# Appendix - YouGov Survey

Weifang Xu, Taylor Chewning, and Qing Wang

September 16, 2024

```
## Clean the working environment and set up the working directory
rm(list = ls())
setwd("/Users/qingwang/Downloads/Data Replication")

# load the libraries
library(tidyverse)
```

```
## -- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
## v dplyr     1.1.4     v readr     2.1.5
## v forcats   1.0.0     v stringr   1.5.1
## v ggplot2   3.5.1     v tibble    3.2.1
## v lubridate 1.9.3     v tidyr     1.3.1
## v purrr     1.0.2
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to bec
```

```
library(kableExtra)
```

```
##
## Attaching package: 'kableExtra'
##
## The following object is masked from 'package:dplyr':
##
##     group_rows
```

```
library(haven)
library(ggthemes)
#install the flexpath package
# devtools::install_github("dustinfife/flexplot")
library(flexplot)
```

```
##
## Attaching package: 'flexplot'
##
## The following object is masked from 'package:ggplot2':
##
```

```
##     flip_data
```

```
library(sandwich)
library(lmtest)
```

```
## Loading required package: zoo
##
## Attaching package: 'zoo'
##
## The following objects are masked from 'package:base':
##
##     as.Date, as.Date.numeric
```

```
library(texreg)
```

```
## Version:  1.39.4
## Date:     2024-07-23
## Author:   Philip Leifeld (University of Manchester)
##
## Consider submitting praise using the praise or praise_interactive functions.
## Please cite the JSS article in your publications -- see citation("texreg").
##
## Attaching package: 'texreg'
##
## The following object is masked from 'package:tidyr':
##
##     extract
```

```
library(boot)
library(xtable)
library(modelsummary)
```

```
## `modelsummary` 2.0.0 now uses `tinytable` as its default table-drawing
##   backend. Learn more at: https://vincentarelbundock.github.io/tinytable/
##
## Revert to `kableExtra` for one session:
##
##   options(modelsummary_factory_default = 'kableExtra')
##   options(modelsummary_factory_latex = 'kableExtra')
##   options(modelsummary_factory_html = 'kableExtra')
##
## Silence this message forever:
##
##   config_modelsummary(startup_message = FALSE)
```

```
library(marginaleffects)
library(ggpubr)
library(pBrackets)
library(lemon)
library(arm)
```

```
## Loading required package: MASS
##
## Attaching package: 'MASS'
##
## The following object is masked from 'package:dplyr':
##
##     select
##
## Loading required package: Matrix
##
## Attaching package: 'Matrix'
##
## The following objects are masked from 'package:tidyr':
##
##     expand, pack, unpack
##
## Loading required package: lme4
##
## arm (Version 1.14-4, built: 2024-4-1)
##
## Working directory is /Users/qingwang/Downloads/Data Replication
##
##
## Attaching package: 'arm'
##
## The following object is masked from 'package:xtable':
##
##     display
##
## The following object is masked from 'package:boot':
##
##     logit
##
## The following object is masked from 'package:flexplot':
##
##     rescale
```

```
library(gplots)
```

```
##
## Attaching package: 'gplots'
##
## The following object is masked from 'package:stats':
##
##     lowess
```

```
library(extrafont)
```

```
## Registering fonts with R
```

```r
# install the compactr package
# url <- "https://cran.r-project.org/src/contrib/Archive/compactr/compactr_0.1.tar.gz"
# install.packages(url, repos = NULL, type = "source")
library(compactr)

# load the dataset
df_ces <- read_dta("YouGov/YouGov_clean.dta")
df_ces_post <- read_dta("YouGov/YouGov_post_clean.dta")
```

```r
#### Table S8: Sample Demographics in Comparison with Census Benchmarks (YouGov Survey) ####

# benchmark demographic data is obtained from Table S0101 of the 2021 American Community Survey
# link to the survey: https://data.census.gov/table/ACSST1Y2021.S0101?q=S0101

# calculate the demographic of the PureSpectrum sample
# sex
male_percent <- df_ces %>%
  group_by(male) %>%
  summarise(percentage = round(n() / nrow(df_ces) * 100, 1))
male_percent
```

```
## # A tibble: 2 x 2
##    male percentage
##   <dbl>      <dbl>
## 1     0       52.9
## 2     1       47.1
```

```r
# age
# age ==1, 18-29
# age ==2, 30-39
# age ==3, 40-49
# age ==4, 50-59
# age ==5, 60-69
# age ==6, 70 or above

age_percent <- df_ces %>%
  mutate(age_demo = case_when(age <= 29 ~ '1',
                              age >= 30 & age <= 39 ~ '2',
                              age >= 40 & age <= 49 ~ '3',
                              age >= 50 & age <= 59 ~ '4',
                              age >= 60 & age <= 69 ~ '5',
                              age >= 70 ~ '6')) %>%
  group_by(age_demo) %>%
  summarise(percentage = round(n() / nrow(df_ces) * 100, 1))
age_percent
```

```
## # A tibble: 6 x 2
##   age_demo percentage
```

```
##   <chr>         <dbl>
## 1 1              15.6
## 2 2              15.2
## 3 3              13.8
## 4 4              18.7
## 5 5              21.4
## 6 6              15.3
```

```
# race
# race ==1, White
# race ==2, Black
# race ==3, Hispanic
# race ==4, Asian
# race ==5, Native American
# race ==6, Two or more races
# race ==7, Other
# race ==8, Middle Eastern

race_percent <- df_ces %>%
  group_by(race) %>%
  summarise(percentage = round(n() / nrow(df_ces) * 100, 1))
race_percent
```

```
## # A tibble: 8 x 2
##    race percentage
##   <dbl>      <dbl>
## 1     1       70.7
## 2     2       13.1
## 3     3        8.6
## 4     4        2.7
## 5     5        0.8
## 6     6        2
## 7     7        1.9
## 8     8        0.2
```

```
# calculate the "Other" race category
race_other = race_percent[4,2] + race_percent[5,2] + race_percent[6,2] + race_percent[7,2] + ra
race_other
```

```
##   percentage
## 1        7.6
```

```
#### Table S9: Regression Estimates of Support for War (Binary Dependent Variable, YouGov Surv

# convert the inc variable unit ($ to 10k$)
df_ces <- df_ces %>%
  mutate(inc_10k = inc/10000)

# run the regression models
m1_ces <- lm(attack ~ hmrts + alliance, data = df_ces)
```

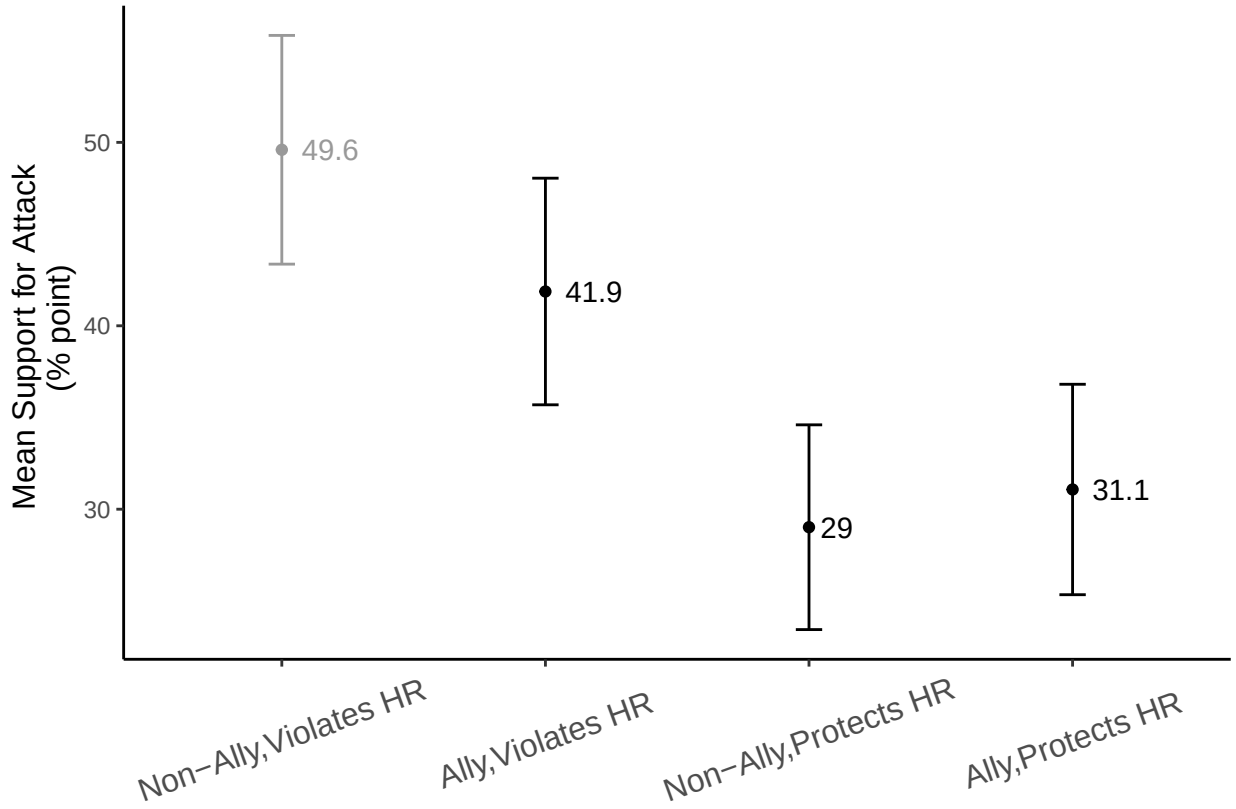
Table 1: Linear Estimate of Public Approval for Attacking the Third Country (CES Survey)

| | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Violating Human Rights | 15.71*** | 20.58*** | 19.83*** |
| | (3.03) | (4.27) | (4.46) |
| U.S. Military Alliance | −2.78 | 2.06 | 2.57 |
| | (3.03) | (4.26) | (4.46) |
| Violating Human Rights × U.S. Military Alliance | | −9.78 | −8.19 |
| | | (6.05) | (6.31) |
| Male | | | −5.15 |
| | | | (3.18) |
| Age | | | −0.03 |
| | | | (0.10) |
| Education | | | −20.84*** |
| | | | (5.10) |
| Income | | | 0.53 |
| | | | (0.35) |
| (Intercept) | 31.42*** | 29.02*** | 37.45*** |
| | (2.61) | (3.00) | (6.39) |
| Num. obs. | 1000 | 1000 | 916 |

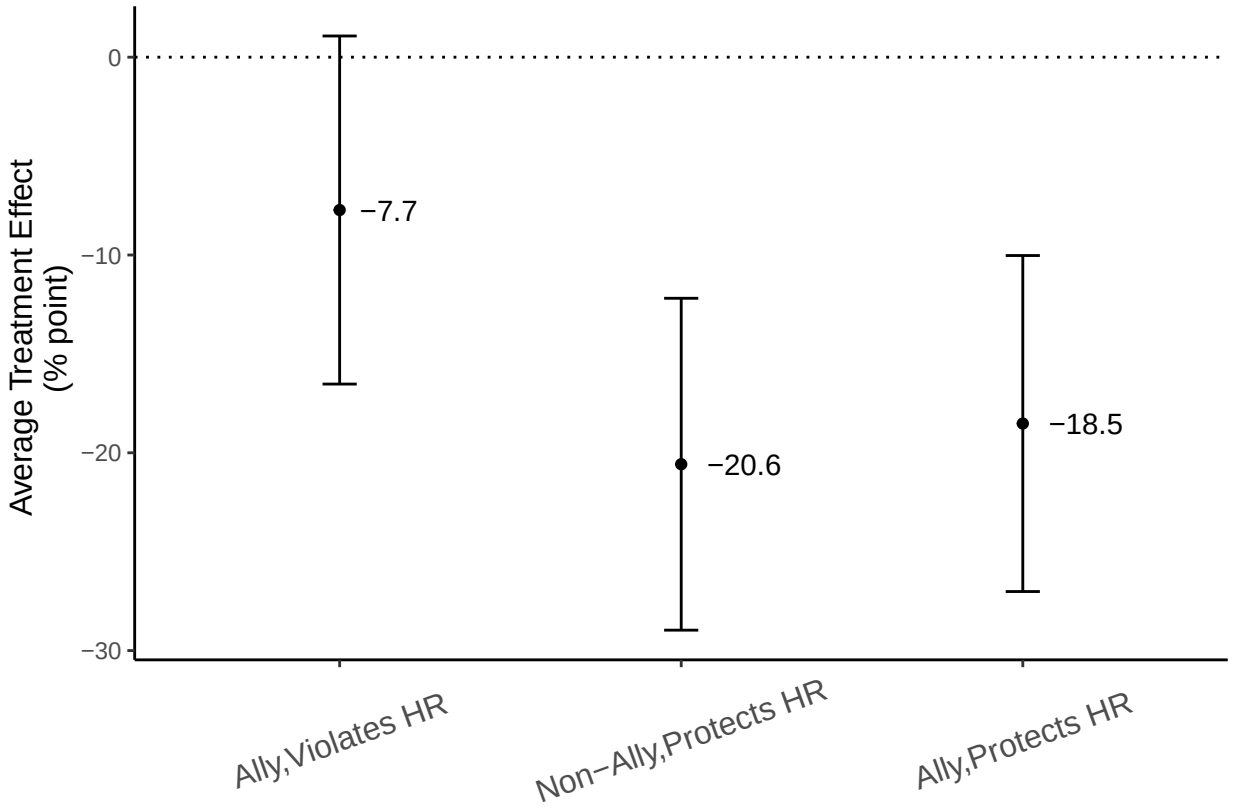
```
m2_ces <- lm(attack ~ alliance * hmrts, data = df_ces)
m3_ces <- lm(attack ~ alliance*hmrts +
           male + age_cat + edu4 + inc_10k, data = df_ces)

texreg(l = list(m1_ces, m2_ces, m3_ces),
       reorder.coef= c(2, 3, 4, 5, 6, 7, 8, 1),
       custom.coef.names = c("(Intercept)", "Violating Human Rights", "U.S. Military Alliance"
                             "Violating Human Rights $\\times$ U.S. Military Alliance",
                             "Male", "Age", "Education", "Income"),
       stars = c(0.01, 0.05, 0.1),
       digits = 2,
       caption = "Linear Estimate of Public Approval for Attacking the Third Country (CES Surve
       caption.above = T,
       include.ci = F,
       include.rmse =F,
       include.rsq = F,
       include.adjrs = F,
       label = "",
       custom.note = "",
       fontsize = "small") %>%
  gsub(".begin.center.", "\\\\centering", .) %>%
  gsub(".end.center.", "", .)
```

```
#### Figure S10: Impact of Treatments on Support for War (Binary Dependent Variable, YouGov Su

### Plot (10a) Support for Attack
# calculate the mean support for attack in each treatment group
df_ate_ces <- df_ces %>%
```

```
  group_by(exp_4) %>%
  summarise(ate = mean(attack, na.rm = TRUE),
            n = n(),
            se = sd(attack, na.rm = TRUE) / sqrt(n)) %>%
  mutate(ci_low = ate - 1.96*se,
         ci_high = ate + 1.96*se)

# plot the mean support for attack in each treatment group and the 95% CI
p <- ggplot(df_ate_ces, aes(x = factor(exp_4, level=c('1', '3', '2', '4')), y = ate,
                        color=factor(exp_4))) +
  theme_classic() +
  geom_point()+
  geom_errorbar(aes(ymin=ci_low, ymax=ci_high), width=.1,
                position=position_dodge(0.05)) +
  scale_x_discrete(labels= c('Non-Ally,Violates HR', 'Ally,Violates HR',
                             'Non-Ally,Protects HR', "Ally,Protects HR")) +
  scale_color_manual(values=c('#999999', 'black', 'black', 'black')) +
  theme(legend.position = "none") +
  labs(x = "", y = "Mean Support for Attack \n (% point)", size = 12) +
  geom_text(aes(label=round(ate, 1)), position=position_dodge(width=0.9),
            vjust=.5, hjust = -.35) +
  theme(axis.text.x = element_text(angle = 20, hjust = 0.5, vjust = 0.5, size = 12),
        axis.title.y = element_text(size=12))
p
```



```r
# ggsave("ate-ces.pdf", width = 6, height = 4)

### Plot (10b) Average Treatment Effect on Support for Attack
# calculate the difference in support for attack between 2-4 against baseline condition
est <- rep(NA, 4)
ci_low <- rep(NA, 4)
ci_high <- rep(NA, 4)
se <- rep(NA, 4)

for(i in 2:4){
  test <- t.test(df_ces$attack[df_ces$exp_4==i],
                 df_ces$attack[df_ces$exp_4==1])
  est[i] <- test[["estimate"]][["mean of x"]] - test[["estimate"]][["mean of y"]]
  ci_low[i] <- test[["conf.int"]][1]
  ci_high[i] <- test[["conf.int"]][2]
  se[i] <- test[["stderr"]]
}

df_ate_diff_ces <- data.frame(exp_4 = df_ate_ces$exp_4, est, ci_low, ci_high, se)
df_ate_diff_ces <- df_ate_diff_ces[-1, ]

# plot the differences and 95% CI
p1 <- ggplot(df_ate_diff_ces, aes(x = factor(exp_4, level=c('3', '2', '4')), y = est)) +
  theme_classic() +
  geom_point()+
  geom_errorbar(aes(ymin=ci_low, ymax=ci_high), width=.1,
                position=position_dodge(0.05)) +
  scale_x_discrete(labels= c('Ally,Violates HR', 'Non-Ally,Protects HR',
                             'Ally,Protects HR')) +
  labs(x = "", y = "Average Treatment Effect \n (% point)", size = 12) +
  geom_text(aes(label=round(est, 1)), position=position_dodge(width=0.9),
            vjust=.5, hjust = -.35) +
  geom_hline(yintercept = 0, linetype="dotted") +
  theme(axis.text.x = element_text(angle = 20, hjust = 0.5, vjust = 0.5, size = 12),
        axis.title.y = element_text(size=12))
p1
```




```
# ggsave("ate-diff-ces.pdf", width = 6, height = 4)
```

```
#### Table S11: Means of Public Support for War (Binary Dependent Variable, YouGov survey) ###
# group_mean of pre-election survey
mean_pre <- df_ces %>%
  group_by(exp_4) %>%
  filter(complete.cases(attack)) %>%
  summarise(mean = mean(attack, na.rm = TRUE),
            n = n())
mean_pre
```

```
## # A tibble: 4 x 3
##   exp_4  mean     n
##   <dbl> <dbl> <int>
## 1     1  49.6   248
## 2     2  29.0   255
## 3     3  41.9   246
## 4     4  31.1   251
```

```
# group mean of post-election survey
mean_post <- df_ces_post %>%
  group_by(exp_4) %>%
  filter(complete.cases(attack_post)) %>%
  summarise(mean = mean(attack_post, na.rm = TRUE),
            n = n())
mean_post
```

```
## # A tibble: 4 x 3
##   exp_4  mean     n
##   <dbl> <dbl> <int>
## 1     1  26.3   205
## 2     2  17.6   222
## 3     3  25.7   210
## 4     4  11.5   200
```

```
# difference of means
mean_post$mean - mean_pre$mean
```

```
## [1] -23.25531 -11.45204 -16.15563 -19.57570
```

```
# t.test by treatment group to obtain p-values
lapply(split(df_ces_post, factor(df_ces_post$exp_4)),
       function(x)t.test(data=x, attack_post ~ attack))
```

```
## $`1`
##
##  Welch Two Sample t-test
##
## data:  attack_post by attack
## t = -5.4411, df = 178.45, p-value = 1.728e-07
## alternative hypothesis: true difference in means between group 0 and group 100 is not equal
## 95 percent confidence interval:
##  -42.13038 -19.70445
## sample estimates:
##   mean in group 0 mean in group 100
##          10.20408          41.12150
##
##
## $`2`
##
##  Welch Two Sample t-test
##
## data:  attack_post by attack
## t = -4.864, df = 73.501, p-value = 6.367e-06
## alternative hypothesis: true difference in means between group 0 and group 100 is not equal
## 95 percent confidence interval:
##  -46.55494 -19.49444
## sample estimates:
##   mean in group 0 mean in group 100
##          8.641975         41.666667
##
##
## $`3`
##
##  Welch Two Sample t-test
##
```

```
## data:  attack_post by attack
## t = -6.4816, df = 125.98, p-value = 1.86e-09
## alternative hypothesis: true difference in means between group 0 and group 100 is not equal
## 95 percent confidence interval:
##  -51.11618 -27.20340
## sample estimates:
##   mean in group 0 mean in group 100
##          9.677419         48.837209
##
##
## $`4`
##
##  Welch Two Sample t-test
##
## data:  attack_post by attack
## t = -3.5463, df = 73.22, p-value = 0.0006855
## alternative hypothesis: true difference in means between group 0 and group 100 is not equal
## 95 percent confidence interval:
##  -33.103467  -9.283607
## sample estimates:
##   mean in group 0 mean in group 100
##          5.035971         26.229508
```