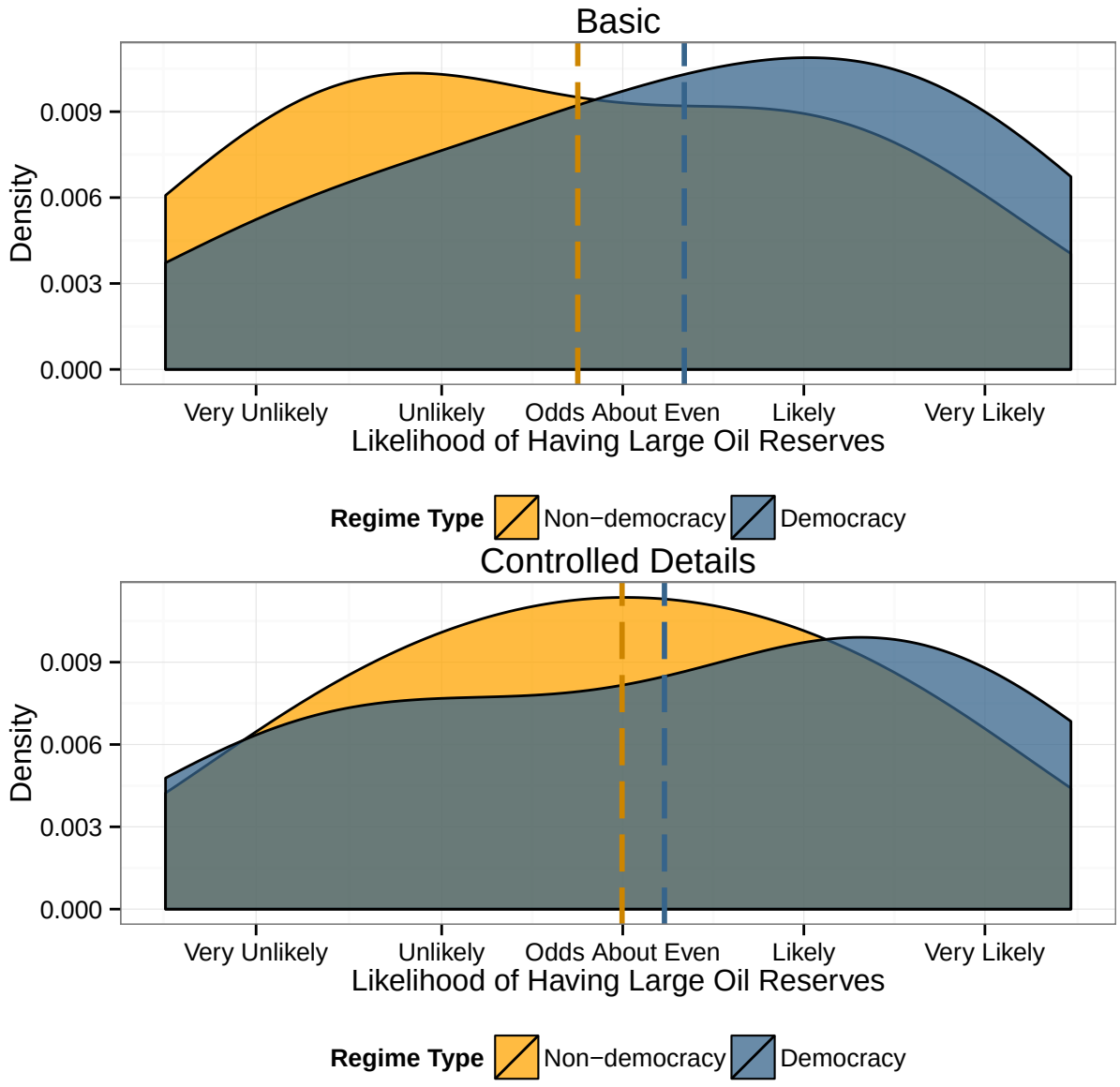


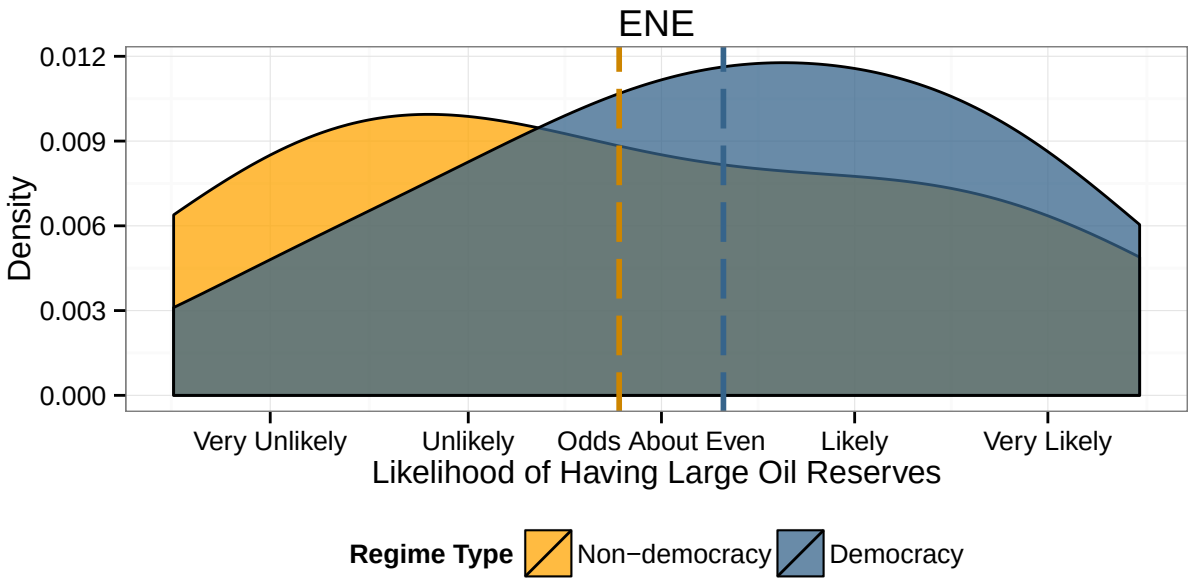

```
# regression: standardized
religion.s <- myreg(Y = d$religion.s, Z = d$Z, V = d$V)
colnames(religion.s) <- c("Coef", "SE")
# regression: non-standardized
religion.n <- myreg(Y = d$religion, Z = d$Z, V = d$V)
colnames(religion.n) <- c("Coef", "SE")
# regression with dummy variables and interactions
religion.1 <- robustse(lm(formula = religion ~ Z + V + Z:V, data = d))
religion.2 <- robustse(lm(formula = religion.s ~ Z + V + Z:V, data = d))
if (output_print) {
  print("Placebo Test E: Religion")
  print(religion.s)
  print(religion.n)
  print(religion.1)
  print(religion.2)
  }
```

```
## [1] "Placebo Test E: Religion"
##            Coef        SE
## [1,] 0.07482884 0.2541112
## [2,] 0.42048668 0.2466398
## [3,] 0.13978928 0.2490289
##           Coef       SE
## [1,]  1.824337 6.195266
## [2,] 11.521140 6.757816
## [3,]  4.036542 7.190935
##
## t test of coefficients:
##
##                                Estimate Std. Error t value Pr(>|t|)
## (Intercept)                     47.3788     4.1833 11.3257   <2e-16 ***
## ZDemocracy                       1.8243     6.1953  0.2945   0.7687
## VControlled Details             -1.9882     6.4729 -0.3072   0.7591
## VENE                             4.8788     6.4332  0.7584   0.4492
## ZDemocracy:VControlled Details   9.6968     9.1678  1.0577   0.2915
## ZDemocracy:VENE                  2.2122     9.4916  0.2331   0.8160
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##                                 Estimate Std. Error t value Pr(>|t|)
## (Intercept)                    -0.036839   0.171587 -0.2147   0.8302
## ZDemocracy                      0.074829   0.254111  0.2945   0.7687
## VControlled Details            -0.179776   0.248879 -0.7223   0.4710
## VENE                           -0.034099   0.241015 -0.1415   0.8876
## ZDemocracy:VControlled Details  0.345658   0.354124  0.9761   0.3302
## ZDemocracy:VENE                 0.064960   0.355792  0.1826   0.8553
```

```
##############################################
# Placebo Test F: Oil Reserves
d$oil <- ifelse(is.na(d$oil_1), d$oil_2, d$oil_1)
# relabel
d$oil <- relab(old.var = d$oil, old.labs = 1:5,
               new.labs = rev(probint))
d$oil.o <- relab(old.var = ifelse(is.na(d$oil_1), d$oil_2, d$oil_1),
                 old.labs = 1:5,
                 new.labs = probint)
# standardize
d$oil.s <- vscale(var = d$oil.o, vig = d$V)
# graphing distribution
for (j in 1:3) {
  my_ggplot <- myden(Y=d$oil, V=d$V, Z=d$Z, v = j, x.limits=c(0, 100),
                     x.breaks=probint,
                     x.labels=likelylab,
                     title=levels(d$V)[j],
                     xlab="Likelihood of Having Large Oil Reserves")
  if (!is.null(images_directory)) {
    ggsave(paste0(images_directory, "/oil", j, ".pdf"), width=5, heigh=3.5)
    } else if (output_print) {
```

```
    print(my_ggplot)
    }
}
```



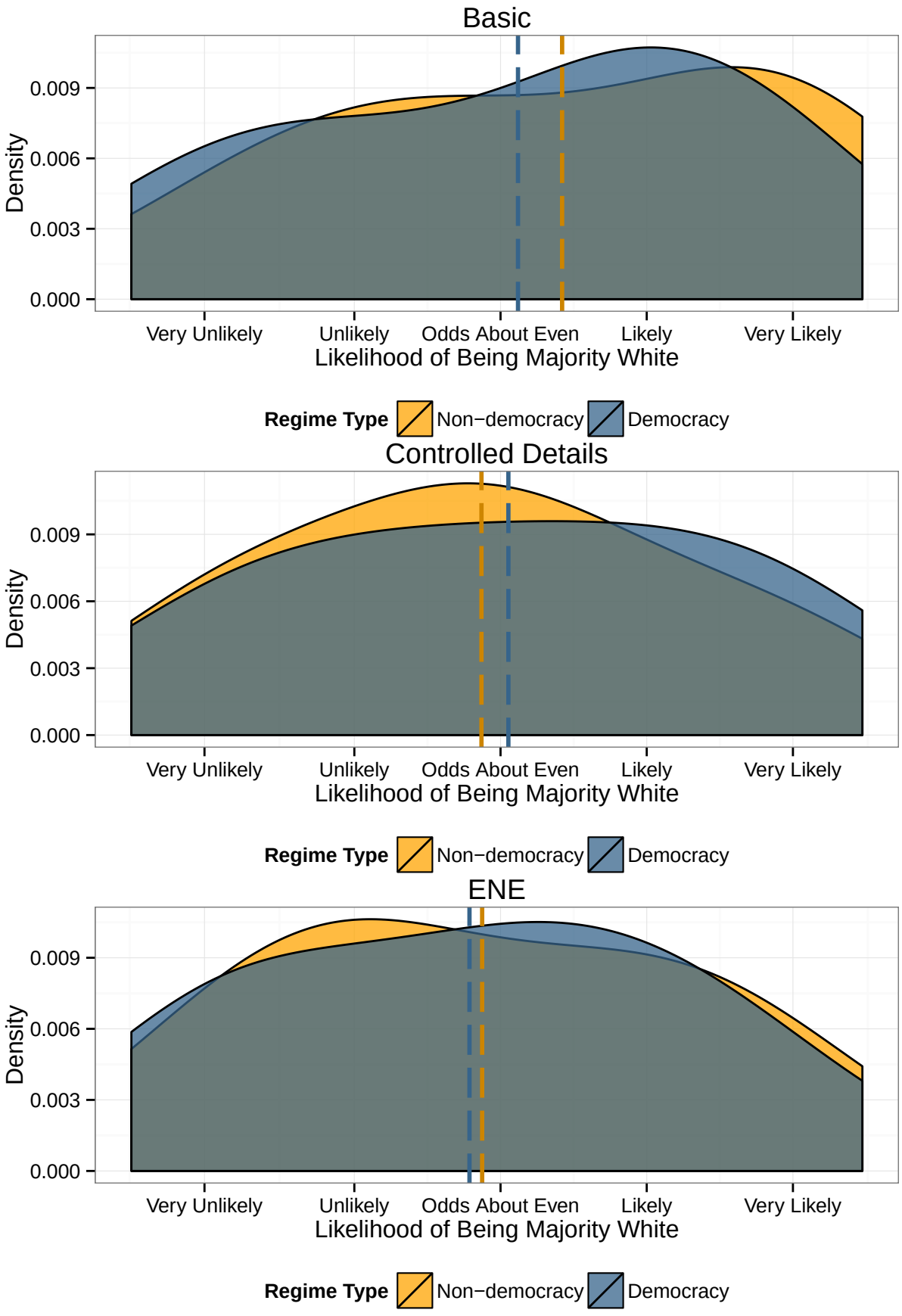



```
# regression: standardized
oil.s <- myreg(Y = d$oil.s, Z = d$Z, V = d$V)
colnames(oil.s) <- c("Coef", "SE")
# regression: non-standardized
oil.n <- myreg(Y = d$oil, Z = d$Z, V = d$V)
colnames(oil.n) <- c("Coef", "SE")
# regression with dummy variables and interactions
oil.1 <- robustse(lm(formula = oil ~ Z + V + Z:V, data = d))
oil.2 <- robustse(lm(formula = oil.s ~ Z + V + Z:V, data = d))
if (output_print) {
  print("Placebo Test F: Oil Reserves")
  print(oil.s)
  print(oil.n)
  print(oil.1)
  print(oil.2)
  }
```

```
## [1] "Placebo Test F: Oil Reserves"
##            Coef        SE
## [1,] -0.4076571 0.2486310
## [2,] -0.1647790 0.2499047
## [3,] -0.3692040 0.2462073
##           Coef       SE
## [1,] 11.766572 7.201284
## [2,]  4.681066 7.238951
## [3,] 10.790553 7.147319
##
## t test of coefficients:
##
##                                Estimate Std. Error t value Pr(>|t|)
## (Intercept)                    45.53030    5.02989  9.0520   <2e-16 ***
## ZDemocracy                     11.76657    7.20128  1.6340   0.1039
## VControlled Details             4.89157    6.92716  0.7061   0.4810
## VENE                            0.59091    7.42386  0.0796   0.9366
## ZDemocracy:VControlled Details -7.08551   10.21082 -0.6939   0.4886
```

```
## ZDemocracy:VENE                -0.97602   10.14607 -0.0962   0.9235
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##                                 Estimate Std. Error t value Pr(>|t|)
## (Intercept)                     0.200693   0.173373  1.1576   0.2485
## ZDemocracy                     -0.407657   0.248631 -1.6396   0.1027
## VControlled Details            -0.115807   0.238905 -0.4847   0.6284
## VENE                           -0.013335   0.255691 -0.0522   0.9585
## ZDemocracy:VControlled Details  0.242878   0.352519  0.6890   0.4917
## ZDemocracy:VENE                 0.038453   0.349908  0.1099   0.9126
```

```
##############################################
# Placebo Test G: White
d$white <- ifelse(is.na(d$white_1), d$white_2, d$white_1)
# relabel
probint <- c(mean(0:20), mean(21:40), mean(41:60), mean(61:80), mean(81:100))
likelylab <- c("Very Unlikely", "Unlikely", "Odds About Even",
               "Likely", "Very Likely")
d$white <- relab(old.var = d$white, old.labs = 1:5,
                 new.labs = probint)
# standardize
d$white.s <- vscale(var = d$white, vig = d$V)
# graphing distribution
for (j in 1:3) {
  my_ggplot <- myden(Y=d$white, V=d$V, Z=d$Z, v = j, x.limits=c(0, 100),
                     x.breaks=probint,
                     x.labels=likelylab,
                     title=levels(d$V)[j],
                     xlab="Likelihood of Being Majority White")
  if (!is.null(images_directory)) {
    ggsave(paste0(images_directory, "/white", j, ".pdf"), width=5, heigh=3.5)
    } else if (output_print) {
      print(my_ggplot)
      }
  }
```

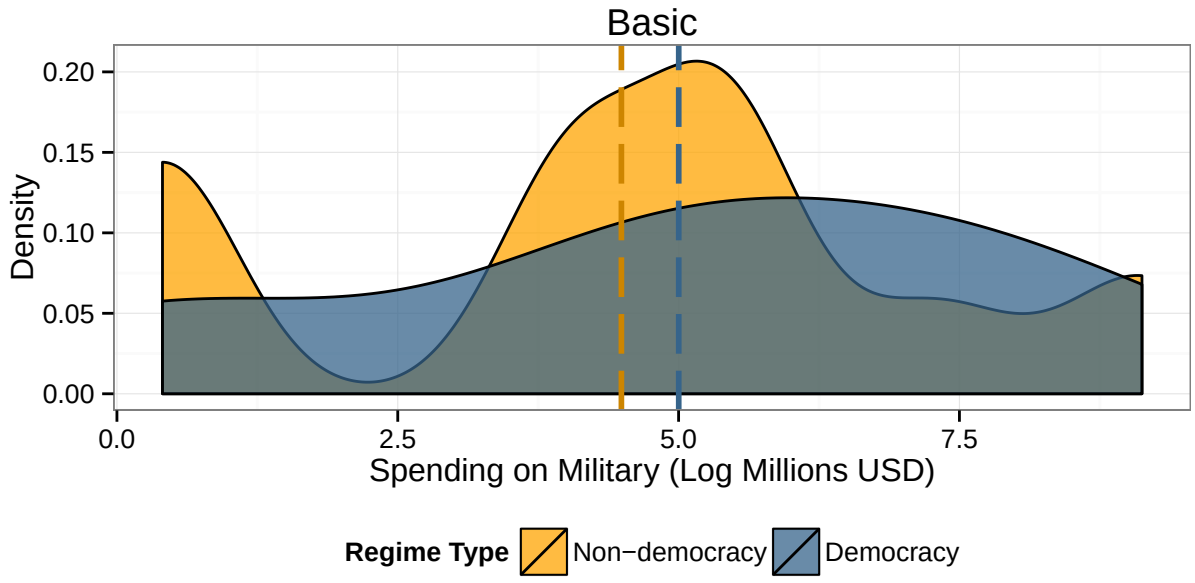

Basic
Density
0.009
0.006
0.003
0.000
Very Unlikely
Unlikely
Odds About Even
Likely
Very Likely
Likelihood of Being Majority White
Regime Type
Non−democracy
Democracy
Controlled Details
Density
0.009
0.006
0.003
0.000
Very Unlikely
Unlikely
Odds About Even
Likely
Very Likely
Likelihood of Being Majority White
Regime Type
Non−democracy
Democracy
ENE
Density
0.009
0.006
0.003
0.000
Very Unlikely
Unlikely
Odds About Even
Likely
Very Likely
Likelihood of Being Majority White
Regime Type
Non−democracy
Democracy

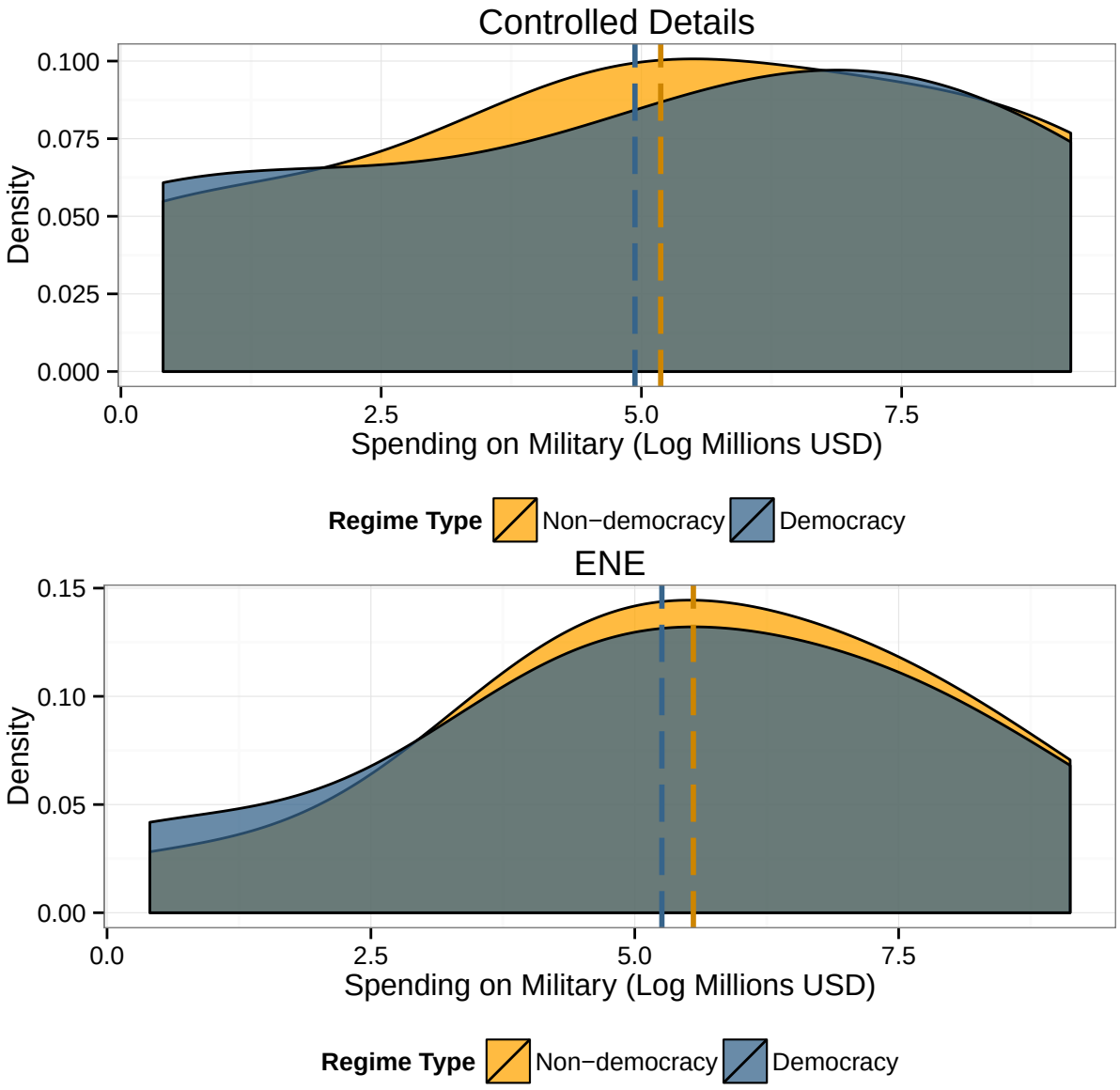
```r
# regression: standardized
white.s <- myreg(Y = d$white.s, Z = d$Z, V = d$V)
colnames(white.s) <- c("Coef", "SE")
# regression: non-standardized
white.n <- myreg(Y = d$white, Z = d$Z, V = d$V)
colnames(white.n) <- c("Coef", "SE")
# regression with dummy variables and interactions
white.1 <- robustse(lm(formula = white ~ Z + V + Z:V, data = d))
white.2 <- robustse(lm(formula = white.s ~ Z + V + Z:V, data = d))
if (output_print) {
  print("Placebo Test G: White")
  print(white.s)
  print(white.n)
  print(white.1)
  print(white.2)
  }
```

```
## [1] "Placebo Test G: White"
##             Coef        SE
## [1,] -0.20233728 0.2526181
## [2,]  0.12857638 0.2510474
## [3,] -0.06263601 0.2498651
##           Coef       SE
## [1,] -6.033617 7.532971
## [2,]  3.682904 7.190930
## [3,] -1.734848 6.920589
##
## t test of coefficients:
##
##                                Estimate Std. Error t value Pr(>|t|)
## (Intercept)                     58.9242     5.3234 11.0688   <2e-16 ***
## ZDemocracy                      -6.0336     7.5330 -0.8010   0.4241
## VControlled Details            -11.0336     7.3061 -1.5102   0.1326
## VENE                           -10.9394     7.2519 -1.5085   0.1331
## ZDemocracy:VControlled Details   9.7165    10.4142  0.9330   0.3520
## ZDemocracy:VENE                  4.2988    10.2294  0.4202   0.6748
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##                                Estimate Std. Error t value Pr(>|t|)
## (Intercept)                     0.099612   0.178521  0.5580   0.5775
## ZDemocracy                     -0.202337   0.252618 -0.8010   0.4241
## VControlled Details            -0.165849   0.249779 -0.6640   0.5075
## VENE                           -0.067827   0.251956 -0.2692   0.7881
## ZDemocracy:VControlled Details  0.330914   0.356147  0.9291   0.3540
## ZDemocracy:VENE                 0.139701   0.355315  0.3932   0.6946
```

```r
##############################################
# Placebo Test H: Military Capability
d$force <- ifelse(is.na(d$force_1), d$force_2, d$force_1)
```

```r
# relabel
# real-world median values in each interval
nmc <- read.csv(system.file("extdata", "NMC_v4_0.csv",
                            package = "confounding"))
r_exp <- nmc$milex[nmc$year == 2005]/1000
d$force <- relab(old.var = d$force, old.labs = 1:5,
                 new.labs = c(median(r_exp[r_exp >= 0 & r_exp <= 30], TRUE),
                              median(r_exp[r_exp > 30 & r_exp <= 120], TRUE),
                              median(r_exp[r_exp > 120 & r_exp <= 600], TRUE),
                              median(r_exp[r_exp > 600 & r_exp <= 3500], TRUE),
                              median(r_exp[r_exp > 3500], TRUE)))
# ordinal coding
d$force.o <- ifelse(is.na(d$force_1), d$force_2, d$force_1)
d$force.o <- relab(old.var = d$force.o, old.labs = 1:5, new.labs = 0:4)
# standardize
d$force.s <- vscale(var = d$force, vig = d$V)
# graphing distribution
for (j in 1:3) {
  my_ggplot <- myden(Y=log(d$force), V=d$V, Z=d$Z, v = j,
                     title=levels(d$V)[j],
                     xlab="Spending on Military (Log Millions USD)")
  if (!is.null(images_directory)) {
    ggsave(paste0(images_directory, "/force", j, ".pdf"), width=5, heigh=3.5)
    } else if (output_print) {
      print(my_ggplot)
      }
  }
```





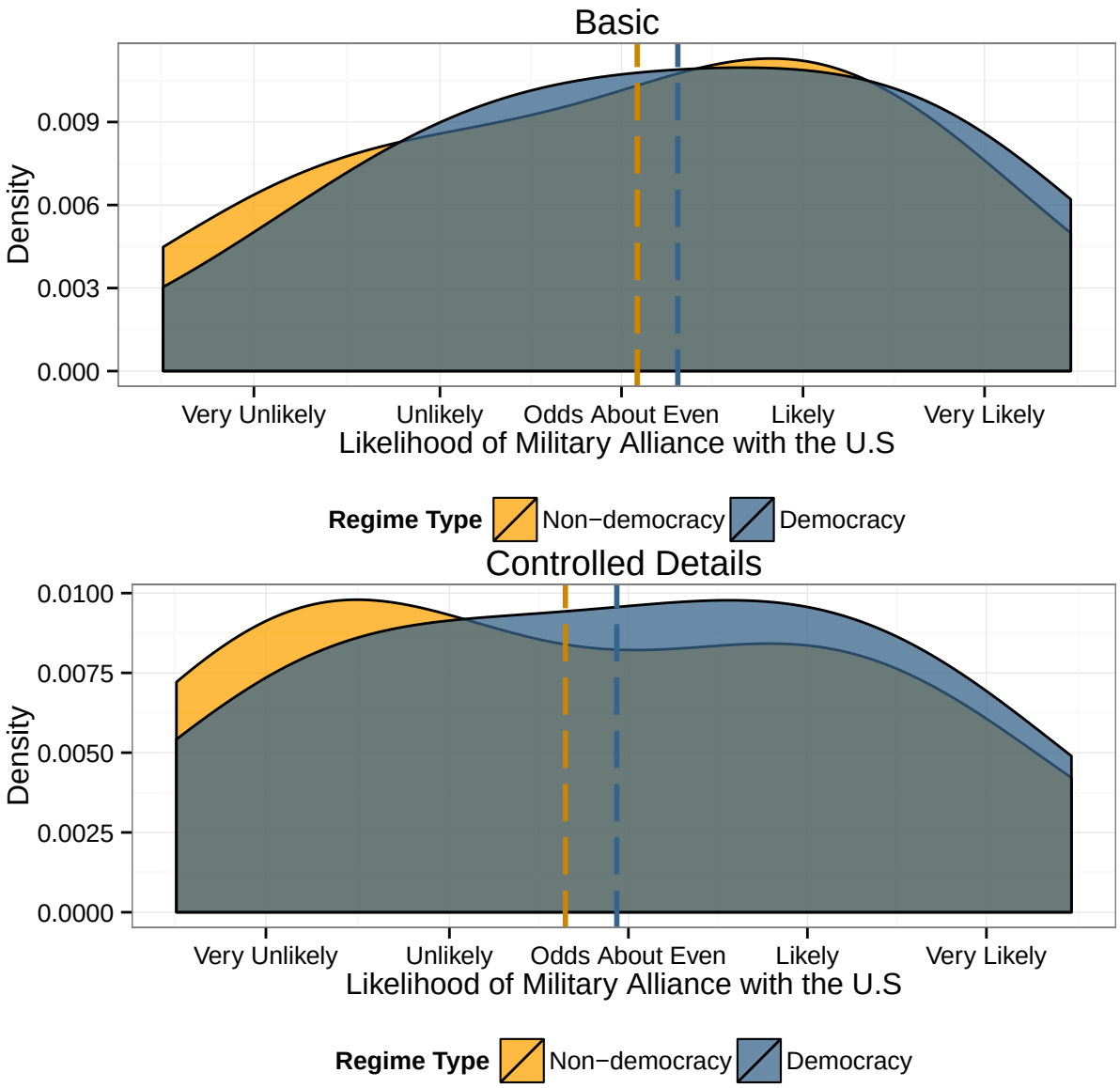

```r
# regression: standardized
force.s <- myreg(Y = d$force.s, Z = d$Z, V = d$V)
colnames(force.s) <- c("Coef", "SE")
# regression: non-standardized
force.n <- myreg(Y = d$force, Z = d$Z, V = d$V)
colnames(force.n) <- c("Coef", "SE")
# regression: ordinal coding
force.o <- myreg(Y = d$force.o, Z = d$Z, V = d$V)
colnames(force.o) <- c("Coef", "SE")
# regression with dummy variables and interactions
force.1 <- robustse(lm(formula = force ~ Z + V + Z:V, data = d))
force.2 <- robustse(lm(formula = force.s ~ Z + V + Z:V, data = d))
if (output_print) {
  print("Placebo Test H: Military Capability")
  print(force.s)
  print(force.n)
  print(force.o)
```

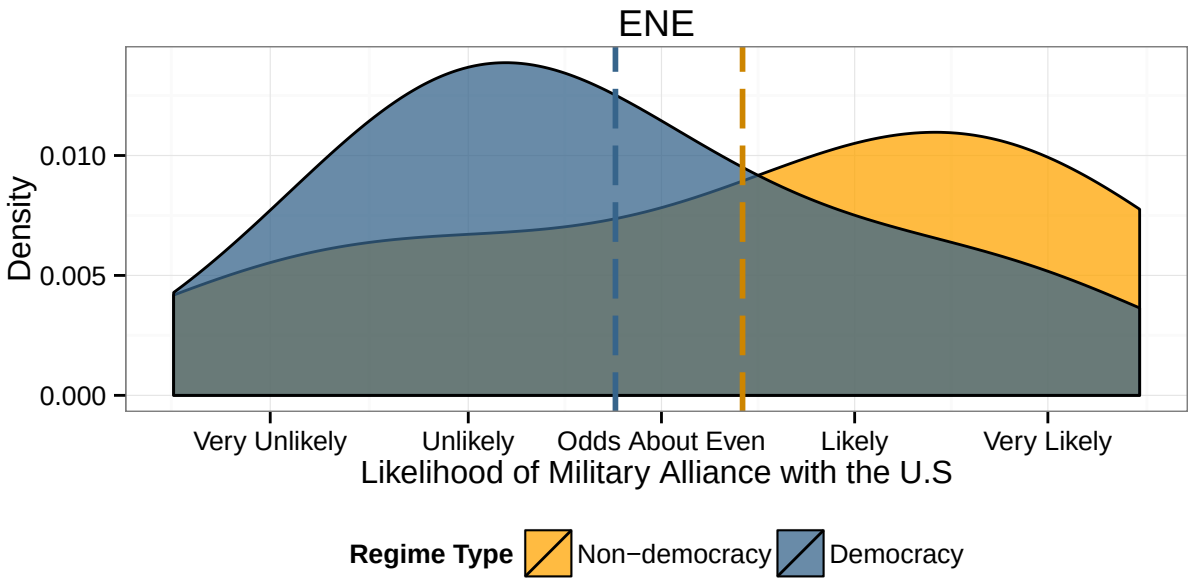
```
  print(force.1)
  print(force.2)
  }
```

```
## [1] "Placebo Test H: Military Capability"
##             Coef        SE
## [1,]  0.08493721 0.2537556
## [2,] -0.13166803 0.2526287
## [3,] -0.01842706 0.2500269
##            Coef       SE
## [1,]  251.80161 752.2741
## [2,] -480.00092 920.9678
## [3,]  -53.27406 722.8472
##             Coef        SE
## [1,]  0.26893939 0.3353349
## [2,] -0.05698529 0.3798853
## [3,] -0.11942959 0.3070541
##
## t test of coefficients:
##
##                                Estimate Std. Error t value Pr(>|t|)
## (Intercept)                     1331.15     528.50  2.5187  0.01259 *
## ZDemocracy                       251.80     752.27  0.3347  0.73820
## VControlled Details             1206.61     881.11  1.3694  0.17246
## VENE                             261.17     739.69  0.3531  0.72442
## ZDemocracy:VControlled Details  -731.80    1189.16 -0.6154  0.53902
## ZDemocracy:VENE                 -305.08    1043.28 -0.2924  0.77028
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##                                 Estimate Std. Error t value Pr(>|t|)
## (Intercept)                    -0.041815   0.178272 -0.2346   0.8148
## ZDemocracy                      0.084937   0.253756  0.3347   0.7382
## VControlled Details             0.109644   0.263022  0.4169   0.6772
## VENE                            0.051166   0.252635  0.2025   0.8397
## ZDemocracy:VControlled Details -0.216605   0.358069 -0.6049   0.5459
## ZDemocracy:VENE                -0.103364   0.356238 -0.2902   0.7720
```

```
##############################################
# Placebo Test I: Military Alliance
d$allies <- ifelse(is.na(d$alliance_1), d$alliance_2, d$alliance_1)
# relabel
d$allies <- relab(old.var = d$allies, old.labs = 1:5,
                  new.labs = probint)
# standardize
d$allies.s <- vscale(var = d$allies, vig = d$V)
# graphing distribution
for (j in 1:3) {
  my_ggplot <- myden(Y=d$allies, V=d$V, Z=d$Z, v = j, x.limits=c(0, 100),
                     x.breaks=probint,
```

```
                    x.labels=likelylab,
                    title=levels(d$V)[j],
                    xlab="Likelihood of Military Alliance with the U.S")
if (!is.null(images_directory)) {
  ggsave(paste0(images_directory, "/allies", j, ".pdf"), width=5, heigh=3.5)
  } else if (output_print) {
    print(my_ggplot)
    }
}
```



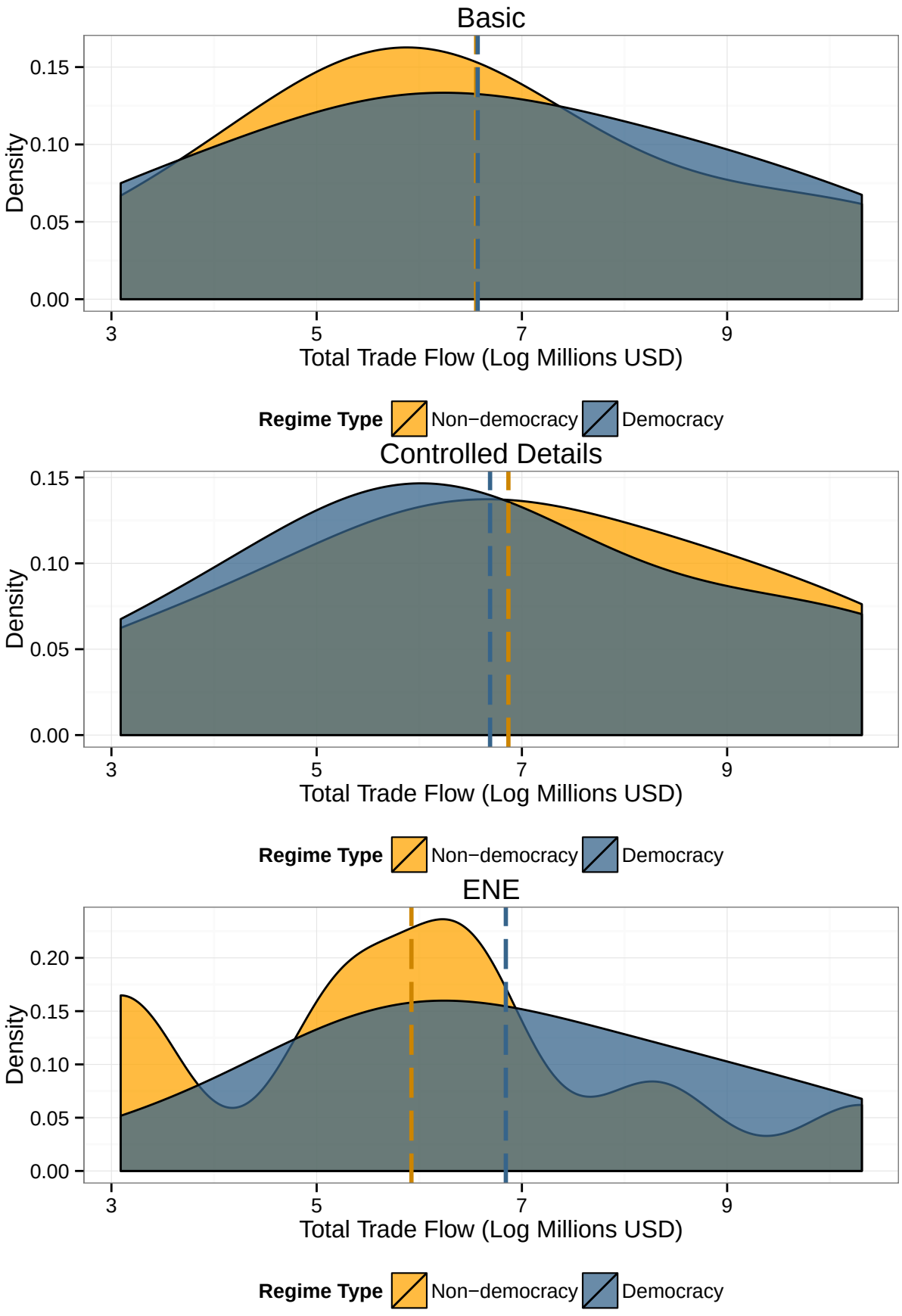



```
# regression: standardized
allies.s <- myreg(Y = d$allies.s, Z = d$Z, V = d$V)
colnames(allies.s) <- c("Coef", "SE")
# regression: non-standardized
allies.n <- myreg(Y = d$allies, Z = d$Z, V = d$V)
colnames(allies.n) <- c("Coef", "SE")
# regression with dummy variables and interactions
allies.1 <- robustse(lm(formula = allies ~ Z + V + Z:V, data = d))
allies.2 <- robustse(lm(formula = allies.s ~ Z + V + Z:V, data = d))
if (output_print) {
  print("Placebo Test I: Military Alliance")
  print(allies.s)
  print(allies.n)
  print(allies.1)
  print(allies.2)
  }
```

```
## [1] "Placebo Test I: Military Alliance"
##             Coef        SE
## [1,]  0.1652385 0.2529708
## [2,]  0.1931431 0.2511993
## [3,] -0.4574741 0.2440324
##             Coef       SE
## [1,]   4.475852 6.852277
## [2,]   5.752757 7.481958
## [3,] -13.158645 7.019275
##
## t test of coefficients:
##
##                                Estimate Std. Error t value Pr(>|t|)
## (Intercept)                     52.2273     4.8957 10.6680  < 2e-16 ***
## ZDemocracy                       4.4759     6.8523  0.6532  0.51441
## VControlled Details             -8.7741     7.3480 -1.1941  0.23391
## VENE                             6.6667     7.3460  0.9075  0.36527
## ZDemocracy:VControlled Details   1.2769    10.1456  0.1259  0.89998
```

```
## ZDemocracy:VENE                -17.6345     9.8094 -1.7977  0.07379 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##                                 Estimate Std. Error t value Pr(>|t|)
## (Intercept)                    -0.081348   0.180738 -0.4501  0.65315
## ZDemocracy                      0.165238   0.252971  0.6532  0.51441
## VControlled Details            -0.018150   0.257896 -0.0704  0.94397
## VENE                            0.313499   0.262531  1.1941  0.23390
## ZDemocracy:VControlled Details  0.027905   0.356504  0.0783  0.93769
## ZDemocracy:VENE                -0.622713   0.351491 -1.7716  0.07804 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
##############################################
# Placebo Test J: Trade with the U.S.
d$trade <- ifelse(is.na(d$trade_1), d$trade_2, d$trade_1)
# relabel
# get real-world median values for each interval
cow_trade <- read.csv(system.file("extdata", "dyadic_trade_3.0.csv",
                                  package = "confounding"))
cow_trade <- cow_trade[cow_trade$importer1=="United States of America" &
                         cow_trade$year==2005,]
r_trade <- cow_trade$flow1 + cow_trade$flow2
d$trade <- relab(old.var = d$trade, old.labs = 1:5,
                 new.labs = c(median(r_trade[r_trade >= 0 & r_trade <= 100], TRUE),
                              median(r_trade[r_trade > 100 & r_trade <= 350], TRUE),
                              median(r_trade[r_trade > 350 & r_trade <= 1500], TRUE),
                              median(r_trade[r_trade > 1500 & r_trade <= 10000], TRUE),
                              median(r_trade[r_trade > 10000], TRUE)))
# ordinal coding
d$trade.o <- ifelse(is.na(d$trade_1), d$trade_2, d$trade_1)
d$trade.o <- relab(old.var = d$trade.o, old.labs = 1:5, new.labs = 0:4)
# standardize
d$trade.s <- vscale(var = d$trade, vig = d$V)
# graphing distribution
for (j in 1:3) {
  my_ggplot <- myden(Y=log(d$trade), V=d$V, Z=d$Z, v = j,
                     title=levels(d$V)[j],
                     xlab="Total Trade Flow (Log Millions USD)")
  if (!is.null(images_directory)) {
    ggsave(paste0(images_directory, "/trade", j, ".pdf"), width=5, heigh=3.5)
    } else if (output_print) {
      print(my_ggplot)
      }
  }
```

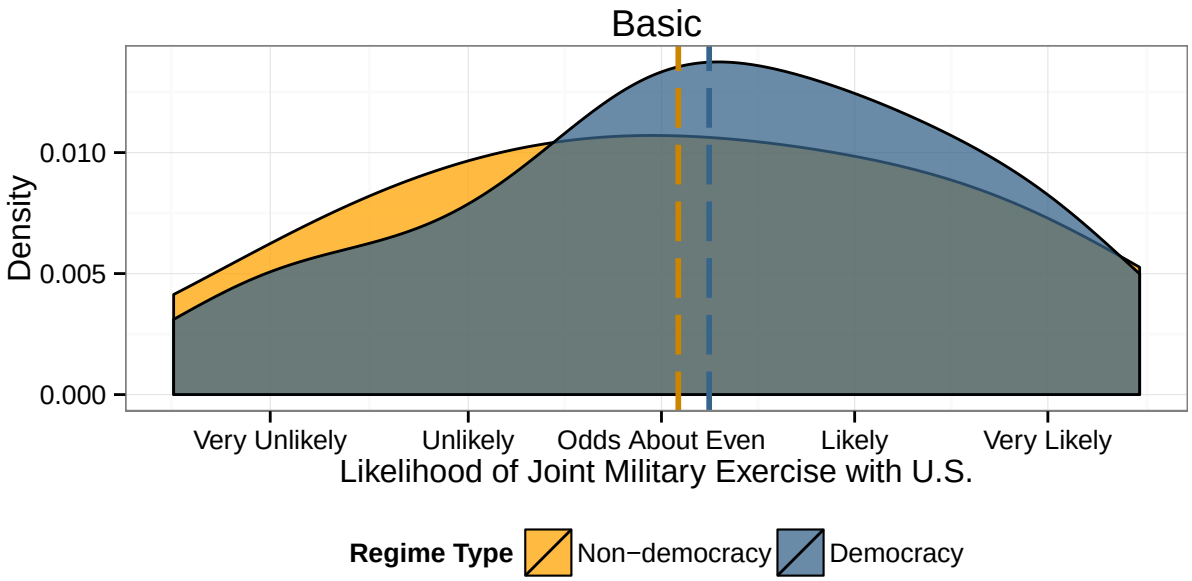

Basic
Density
0.15
0.10
0.05
0.00
3
5
7
9
Total Trade Flow (Log Millions USD)
Regime Type
Non−democracy
Democracy
Controlled Details
Density
0.15
0.10
0.05
0.00
3
5
7
9
Total Trade Flow (Log Millions USD)
Regime Type
Non−democracy
Democracy
ENE
Density
0.20
0.15
0.10
0.05
0.00
3
5
7
9
Total Trade Flow (Log Millions USD)
Regime Type
Non−democracy
Democracy

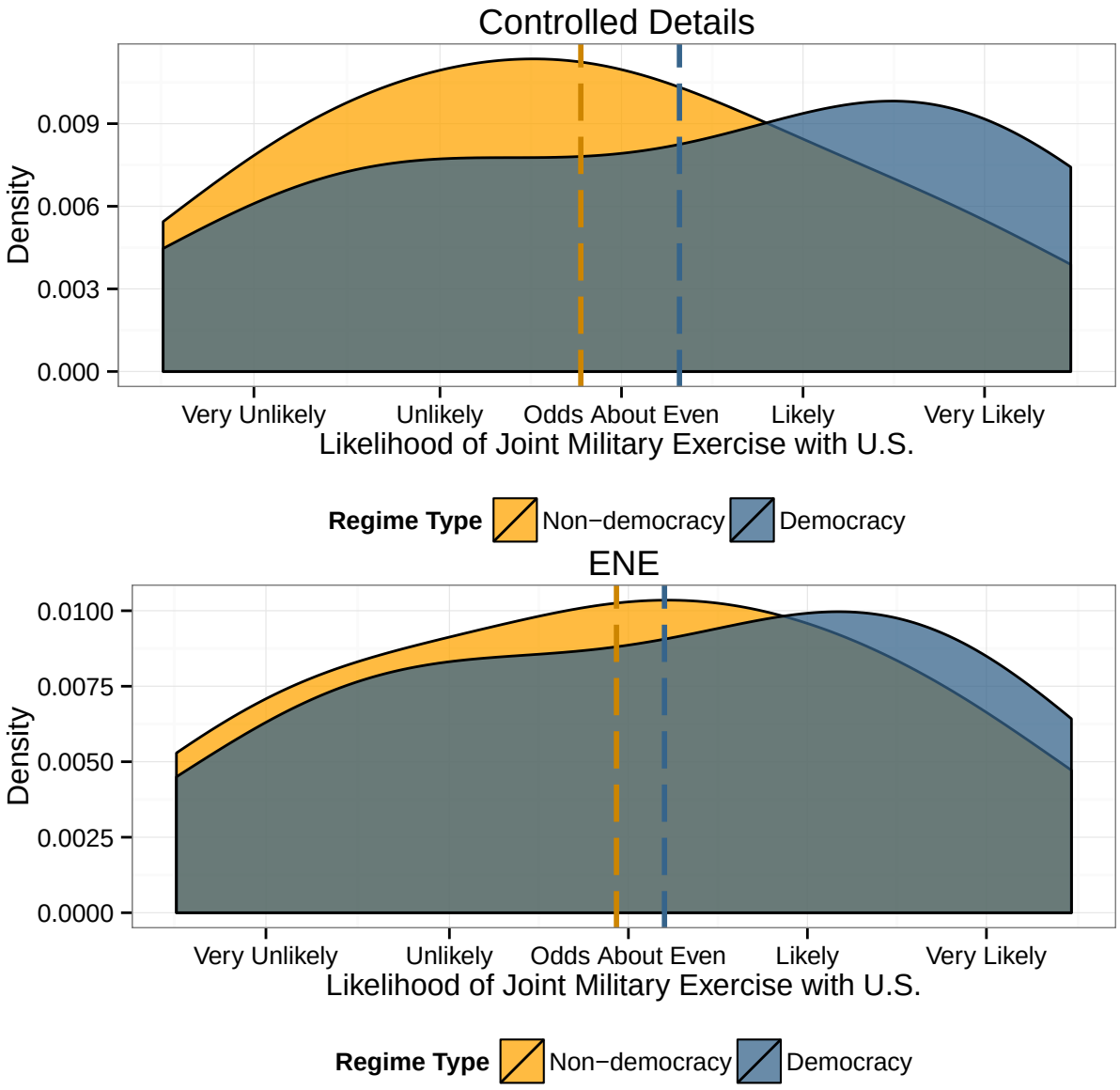
```r
# regression: standardized
trade.s <- myreg(Y = d$trade.s, Z = d$Z, V = d$V)
colnames(trade.s) <- c("Coef", "SE")
# regression: non-standardized
trade.n <- myreg(Y = d$trade, Z = d$Z, V = d$V)
colnames(trade.n) <- c("Coef", "SE")
# regression: ordinal coding
trade.o <- myreg(Y = d$trade.o, Z = d$Z, V = d$V)
colnames(trade.o) <- c("Coef", "SE")
# regression with dummy variables and interactions
trade.1 <- robustse(lm(formula = trade ~ Z + V + Z:V, data = d))
trade.2 <- robustse(lm(formula = trade.s ~ Z + V + Z:V, data = d))
if (output_print) {
  print("Placebo Test J: Trade with the U.S.")
  print(trade.s)
  print(trade.n)
  print(trade.o)
  print(trade.1)
  print(trade.2)
  }
```

```
## [1] "Placebo Test J: Trade with the U.S."
##             Coef        SE
## [1,] -0.02910450 0.2536858
## [2,]  0.01445917 0.2516975
## [3,]  0.22183651 0.2477203
##           Coef       SE
## [1,] -322.4503 2810.599
## [2,]  169.1992 2945.329
## [3,] 2127.7175 2375.978
##             Coef        SE
## [1,]  0.02840909 0.3342382
## [2,] -0.12500000 0.3359297
## [3,]  0.51247772 0.3060060
##
## t test of coefficients:
##
##                                Estimate Std. Error t value Pr(>|t|)
## (Intercept)                     6093.96    2041.75  2.9847 0.003208 **
## ZDemocracy                      -322.45    2810.60 -0.1147 0.908782
## VControlled Details              645.07    2905.31  0.2220 0.824526
## VENE                           -2624.60    2550.56 -1.0290 0.304760
## ZDemocracy:VControlled Details   491.65    4071.17  0.1208 0.904004
## ZDemocracy:VENE                 2450.17    3680.32  0.6657 0.506371
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##                                Estimate Std. Error t value Pr(>|t|)
## (Intercept)                    0.014328   0.184289  0.0777   0.9381
## ZDemocracy                    -0.029104   0.253686 -0.1147   0.9088
```

```
## VControlled Details            -0.021777   0.255266 -0.0853   0.9321
## VENE                           -0.126902   0.243643 -0.5209   0.6031
## ZDemocracy:VControlled Details  0.043564   0.357363  0.1219   0.9031
## ZDemocracy:VENE                 0.250941   0.354573  0.7077   0.4800
```

```
##############################################
# Placebo Test K: Joint Military Exercise
d$exercise <- ifelse(is.na(d$exercise_1), d$exercise_2, d$exercise_1)
# relabel
d$exercise <- relab(old.var = d$exercise, old.labs = 1:5,
                    new.labs = probint)
# standardize
d$exercise.s <- vscale(var = d$exercise, vig = d$V)
# graphing distribution
for (j in 1:3) {
  my_ggplot <- myden(Y=d$exercise, V=d$V, Z=d$Z, v = j, x.limits=c(0, 100),
                     x.breaks=probint,
                     x.labels=likelylab,
                     title=levels(d$V)[j],
                     xlab="Likelihood of Joint Military Exercise with U.S.")
  if (!is.null(images_directory)) {
    ggsave(paste0(images_directory, "/exercise", j, ".pdf"), width=5, heigh=3.5)
    } else if (output_print) {
      print(my_ggplot)
      }
  }
```



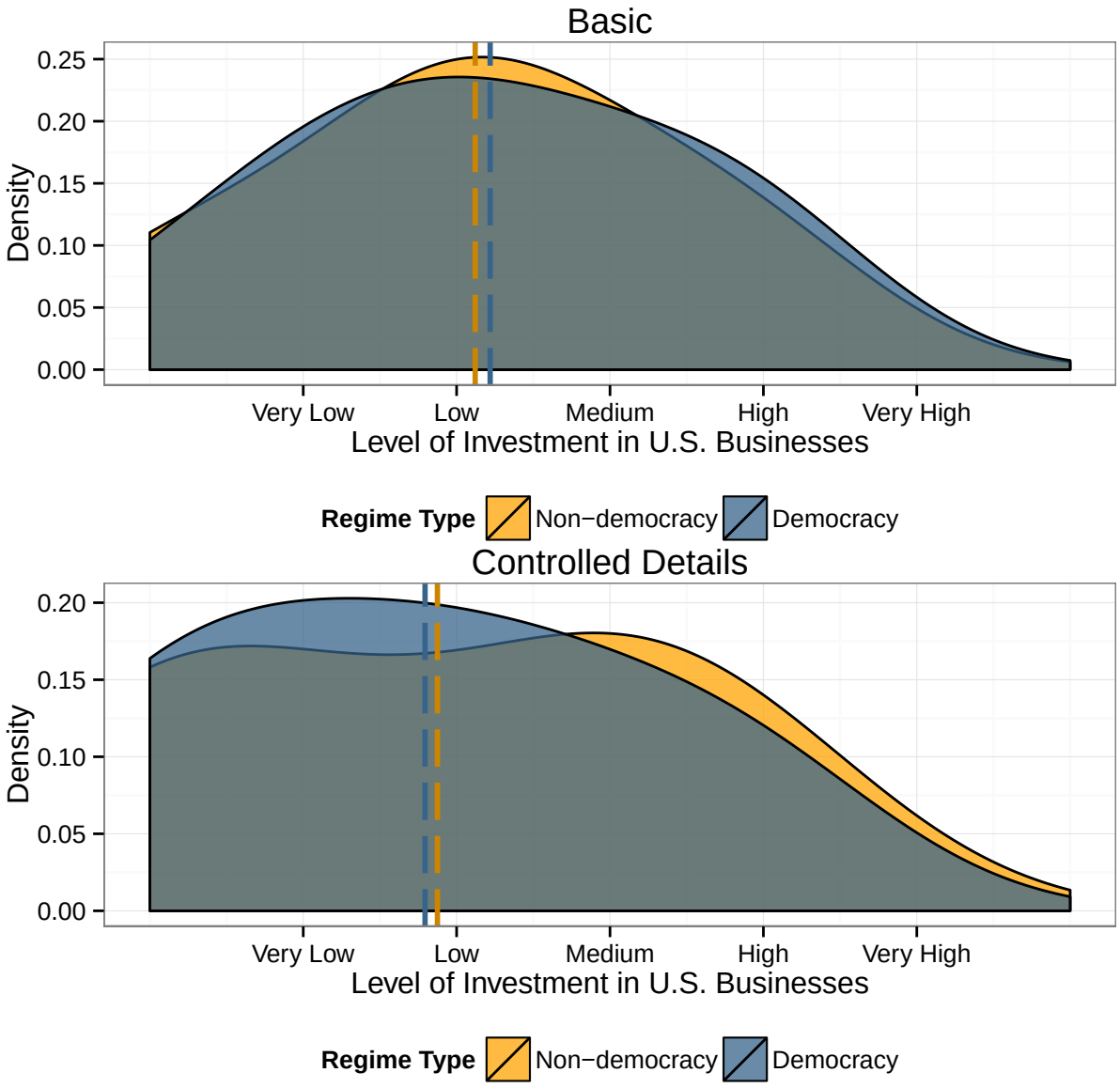


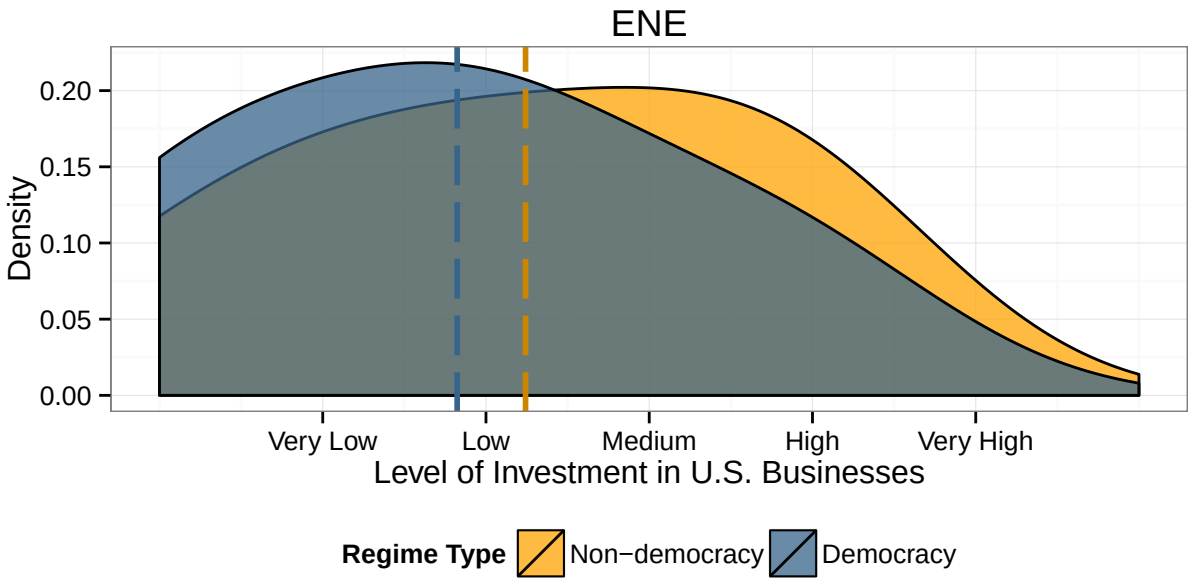

```
# regression: standardized
exercise.s <- myreg(Y = d$exercise.s, Z = d$Z, V = d$V)
colnames(exercise.s)  <- c("Coef", "SE")
# regression: non-standardized
exercise.n <- myreg(Y = d$exercise, Z = d$Z, V = d$V)
colnames(exercise.n) <- c("Coef", "SE")
# regression with dummy variables and interactions
exercise.1 <- robustse(lm(formula = exercise ~ Z + V + Z:V, data = d))
exercise.2 <- robustse(lm(formula = exercise.s ~ Z + V + Z:V, data = d))
if (output_print) {
  print("Placebo Test K: Joint Military Exercise")
  print(exercise.s)
  print(exercise.n)
  print(exercise.1)
  print(exercise.2)
  }
```

```
## [1] "Placebo Test K: Joint Military Exercise"
##           Coef        SE
## [1,] 0.1206982 0.2532047
## [2,] 0.3636525 0.2467163
## [3,] 0.1827483 0.2487917
##           Coef       SE
## [1,]  3.195076 6.702737
## [2,] 10.866728 7.372421
## [3,]  5.362745 7.300786
##
## t test of coefficients:
##
##                                Estimate Std. Error t value Pr(>|t|)
## (Intercept)                     52.2424     4.8915 10.6802   <2e-16 ***
## ZDemocracy                       3.1951     6.7027  0.4767   0.6341
## VControlled Details             -6.2268     6.9360 -0.8978   0.3704
## VENE                            -3.0758     7.0686 -0.4351   0.6640
## ZDemocracy:VControlled Details   7.6717     9.9639  0.7699   0.4423
## ZDemocracy:VENE                  2.1677     9.9110  0.2187   0.8271
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##                                 Estimate Std. Error t value Pr(>|t|)
## (Intercept)                    -0.059421   0.184783 -0.3216   0.7481
## ZDemocracy                      0.120698   0.253205  0.4767   0.6341
## VControlled Details            -0.127915   0.247437 -0.5170   0.6058
## VENE                           -0.033317   0.253737 -0.1313   0.8957
## ZDemocracy:VControlled Details  0.242954   0.353527  0.6872   0.4928
## ZDemocracy:VENE                 0.062050   0.354979  0.1748   0.8614
```

```
##############################################
# Placebo Test L: Foreign Direct Investment
sizelab <- c("Very Low", "Low", "Medium", "High", "Very High")
d$invest <- ifelse(is.na(d$invest_1), d$invest_2, d$invest_1)
# relabel
d$invest <- relab(old.var = d$invest, old.labs = 1:5,
                  new.labs = 0:4)
# standardize
d$invest.s <- vscale(var = d$invest, vig = d$V)
# graphing distribution
for (j in 1:3) {
  my_ggplot <- myden(Y=d$invest, V=d$V, Z=d$Z, v = j, x.limits=c(0, 6),
                     x.breaks=1:5,
                     x.labels=sizelab,
                     title=levels(d$V)[j],
                     xlab="Level of Investment in U.S. Businesses")
  if (!is.null(images_directory)) {
    ggsave(paste0(images_directory, "/invest", j, ".pdf"), width=5, heigh=3.5)
    } else if (output_print) {
      print(my_ggplot)
      }
```

```
}
```


Basic
Density
0.25
0.20
0.15
0.10
0.05
0.00
Very Low
Low
Medium
High
Very High
Level of Investment in U.S. Businesses
Regime Type
Non−democracy
Democracy
Controlled Details
Density
0.20
0.15
0.10
0.05
0.00
Very Low
Low
Medium
High
Very High
Level of Investment in U.S. Businesses
Regime Type
Non−democracy
Democracy




```
# regression: standardized
invest.s <- myreg(Y = d$invest.s, Z = d$Z, V = d$V)
colnames(invest.s) <- c("Coef", "SE")
# regression: non-standardized
invest.n <- myreg(Y = d$invest, Z = d$Z, V = d$V)
colnames(invest.n) <- c("Coef", "SE")
# regression with dummy variables and interactions
invest.1 <- robustse(lm(formula = invest ~ Z + V + Z:V, data = d))
invest.2 <- robustse(lm(formula = invest.s ~ Z + V + Z:V, data = d))
if (output_print) {
  print("Placebo Test L: Foreign Direct Investment")
  print(invest.s)
  print(invest.n)
  print(invest.1)
  print(invest.2)
  }
```

```
## [1] "Placebo Test L: Foreign Direct Investment"
##             Coef        SE
## [1,]  0.07609962 0.2537989
## [2,] -0.05412239 0.2525435
## [3,] -0.29405010 0.2473334
##             Coef        SE
## [1,]  0.09753788 0.3252974
## [2,] -0.08088235 0.3774096
## [3,] -0.41889483 0.3523437
##
## t test of coefficients:
##
##                                Estimate Std. Error t value Pr(>|t|)
## (Intercept)                    2.121212   0.228606  9.2789   <2e-16 ***
## ZDemocracy                     0.097538   0.325297  0.2998   0.7646
## VControlled Details           -0.246212   0.361697 -0.6807   0.4969
## VENE                           0.121212   0.341721  0.3547   0.7232
## ZDemocracy:VControlled Details -0.178420   0.498253 -0.3581   0.7207
```

```
## ZDemocracy:VENE                -0.516433   0.479546 -1.0769   0.2829
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##                                 Estimate Std. Error t value Pr(>|t|)
## (Intercept)                    -0.037464   0.178360 -0.2100   0.8339
## ZDemocracy                      0.076100   0.253799  0.2998   0.7646
## VControlled Details             0.065346   0.258825  0.2525   0.8009
## VENE                            0.186684   0.252193  0.7402   0.4601
## ZDemocracy:VControlled Details -0.130222   0.358039 -0.3637   0.7165
## ZDemocracy:VENE                -0.370150   0.354384 -1.0445   0.2976
```

```
########################################
# Make Coefficient Plot

#### standardized
res.s <- data.frame(rbind(region.s, gdp.s, religion.s, white.s,
                          oil.s, force.s, allies.s, trade.s, exercise.s, invest.s))
names(res.s) <- c("coef", "se")
res.s$v <- rep(levels(d$V), 10)
# vignette labels
res.s$v2 <- factor(res.s$v, levels=levels(factor(res.s$v)))
res.s$v3 <- factor(res.s$v, levels=rev(levels(factor(res.s$v))))
p.labs <- c("C: Most Likely Region",
            "D: GDP per Capita",
            "E: Likelihood of Being Majority Christian",
            "F: Likelihood of Being Majority White",
            "G: Likelihood of Having Large Oil Reserves",
            "H: Military Spending*",
            "I: Likelihood of Military Alliance with U.S.*",
            "J: Trade with U.S.*",
            "L: Likelihood of Joint Military Exercise with U.S.**",
            "L: Level of Investment in U.S. Businesses**")
p.labs.func <- function(x, times=3) {rep(p.labs[x],times)}
res.s$placebo <- unlist(lapply(1:length(p.labs), p.labs.func))
# ggplot
f <- ggplot(res.s, aes(x=coef,y=v3,shape=v2,color=v2))
f <- f+geom_vline(xintercept=0, linetype="longdash")+
  geom_errorbarh(aes(xmax =  coef + 2.576*se,
                     xmin = coef - 2.576*se),
                 size=0.6, height=0) +
  geom_errorbarh(aes(xmax =  coef + 1.96*se,
                     xmin = coef - 1.96*se),
                 size=1.0, height=0)+
  geom_point(stat="identity",size=3.5,fill="white")+
  scale_color_manual(name="Vignette Type",
                     values=c("firebrick3","forestgreen","dodgerblue3"))+
  scale_shape_manual(name="Vignette Type",values=c(21,22,23))
my_ggplot_main <- f + facet_wrap( ~ placebo, ncol=1)+
  theme_bbtop()+
  xlab("Standardized Difference (Dem-NonDem)")+
```

```
  ylab("")+scale_y_discrete(breaks=NULL)
if (!is.null(images_directory)) {
  my_ggplot_main
  ggsave(paste0(images_directory, "/coef_plot_main_s", ".pdf"),
         height=7, width=5.5,dpi = 600)
  }

########################################
# Seemingly Unrelated Regression
r_c <- region.s ~ Z
r_d <- gdp.s ~ Z
r_e <- religion.s ~ Z
r_f <- oil.s ~ Z
r_g <- white.s ~ Z
r_h <- force.s ~ Z
r_i <- allies.s ~ Z
r_j <- trade.s ~ Z
r_k <- exercise.s ~ Z
r_l <- invest.s ~ Z
for (i in 1:3) {
  fitsur <- systemfit(list(r.c = r_c, r.d = r_d, r.e = r_e,
                           r.f = r_f, r.g = r_g, r.h = r_h,
                           r.i = r_i, r.j = r_j, r.k = r_k,
                           r.l = r_l), data = d[d$V==levels(d$V)[i],])
  summary(fitsur)
  restriction <- c("r.c_ZDemocracy = 0", "r.d_ZDemocracy = 0",
                   "r.e_ZDemocracy = 0", "r.f_ZDemocracy = 0",
                   "r.g_ZDemocracy = 0", "r.h_ZDemocracy = 0",
                   "r.i_ZDemocracy = 0", "r.j_ZDemocracy = 0",
                   "r.k_ZDemocracy = 0", "r.l_ZDemocracy = 0")
  # joint tests
  joint <- linearHypothesis(fitsur, restriction,
                            test = "Chisq", white.adjust = TRUE)
  if (output_print) {
    print("Joint Test")
    print(joint)
    }
  }
```

```
## [1] "Joint Test"
## Linear hypothesis test (Chi^2 statistic of a Wald test)
##
## Hypothesis:
## r.c_ZDemocracy = 0
## r.d_ZDemocracy = 0
## r.e_ZDemocracy = 0
## r.f_ZDemocracy = 0
## r.g_ZDemocracy = 0
## r.h_ZDemocracy = 0
## r.i_ZDemocracy = 0
## r.j_ZDemocracy = 0
## r.k_ZDemocracy = 0
## r.l_ZDemocracy = 0
```

```
##
## Model 1: restricted model
## Model 2: fitsur
##
##   Res.Df Df  Chisq Pr(>Chisq)
## 1    640
## 2    630 10 5.2278     0.8755
## [1] "Joint Test"
## Linear hypothesis test (Chi^2 statistic of a Wald test)
##
## Hypothesis:
## r.c_ZDemocracy = 0
## r.d_ZDemocracy = 0
## r.e_ZDemocracy = 0
## r.f_ZDemocracy = 0
## r.g_ZDemocracy = 0
## r.h_ZDemocracy = 0
## r.i_ZDemocracy = 0
## r.j_ZDemocracy = 0
## r.k_ZDemocracy = 0
## r.l_ZDemocracy = 0
##
## Model 1: restricted model
## Model 2: fitsur
##
##   Res.Df Df  Chisq Pr(>Chisq)
## 1    650
## 2    640 10 7.3646     0.6906
## [1] "Joint Test"
## Linear hypothesis test (Chi^2 statistic of a Wald test)
##
## Hypothesis:
## r.c_ZDemocracy = 0
## r.d_ZDemocracy = 0
## r.e_ZDemocracy = 0
## r.f_ZDemocracy = 0
## r.g_ZDemocracy = 0
## r.h_ZDemocracy = 0
## r.i_ZDemocracy = 0
## r.j_ZDemocracy = 0
## r.k_ZDemocracy = 0
## r.l_ZDemocracy = 0
##
## Model 1: restricted model
## Model 2: fitsur
##
##   Res.Df Df  Chisq Pr(>Chisq)
## 1    660
## 2    650 10 9.8588      0.453
```

```
########################################
# Treatment Measure 1
# full democracy
d$R1_1 <- multiq(v1 = d$dem_a_1, v2 = d$dem_b_1, v3 = d$dem_c_1)
```

```
d$R1_1 <- relab(old.var = d$R1_1, old.labs = 1:5, new.labs = probint)
# democracy
d$R1_2 <- multiq(d$dem_a_2, d$dem_b_2, d$dem_c_2)
d$R1_2 <- relab(old.var = d$R1_2, old.labs = 1:5, new.labs = probint)
# semi-democracy
d$R1_3 <- multiq(d$dem_a_3, d$dem_b_3, d$dem_c_3)
d$R1_3 <- relab(old.var = d$R1_3, old.labs = 1:5, new.labs = probint)
# semi-autocracy
d$R1_4 <- multiq(d$dem_a_4, d$dem_b_4, d$dem_c_4)
d$R1_4 <- relab(old.var = d$R1_4, old.labs = 1:5, new.labs = probint)
# full autocracy
d$R1_5 <- multiq(d$dem_a_5, d$dem_b_5, d$dem_c_5)
d$R1_5 <- relab(old.var = d$R1_5, old.labs = 1:5, new.labs = probint)
# normalize
for (i in 1:nrow(d)) {
  s <- d$R1_1[i] + d$R1_2[i] + d$R1_3[i] + d$R1_4[i] + d$R1_5[i]
  d$R1_1[i] <- d$R1_1[i]/s
  d$R1_2[i] <- d$R1_2[i]/s
  d$R1_3[i] <- d$R1_3[i]/s
  d$R1_4[i] <- d$R1_4[i]/s
  d$R1_5[i] <- d$R1_5[i]/s
  }
# check the probabilities sum up to 1
d$R1_sum <- d$R1_1 + d$R1_2 + d$R1_3 + d$R1_4 + d$R1_5
# impute Polity score
d$R1 <- 10*d$R1_1+mean(6:9)*d$R1_2+mean(1:5)*d$R1_3+
  mean(-5:0)*d$R1_4+mean(-10:-6)*d$R1_5
# regression
R1 <- myreg(Y = d$R1, Z = d$Z, V = d$V)
colnames(R1) <- c("Coef", "SE")

# Treatment Measure 2: Characteristics of Democracy
d$R2 <- psum(d$demchar_1, d$demchar_4, d$demchar_5, d$demchar_6,
             d$demchar_7, d$demchar_8, na.rm=F)
# regression
R2 <- myreg(Y = d$R2, Z = d$Z, V = d$V)
colnames(R2) <- c("Coef", "SE")

if (output_print) {
  print("Treatment Measures")
  print(R1)
  print(R2)
  }
```

```
## [1] "Treatment Measures"
##            Coef        SE
## [1,] -0.3308519 0.4249397
## [2,]  0.1981326 0.4214983
## [3,] -0.2430484 0.4168359
##            Coef        SE
## [1,] -0.4895833 0.3419870
## [2,] -0.1783088 0.3518564
## [3,]  0.1256684 0.3627364
```

```
################################
# ITT estimate of democracy on support for military action
d$support <- ifelse(is.na(d$support_1), d$support_2-1, d$support_1-1)
# coding #1: set "don't know" to NA
d$support[d$support>4] <- NA
support <- myreg(Y = d$support, Z = d$Z, V = d$V)
colnames(support) <- c("Coef", "SE")
# coding #2: set "don't know" to 2
d$support2 <- d$support
d$support2[is.na(d$support2)] <- 2
support2 <- myreg(Y = d$support2, Z = d$Z, V = d$V)
colnames(support2)  <- c("Coef", "SE")
if (output_print){
  print(support)
  print(support2)
  }
```

```
##            Coef        SE
## [1,]  0.4428571 0.4004440
## [2,] -0.3342857 0.4423551
## [3,]  0.5517241 0.3623997
##            Coef        SE
## [1,]  0.4024621 0.3567723
## [2,] -0.2702206 0.3499254
## [3,]  0.4803922 0.3128743
```

```
################################
# IV estimate of democracy on support for military action
# using coding 1 for support
iv.res1 <- myreg.iv(Y = d$support[!is.na(d$support)],
                    D = d$R1[!is.na(d$support)],
                    Z = d$Z[!is.na(d$support)],
                    V = d$V[!is.na(d$support)])
colnames(iv.res1) <- c("Coef", "SE")
# using coding 2 for support
iv.res2 <- myreg.iv(Y = d$support2[!is.na(d$support2)],
                    D = d$R1[!is.na(d$support2)],
                    Z = d$Z[!is.na(d$support2)],
                    V = d$V[!is.na(d$support2)])
colnames(iv.res2) <- c("Coef", "SE")

if (output_print) {
  print("IV: don't know as NA")
  print(iv.res1)
  print("IV: don't know as neither support nor oppose")
  print(iv.res2)
  }
```

```
## [1] "IV: don't know as NA"
##           Coef       SE
## [1,] -1.952295 4.374428
## [2,] -1.555698 4.255146
## [3,] -2.320928 4.736104
```

```
## [1] "IV: don't know as neither support nor oppose"
##           Coef       SE
## [1,] -1.216442 1.898364
## [2,] -1.363837 3.567633
## [3,] -1.976529 3.641081
```

```
############################################
# Balance Tests

# clean up
d$college <- ifelse(d$educ > 3, 1, 0)
d$democrat <- ifelse(d$partyid < 3, 1, 0)
d$age_num <- ifelse(d$age=="older than 100", 101, d$age+18)
d$male <- ifelse(d$sex == 1, 1, 0)

# balance tests
for (i in 1:3) {
  b1 <- robustse(lm(as.numeric(Z)-1 ~ college, data = d[d$V==levels(d$V)[i],]))
  b2 <- robustse(lm(as.numeric(Z)-1 ~ democrat, data = d[d$V==levels(d$V)[i],]))
  b3 <- robustse(lm(as.numeric(Z)-1 ~ age_num, data = d[d$V==levels(d$V)[i],]))
  b4 <- robustse(lm(as.numeric(Z)-1 ~ male, data = d[d$V==levels(d$V)[i],]))
  b5 <- robustse(lm(as.numeric(Z)-1 ~ poliid_1, data = d[d$V==levels(d$V)[i],]))
  overall <- felm(as.numeric(Z)-1 ~ college + democrat + age_num +
                    male + poliid_1, data = d[d$V==levels(d$V)[i],])
  b_overall <- summary(object = overall, robust = TRUE)
  if (output_print) {
    print("Balance Tests")
    print(b1)
    print(b2)
    print(b3)
    print(b4)
    print(b5)
    print(b_overall)
    }
  }
```

```
## [1] "Balance Tests"
##
## t test of coefficients:
##
##              Estimate Std. Error t value  Pr(>|t|)
## (Intercept)  0.535714   0.097740  5.4810 7.924e-07 ***
## college     -0.076255   0.129010 -0.5911    0.5566
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##             Estimate Std. Error t value  Pr(>|t|)
## (Intercept) 0.469388   0.072780  6.4494 1.802e-08 ***
## democrat    0.093112   0.150986  0.6167    0.5397
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

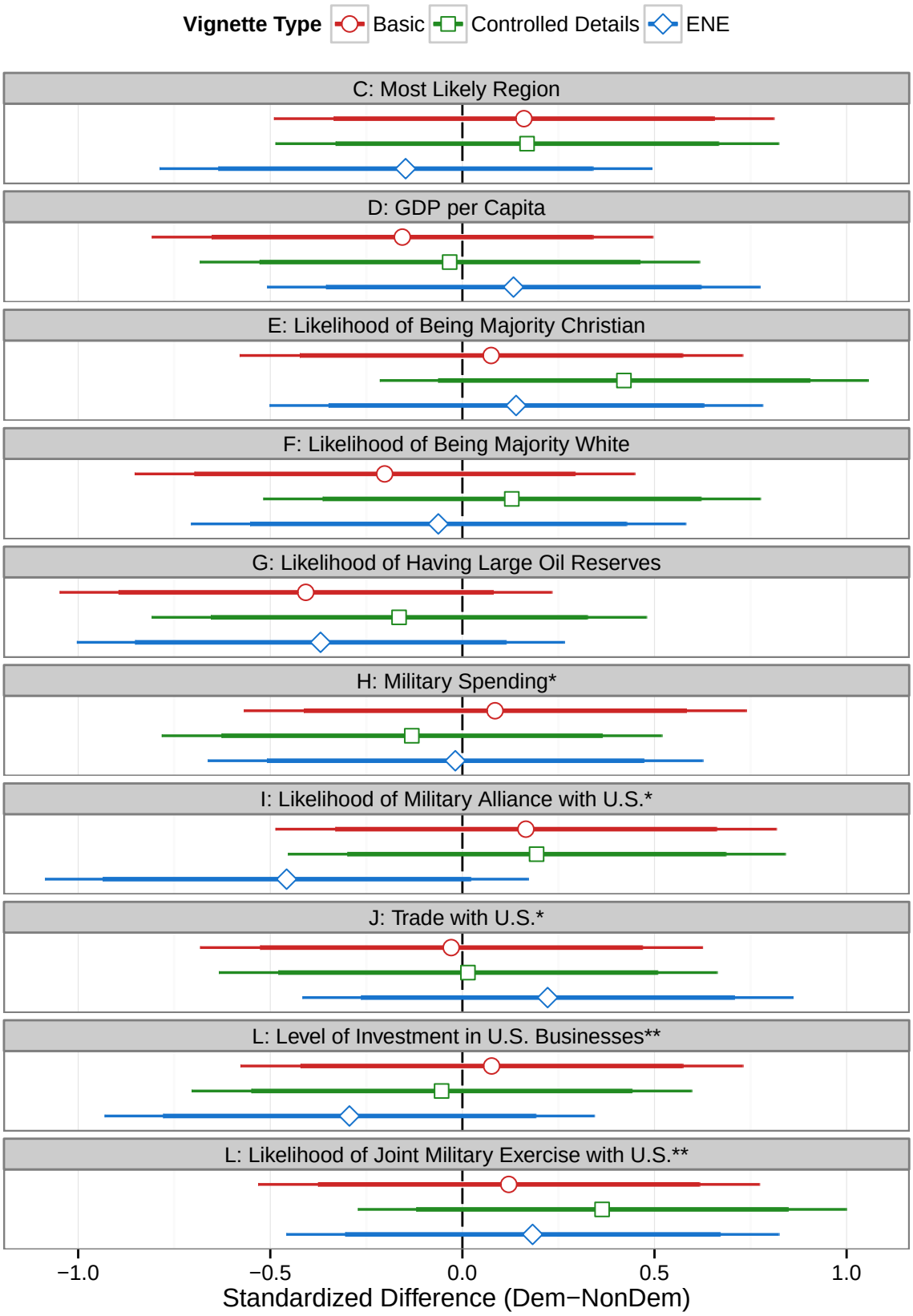
```
##
##
## t test of coefficients:
##
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) 0.4234636  0.1603617  2.6407  0.01042 *
## age_num     0.0012510  0.0026925  0.4646  0.64380
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##             Estimate Std. Error t value  Pr(>|t|)
## (Intercept) 0.456522   0.075074  6.0810 7.727e-08 ***
## male        0.122426   0.141177  0.8672    0.3891
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##              Estimate Std. Error t value  Pr(>|t|)
## (Intercept)  0.527931   0.126370  4.1777 9.237e-05 ***
## poliid_1    -0.011577   0.036090 -0.3208    0.7494
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Call:
##    felm(formula = as.numeric(Z) - 1 ~ college + democrat + age_num +      male + poliid_1, data = d[
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.6265 -0.4652 -0.3596  0.4945  0.6522
##
## Coefficients:
##              Estimate Robust s.e t value Pr(>|t|)
## (Intercept)  0.427726   0.216415   1.976   0.0528 .
## college     -0.072347   0.133414  -0.542   0.5897
## democrat     0.084590   0.147556   0.573   0.5686
## age_num      0.001204   0.002731   0.441   0.6610
## male         0.119467   0.138189   0.865   0.3908
## poliid_1    -0.005272   0.036820  -0.143   0.8866
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.5174 on 59 degrees of freedom
## Multiple R-squared(full model): 0.02765   Adjusted R-squared: -0.05476
## Multiple R-squared(proj model): 0.02765   Adjusted R-squared: -0.05476
## F-statistic(full model, *iid*):0.3355 on 5 and 59 DF, p-value: 0.8894
## F-statistic(proj model): 0.389 on 5 and 59 DF, p-value: 0.8544
##
##
```

```
## [1] "Balance Tests"
##
## t test of coefficients:
##
##             Estimate Std. Error t value  Pr(>|t|)
## (Intercept) 0.483871   0.092748  5.2171 2.093e-06 ***
## college     0.058986   0.126948  0.4646    0.6438
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##             Estimate Std. Error t value  Pr(>|t|)
## (Intercept) 0.510638   0.074501  6.8541 3.352e-09 ***
## democrat    0.015677   0.142022  0.1104    0.9124
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) 0.431482   0.160594  2.6868 0.009181 **
## age_num     0.001471   0.002573  0.5717 0.569520
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##             Estimate Std. Error t value  Pr(>|t|)
## (Intercept) 0.512821   0.082144  6.2429 3.876e-08 ***
## male        0.005698   0.129302  0.0441     0.965
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##              Estimate Std. Error t value  Pr(>|t|)
## (Intercept)  0.563989   0.122915  4.5884 2.137e-05 ***
## poliid_1    -0.016362   0.035270 -0.4639    0.6443
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Call:
##    felm(formula = as.numeric(Z) - 1 ~ college + democrat + age_num +      male + poliid_1, data = d[
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.6033 -0.5022  0.3609  0.4750  0.5922
##
```

```
## Coefficients:
##               Estimate Robust s.e t value Pr(>|t|)
## (Intercept)  0.4501921  0.2176995   2.068    0.043 *
## college      0.0492732  0.1369000   0.360    0.720
## democrat     0.0008204  0.1490234   0.006    0.996
## age_num      0.0014958  0.0027227   0.549    0.585
## male         0.0237794  0.1398577   0.170    0.866
## poliid_1    -0.0188332  0.0356610  -0.528    0.599
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.5209 on 60 degrees of freedom
## Multiple R-squared(full model): 0.0123   Adjusted R-squared: -0.07001
## Multiple R-squared(proj model): 0.0123   Adjusted R-squared: -0.07001
## F-statistic(full model, *iid*):0.1494 on 5 and 60 DF, p-value: 0.9795
## F-statistic(proj model): 0.1609 on 5 and 60 DF, p-value: 0.9758
##
##
## [1] "Balance Tests"
##
## t test of coefficients:
##
##              Estimate Std. Error t value  Pr(>|t|)
## (Intercept)  0.562500   0.090524  6.2138 4.138e-08 ***
## college     -0.105357   0.125332 -0.8406    0.4036
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) 0.442308   0.070225  6.2984 2.95e-08 ***
## democrat    0.291026   0.141059  2.0632   0.0431 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) 0.4235289  0.1795327  2.3591  0.02134 *
## age_num     0.0013875  0.0027748  0.5000  0.61873
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## t test of coefficients:
##
##             Estimate Std. Error t value  Pr(>|t|)
## (Intercept) 0.487179   0.082144  5.9308 1.273e-07 ***
## male        0.048535   0.127675  0.3801    0.7051
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
##
##
## t test of coefficients:
##
##             Estimate Std. Error t value  Pr(>|t|)
## (Intercept) 0.461395   0.118568  3.8914 0.0002373 ***
## poliid_1    0.015748   0.034413  0.4576 0.6487654
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##
## Call:
##    felm(formula = as.numeric(Z) - 1 ~ college + democrat + age_num +      male + poliid_1, data = d[
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.8156 -0.4422  0.1260  0.4905  0.6945
##
## Coefficients:
##              Estimate Robust s.e t value Pr(>|t|)
## (Intercept)  0.323189   0.212291   1.522   0.1331
## college     -0.093117   0.124382  -0.749   0.4570
## democrat     0.302628   0.136783   2.212   0.0307 *
## age_num      0.001286   0.002910   0.442   0.6600
## male         0.040964   0.127336   0.322   0.7488
## poliid_1     0.024005   0.034658   0.693   0.4912
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.502 on 61 degrees of freedom
## Multiple R-squared(full model): 0.08189   Adjusted R-squared: 0.006631
## Multiple R-squared(proj model): 0.08189   Adjusted R-squared: 0.006631
## F-statistic(full model, *iid*):1.088 on 5 and 61 DF, p-value: 0.3761
## F-statistic(proj model): 1.299 on 5 and 61 DF, p-value: 0.2762
```

```r
# return main coefficient plot
survey4_analyze(output_print = FALSE, return_main = TRUE)
```


Vignette Type
Basic
Controlled Details
ENE
C: Most Likely Region
D: GDP per Capita
E: Likelihood of Being Majority Christian
F: Likelihood of Being Majority White
G: Likelihood of Having Large Oil Reserves
H: Military Spending*
I: Likelihood of Military Alliance with U.S.*
J: Trade with U.S.*
L: Level of Investment in U.S. Businesses**
L: Likelihood of Joint Military Exercise with U.S.**
−1.0
−0.5
0.0
0.5
1.0
Standardized Difference (Dem−NonDem)