# Section 5: Candidate-Choice Experiments

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## Load the experiment data

```
rm(list = ls(all = TRUE))
load("data/df_experiments.RData")
```

## Figure 5

- CANDIDATE-CHOICE EXPERIMENTS, 2019: THE "DEMOCRACY AROUND THE WORLD" BATTERY

### Prepare the textual description

```
AWB_criticize_text <- c("Opposition candidates are banned from criticizing the government")
AWB_districts_text <- c("The largest party redrew districts to improve its chances of winning an electi
AWB_electronic_text <- c("Voting is conducted using electronic voting machines")
AWB_fired_text <- c("The government fired state employees who expressed support for an opposition party
AWB_funding_text <- c("The government cut funding in districts that supported the opposition in the las
AWB_journalists_text <- c("Journalists frequently disagree with the president's policies")
AWB_legislature_text <- c("The country's president closed down the legislature and is governing by exec
AWB_media_text <- c("State media only report favorably about the governing political party")
AWB_military_text <- c("The military overthrew a government that engaged in corruption")
AWB_presidential_text <- c("The country changed its system from parliamentary to presidential")
AWB_protests_text <- c("Opposition parties organize protests against the government")
AWB_reelection_text <- c("The legislature passed a law that bans sitting presidents from running for re
AWB_referenda_text <- c("Major political questions are decided by public referanda")
AWB_resources_text <- c("Candidates from the incumbent party use government resources when campaigning
AWB_ruling_text <- c("The president refused to implement a ruling by the country's highest court")
AWB_stepdown_text <- c("The incumbent president refused to step down from office after a narrow electio
AWB_turnouAWB_text <- c("About a half of the country's voters do not turn out to vote in legislative el
AWB_welfare_text <- c("A candidate in a presidential election promised an increase in welfare benefits

AWB_text <- c(AWB_criticize_text, AWB_districts_text, AWB_electronic_text, AWB_fired_text, AWB_funding_
```

### Estimate the means and CIs

```
df_AWB <- df_experiments %>%
  select(rid, weight, starts_with("AWB_")) %>%
  pivot_longer(cols = starts_with("AWB_"), names_to = "item", values_to = "rating")

ols_AWB <- df_AWB %>%
```

```
  group_by(item) %>%
  do(lm_robust(rating ~ 1, data = ., clusters=rid, weight=weight) %>% tidy)

ols_AWB
```

```
## # A tibble: 18 x 10
## # Groups:   item [18]
##    item    term  estimate std.error statistic   p.value conf.low conf.high    df
##    <chr>   <chr>    <dbl>     <dbl>     <dbl>     <dbl>    <dbl>     <dbl> <dbl>
##  1 AWB_cr~ (Int~     2.06    0.117       17.7 1.43e- 49     1.83      2.29  325.
##  2 AWB_di~ (Int~     2.30    0.115       20.0 2.39e- 56     2.07      2.52  285.
##  3 AWB_el~ (Int~     5.57    0.171       32.6 3.83e-100     5.24      5.91  298.
##  4 AWB_fi~ (Int~     1.29    0.0606      21.3 3.57e- 72     1.17      1.41  498.
##  5 AWB_fu~ (Int~     1.72    0.0665      25.9 3.66e-101     1.59      1.85  633.
##  6 AWB_jo~ (Int~     5.68    0.161       35.3 1.64e-109     5.37      6.00  304.
##  7 AWB_le~ (Int~     2.45    0.126       19.4 6.09e- 55     2.20      2.70  301.
##  8 AWB_me~ (Int~     2.39    0.120       19.9 6.40e- 57     2.15      2.62  305.
##  9 AWB_mi~ (Int~     2.67    0.140       19.0 4.18e- 53     2.40      2.95  292.
## 10 AWB_pr~ (Int~     3.99    0.165       24.2 4.87e- 62     3.66      4.31  205.
## 11 AWB_pr~ (Int~     5.22    0.156       33.5 9.58e-108     4.91      5.53  328.
## 12 AWB_re~ (Int~     3.43    0.145       23.6 1.22e- 70     3.15      3.72  302.
## 13 AWB_re~ (Int~     6.54    0.164       39.9 8.58e-124     6.22      6.86  308.
## 14 AWB_re~ (Int~     2.70    0.124       21.9 1.64e- 64     2.46      2.94  307.
## 15 AWB_ru~ (Int~     2.09    0.119       17.6 2.43e- 43     1.86      2.33  210.
## 16 AWB_st~ (Int~     2.16    0.110       19.6 5.57e- 57     1.94      2.38  322.
## 17 AWB_tu~ (Int~     3.43    0.151       22.7 1.19e- 57     3.14      3.73  203.
## 18 AWB_we~ (Int~     3.49    0.145       24.1 1.25e- 72     3.21      3.78  305.
## # ... with 1 more variable: outcome <chr>
```

**The means and CIs for the items reported in the text**

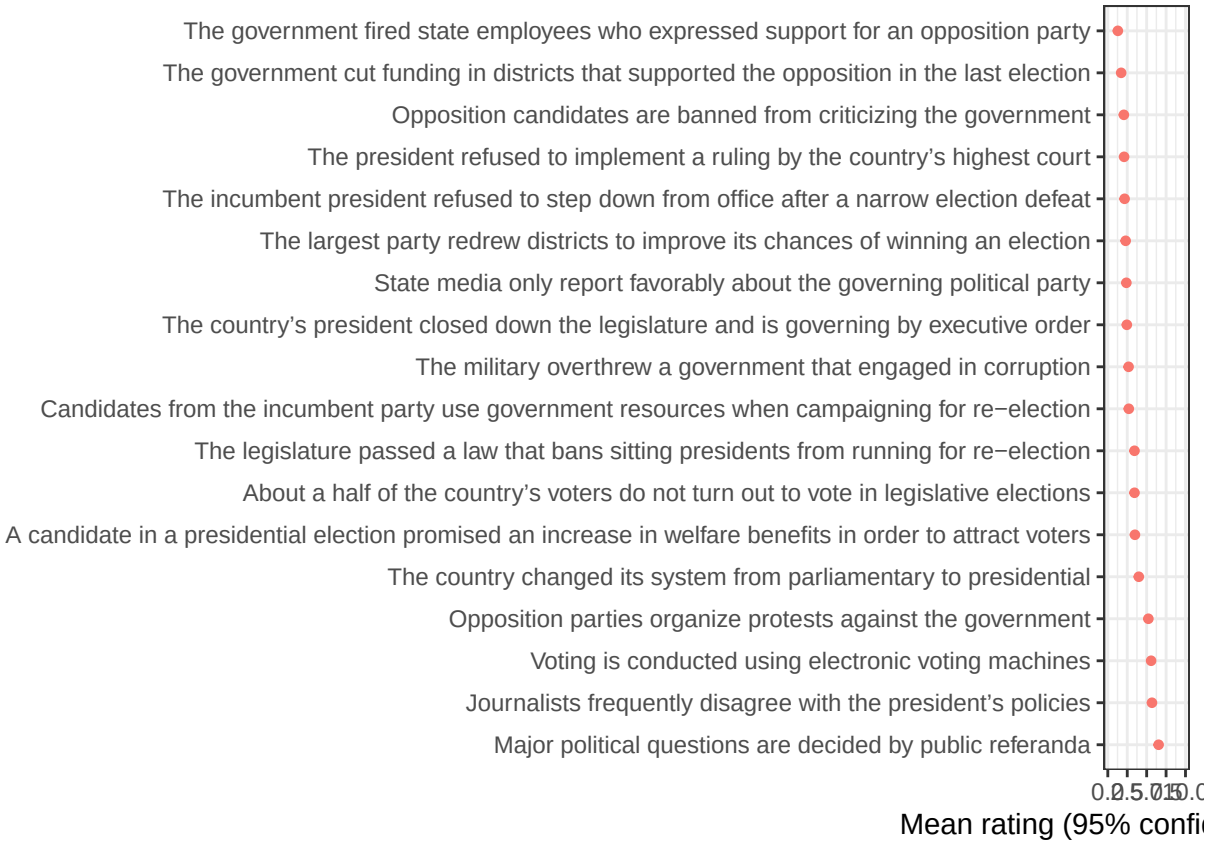
```
ols_AWB %>%
  filter(item %in% c("AWB_fired", "AWB_ruling", "AWB_stepdown")) %>%
  select(item, estimate, conf.low, conf.high) %>%
  mutate(across(estimate:conf.high, round, 2))
```

```
## # A tibble: 3 x 4
## # Groups:   item [3]
##   item          estimate conf.low conf.high
##   <chr>            <dbl>    <dbl>     <dbl>
## 1 AWB_fired         1.29     1.17      1.41
## 2 AWB_ruling        2.09     1.86      2.33
## 3 AWB_stepdown      2.16     1.94      2.38
```

**Plot**

```
plot_ols_AWB  <- ols_AWB %>%
  ungroup %>%
  mutate(term = AWB_text) %>%
  arrange(estimate) %>%
  select(term, estimate, std.error)

library(dotwhisker)
plot_ols_AWB  %>%
```

```
  dwplot +
  theme_bw() +
  theme(legend.position="none") +
  xlab("Mean rating (95% confidence interval)") +
  scale_x_continuous(limits=c(0,10))
```




```
# SAVE THE PLOT
ggsave("figures/figure_5.png", dpi = 1200, width = 10, height = 6, units = "in")
ggsave("figures/figure_5.eps", dpi = 1200, width = 10, height = 6, units = "in")
ggsave("figures/figure_5.pdf", dpi = 1200, width = 10, height = 6, units = "in")
```

# Table 4

- CANDIDATE-CHOICE EXPERIMENTS, 2019: THE DEMOCRATIC CHECK
- Candidate 1 is always AKP, Candidate 2 is either CHP or IYI
- Outcomes:
  - vote_1: vote AKP
  - vote_2: vote CHP
  - vote_0: abstain
- Treatment: the AKP candidate endorses a position that violates democratic principles
  - treat: 1 if treatment; 0 otherwise

**Calculate the share of subjects in each outcome and treatment condition**

```r
df_experiments %>%
  select(rid, district_id, weight, treat, vote_1, vote_2, vote_0) %>%
  filter(!is.na(treat)) %>%
  mutate(vote_share = vote_1/(vote_1 + vote_2)) %>%
  pivot_longer(cols = starts_with("vote_"), names_to = "vote", values_to = "choice") %>%
  group_by(treat, vote) %>%
  do(lm_robust(choice ~ 1, data = ., clusters=district_id, weight=weight) %>% tidy) %>%
  arrange(vote, treat) %>%
  select(treat, vote, estimate, conf.low, conf.high) %>%
  mutate(across(estimate:conf.high, ~ .x*100)) %>%
  mutate(across(estimate:conf.high, ~ round(.x, 2)))
```

```
## # A tibble: 8 x 5
## # Groups:   treat, vote [8]
##   treat vote       estimate conf.low conf.high
##   <dbl> <chr>         <dbl>    <dbl>     <dbl>
## 1     0 vote_0         14       10.4      17.6
## 2     1 vote_0         25.4     20.0      30.7
## 3     0 vote_1         47.6     42.1      53.1
## 4     1 vote_1         24.0     18.8      29.2
## 5     0 vote_2         38.4     33.0      43.8
## 6     1 vote_2         50.6     44.9      56.3
## 7     0 vote_share     55.4     49.4      61.4
## 8     1 vote_share     32.2     25.8      38.6
```

**Calculate the difference in each outcome between the two treatment conditions**

```r
df_experiments %>%
  select(rid, district_id, weight, treat, vote_1, vote_2, vote_0) %>%
  filter(!is.na(treat)) %>%
  mutate(vote_share = vote_1/(vote_1 + vote_2)) %>%
  pivot_longer(cols = starts_with("vote_"), names_to = "vote", values_to = "choice") %>%
  group_by(vote) %>%
  do(lm_robust(choice ~ 1 + treat, data = ., clusters=district_id, weight=weight) %>% tidy) %>%
  arrange(vote) %>%
  select(vote, term, estimate, conf.low, conf.high) %>%
  filter(term=="treat") %>%
  mutate(across(estimate:conf.high, ~ .x*100)) %>%
  mutate(across(estimate:conf.high, ~ round(.x, 2)))
```

```
## # A tibble: 4 x 5
## # Groups:   vote [4]
##   vote       term  estimate conf.low conf.high
##   <chr>      <chr>    <dbl>    <dbl>     <dbl>
## 1 vote_0     treat     11.4     6.02      16.8
## 2 vote_1     treat    -23.6   -30.6      -16.6
## 3 vote_2     treat     12.2     5.62      18.8
## 4 vote_share treat    -23.2   -31.0      -15.3
```

# Figure 6

- CANDIDATE-CHOICE EXPERIMENTS, 2019: VOTE FOR THE AKP, CHP, AND ABSTENTION BY THE DIFFERENCE IN RESPONDENTS' APPROVAL OF PRESIDENT ERDOĞAN (AKP)

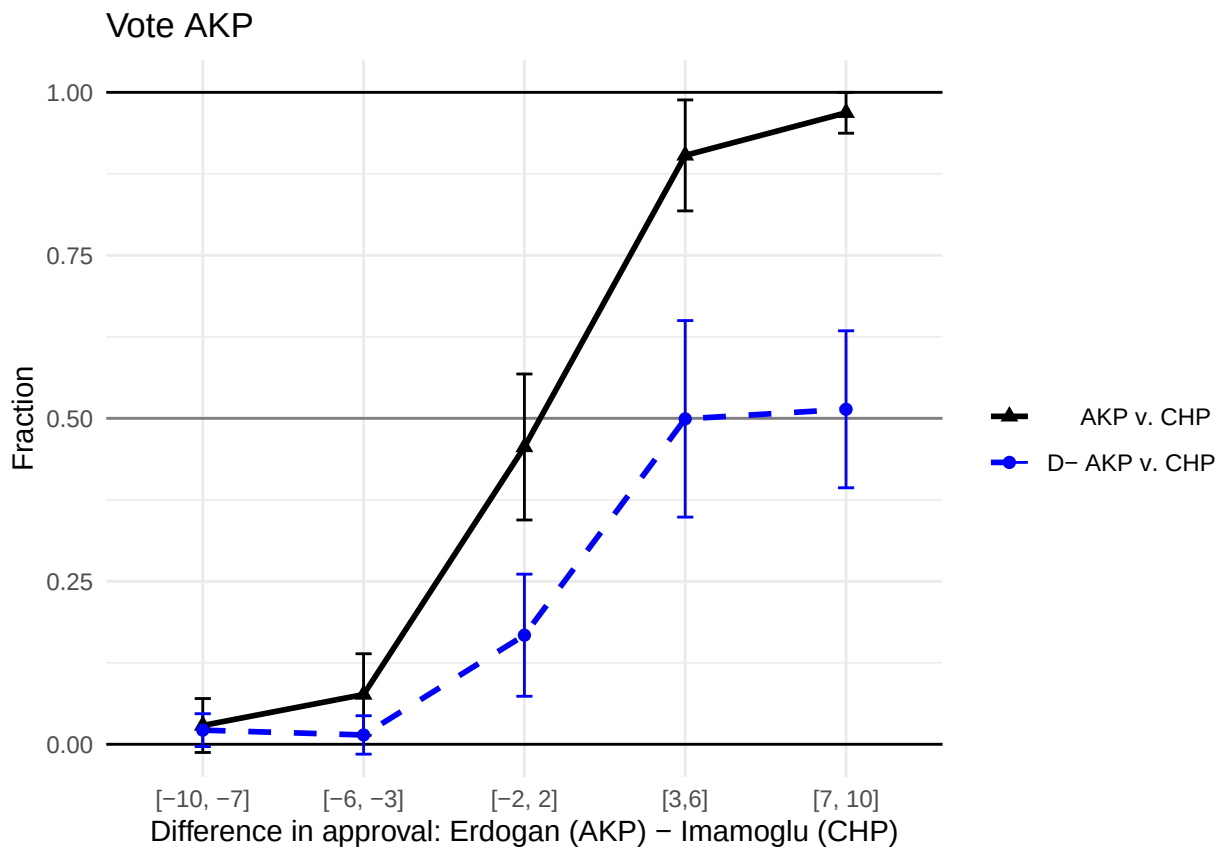
AND THE CHP'S MAYORAL CANDIDATE EKREM İMAMOĞLU

```
# CREATE THE 5 SUBGROUPS FOR THE ERDOGAN-IMAMOGLU APPROVAL DIFFERENTIAL
approval_diff <- df_experiments$approval_erdogan - df_experiments$approval_imamoglu
approval_diff_5 <- cut(approval_diff, breaks = c(-11, -7, -3, 2, 6, 10))

#Calculate the share of subjects in each outcome and treatment condition
df_plot <- df_experiments %>%
  mutate(approval_diff_5) %>%
  filter(!is.na(approval_diff_5)) %>%
  select(rid, district_id, weight, treat, vote_1, vote_2, vote_0, approval_diff_5) %>%
  filter(!is.na(treat)) %>%
  pivot_longer(cols = starts_with("vote_"), names_to = "vote", values_to = "choice") %>%
  group_by(approval_diff_5, treat, vote) %>%
  do(lm_robust(choice ~ 1, data = ., clusters=district_id, weight=weight) %>% tidy) %>%
  arrange(vote, treat, approval_diff_5) %>%
  select(treat, vote, approval_diff_5, estimate, conf.low, conf.high)
```

### PLOT THE AKP VOTE

```
plot_legend_labels <- c("     AKP v. CHP","D- AKP v. CHP")
plot_x_label <- c("Difference in approval: Erdo\u011fan (AKP) - \u0130mamo\u011flu (CHP)")
plot_x_labels <- c("[-10, -7]", "[-6, -3]", "[-2, 2]", "[3,6]", "[7, 10]")

df_plot %>%
  filter(vote=="vote_1") %>%
  mutate(treat=as.factor(treat)) %>%
  ggplot(aes(x=approval_diff_5, y=estimate, col=treat)) +
  coord_cartesian(ylim = c(0, 1)) +
  geom_hline(yintercept=0) +
  geom_hline(yintercept=0.5, col="grey50") +
  geom_hline(yintercept=1) +
  theme_minimal() +
  geom_line(aes(col=treat, group=treat, linetype = treat),  size=1) +
  geom_errorbar(aes(ymin=conf.low, ymax=conf.high, col=treat, group=treat), width=0.1) +
  geom_point(aes(col=treat, shape=treat), size=2) +
  scale_shape_manual(name  ="", values=c(17, 16), labels=plot_legend_labels) +
  scale_linetype_manual(name  ="", values=c("solid", "dashed"), labels=plot_legend_labels) +
  scale_color_manual(name  ="", values=c("black", "blue"), labels=plot_legend_labels) +
  scale_x_discrete(labels=plot_x_labels) +
  labs(
       x = plot_x_label, y = "Fraction",
       title = "Vote AKP"
    )
```

```
## Warning: Using `size` aesthetic for lines was deprecated in ggplot2 3.4.0.
## i Please use `linewidth` instead.
```

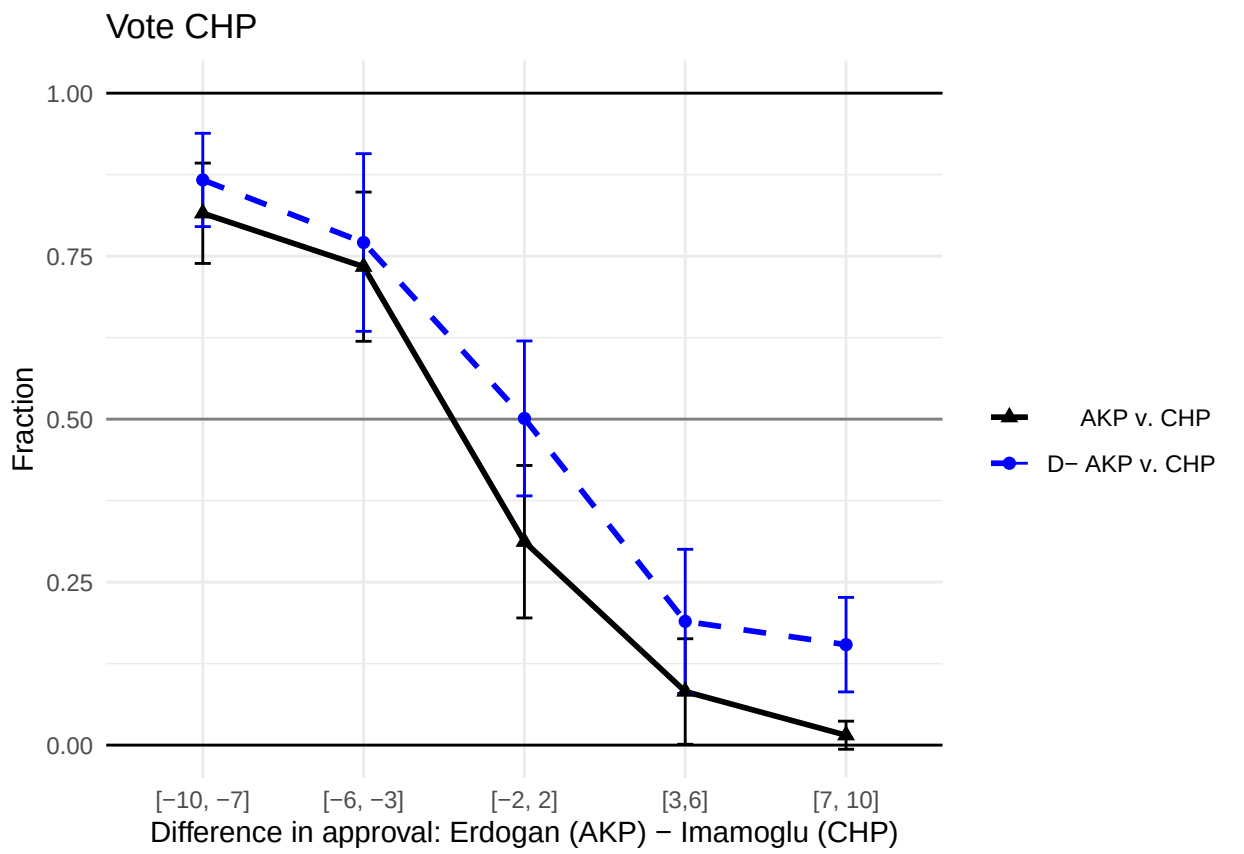



```
# SAVE THE PLOT
ggsave("figures/figure_6_AKP.png", dpi = 1200, width = 10, height = 6, units = "in")
ggsave("figures/figure_6_AKP.eps", dpi = 1200, width = 10, height = 6, units = "in")
ggsave("figures/figure_6_AKP.pdf", dpi = 1200, width = 10, height = 6, units = "in")
```

### PLOT THE CHP VOTE

```
df_plot %>%
  filter(vote=="vote_2") %>%
  mutate(treat=as.factor(treat)) %>%
  ggplot(aes(x=approval_diff_5, y=estimate, col=treat)) +
  coord_cartesian(ylim = c(0, 1)) +
  geom_hline(yintercept=0) +
  geom_hline(yintercept=0.5, col="grey50") +
  geom_hline(yintercept=1) +
  theme_minimal() +
  geom_line(aes(col=treat, group=treat, linetype = treat),  size=1) +
  geom_errorbar(aes(ymin=conf.low, ymax=conf.high, col=treat, group=treat), width=0.1) +
  geom_point(aes(col=treat, shape=treat), size=2) +
  scale_shape_manual(name  ="", values=c(17, 16), labels=plot_legend_labels) +
  scale_linetype_manual(name  ="", values=c("solid", "dashed"), labels=plot_legend_labels) +
  scale_color_manual(name  ="", values=c("black", "blue"), labels=plot_legend_labels) +
  scale_x_discrete(labels=plot_x_labels) +
  labs(
       x = plot_x_label, y = "Fraction",
       title = "Vote CHP"
```

```
  )
```

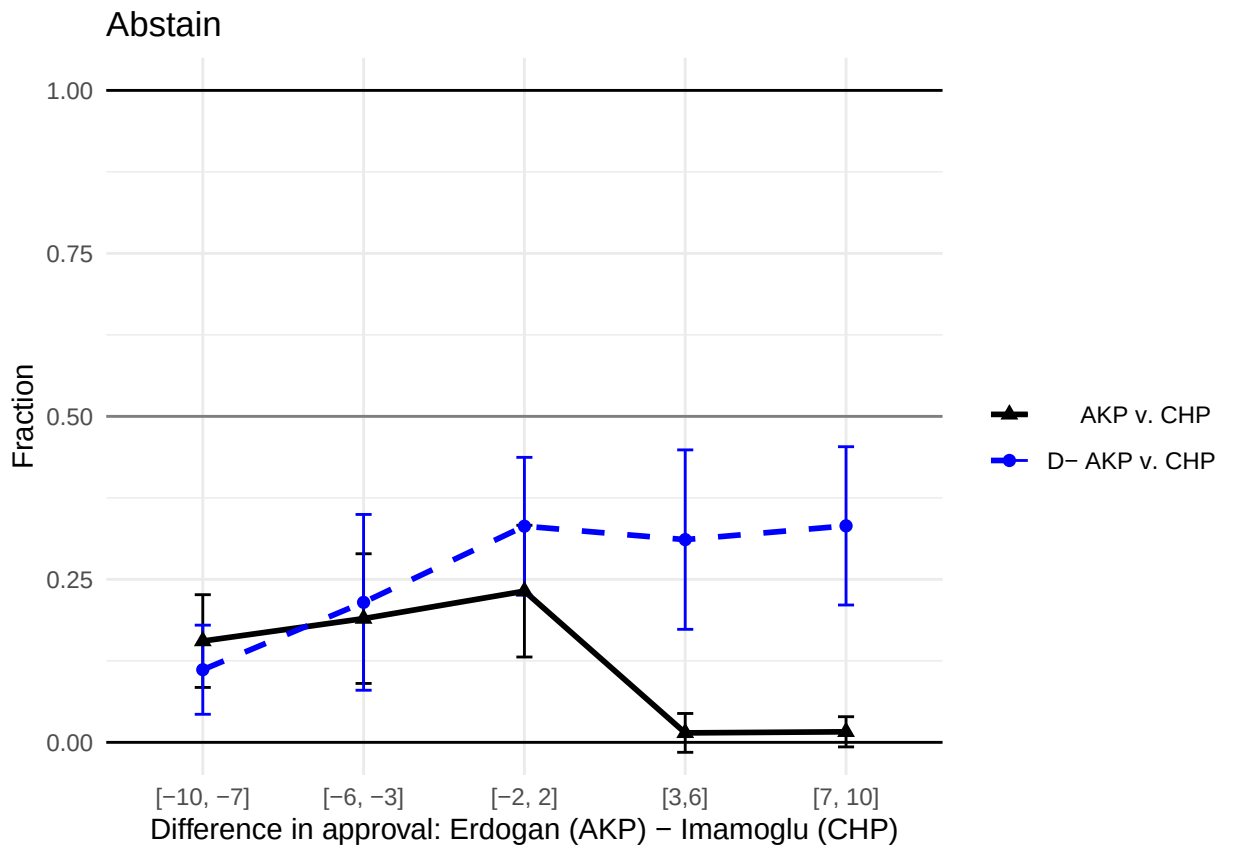



```
# SAVE THE PLOT
ggsave("figures/figure_6_CHP.png", dpi = 1200, width = 10, height = 6, units = "in")
ggsave("figures/figure_6_CHP.eps", dpi = 1200, width = 10, height = 6, units = "in")
ggsave("figures/figure_6_CHP.pdf", dpi = 1200, width = 10, height = 6, units = "in")
```

## PLOT ABSTENTIONS

```
df_plot %>%
  filter(vote=="vote_0") %>%
  mutate(treat=as.factor(treat)) %>%
  ggplot(aes(x=approval_diff_5, y=estimate, col=treat)) +
  coord_cartesian(ylim = c(0, 1)) +
  geom_hline(yintercept=0) +
  geom_hline(yintercept=0.5, col="grey50") +
  geom_hline(yintercept=1) +
  theme_minimal() +
  geom_line(aes(col=treat, group=treat, linetype = treat),  size=1) +
  geom_errorbar(aes(ymin=conf.low, ymax=conf.high, col=treat, group=treat), width=0.1) +
  geom_point(aes(col=treat, shape=treat), size=2) +
  scale_shape_manual(name  ="", values=c(17, 16), labels=plot_legend_labels) +
  scale_linetype_manual(name  ="", values=c("solid", "dashed"), labels=plot_legend_labels) +
  scale_color_manual(name  ="", values=c("black", "blue"), labels=plot_legend_labels) +
  scale_x_discrete(labels=plot_x_labels) +
  labs(
```

```
      x = plot_x_label, y = "Fraction",
      title = "Abstain"
    )
```




```
# SAVE THE PLOT
ggsave("figures/figure_6_ABS.png", dpi = 1200, width = 10, height = 6, units = "in")
ggsave("figures/figure_6_ABS.eps", dpi = 1200, width = 10, height = 6, units = "in")
ggsave("figures/figure_6_ABS.pdf", dpi = 1200, width = 10, height = 6, units = "in")
```

## Table 5

- CANDIDATE-CHOICE EXPERIMENTS, 2019: HETEROGENEITY IN PUNISHMENT BY RESPONDENT COVARIATES

**Prepare the data for estimation**

```
df_het <- df_experiments %>%
  select(rid:weight, district_id, treat:vote_0, age_cat:interest) %>%
  mutate(
    AKP_share = vote_1/(vote_1 + vote_2)
    )
```

**HETEROGENEITY: THE AKP VOTE**

```
df_het_AKP <- df_het %>%
  select(rid, weight, district_id, treat, vote_1, age_cat:interest)
ols_het_AKP <- lm_robust(vote_1 ~ treat*(.-rid-weight-district_id), data=df_het_AKP, weights = weight,
```

### HETEROGENEITY: THE CHP VOTE

```
df_het_CHP <- df_het %>%
  select(rid, weight, district_id, treat, vote_2, age_cat:interest)
ols_het_CHP <- lm_robust(vote_2 ~ treat*(.-rid-weight-district_id), data=df_het_CHP, weights = weight,
```

### HETEROGENEITY: ABSTENTIONS

```
df_het_ABS <- df_het %>%
  select(rid, weight, district_id, treat, vote_0, age_cat:interest)
ols_het_ABS <- lm_robust(vote_0 ~ treat*(.-rid-weight-district_id), data=df_het_ABS, weights = weight,
```

### HETEROGENEITY: AKP's TWO-PARTY VOTE SHARE

```
df_het_AKP_share <- df_het %>%
  select(rid, weight, district_id, treat, AKP_share, age_cat:interest)
ols_het_AKP_share <- lm_robust(AKP_share ~ treat*(.-rid-weight-district_id), data=df_het_AKP_share, wei
```

## CONSTRUCT THE TABLE

```
library(modelsummary)

# AKP VOTE
est_ols_het_1 <- ols_het_AKP
est_ols_het_1_out <- tidy(est_ols_het_1)

est_ols_het_1_out_alphas <- est_ols_het_1_out %>%
  slice(c(1:2))

est_ols_het_1_out_betas <- est_ols_het_1_out %>%
  filter(!grepl("treat:",term)) %>%
  slice(-c(1:2))

est_ols_het_1_out_gammas <- est_ols_het_1_out %>%
  filter(grepl("treat:",term))

table_coefs_alphas <- est_ols_het_1_out_alphas
table_coefs_alphas$term <- c("Intercept", "$D^-$")
table_coefs_betas <- est_ols_het_1_out_betas
table_coefs_betas$term <- c("Age: 31-40","Age: 41-50", "Age: 51+", "Sex: Male", "Education: High school
table_coefs_gammas <- est_ols_het_1_out_gammas
table_coefs_gammas$term <- c("Age: 31-40","Age: 41-50", "Age: 51+", "Sex: Male", "Education: High schoo

table_stats <- glance(est_ols_het_1)[1,c(6,1)]

table_out_alphas_1 <- list(
  tidy = table_coefs_alphas,
```

```
  glance = table_stats)
class(table_out_alphas_1) <- "modelsummary_list"

table_out_betas_1 <- list(
  tidy = table_coefs_betas,
  glance = table_stats)
class(table_out_betas_1) <- "modelsummary_list"

table_out_gammas_1 <- list(
  tidy = table_coefs_gammas,
  glance = table_stats)
class(table_out_gammas_1) <- "modelsummary_list"

# CHP VOTE
est_ols_het_2 <- ols_het_CHP
est_ols_het_2_out <- tidy(est_ols_het_2)

est_ols_het_2_out_alphas <- est_ols_het_2_out %>%
  slice(c(1:2))

est_ols_het_2_out_betas <- est_ols_het_2_out %>%
  filter(!grepl("treat:",term)) %>%
  slice(-c(1:2))

est_ols_het_2_out_gammas <- est_ols_het_2_out %>%
  filter(grepl("treat:",term))

table_coefs_alphas <- est_ols_het_2_out_alphas
table_coefs_alphas$term <- c("Intercept", "$D^-$")
table_coefs_betas <- est_ols_het_2_out_betas
table_coefs_betas$term <- c("Age: 31-40","Age: 41-50", "Age: 51+", "Sex: Male", "Education: High school
table_coefs_gammas <- est_ols_het_2_out_gammas
table_coefs_gammas$term <- c("Age: 31-40","Age: 41-50", "Age: 51+", "Sex: Male", "Education: High schoo

table_stats <- glance(est_ols_het_2)[1,c(6,1)]

table_out_alphas_2 <- list(
  tidy = table_coefs_alphas,
  glance = table_stats)
class(table_out_alphas_2) <- "modelsummary_list"

table_out_betas_2 <- list(
  tidy = table_coefs_betas,
  glance = table_stats)
class(table_out_betas_2) <- "modelsummary_list"

table_out_gammas_2 <- list(
  tidy = table_coefs_gammas,
  glance = table_stats)
class(table_out_gammas_2) <- "modelsummary_list"

# ABSTENTIONS
est_ols_het_0 <- ols_het_ABS
```

```r
est_ols_het_0_out <- tidy(est_ols_het_0)

est_ols_het_0_out_alphas <- est_ols_het_0_out %>%
  slice(c(1:2))

est_ols_het_0_out_betas <- est_ols_het_0_out %>%
  filter(!grepl("treat:",term)) %>%
  slice(-c(1:2))

est_ols_het_0_out_gammas <- est_ols_het_0_out %>%
  filter(grepl("treat:",term))

table_coefs_alphas <- est_ols_het_0_out_alphas
table_coefs_alphas$term <- c("Intercept", "$D^-$")
table_coefs_betas <- est_ols_het_0_out_betas
table_coefs_betas$term <- c("Age: 31-40","Age: 41-50", "Age: 51+", "Sex: Male", "Education: High school
table_coefs_gammas <- est_ols_het_0_out_gammas
table_coefs_gammas$term <- c("Age: 31-40","Age: 41-50", "Age: 51+", "Sex: Male", "Education: High schoo

table_stats <- glance(est_ols_het_0)[1,c(6,1)]

table_out_alphas_0 <- list(
  tidy = table_coefs_alphas,
  glance = table_stats)
class(table_out_alphas_0) <- "modelsummary_list"

table_out_betas_0 <- list(
  tidy = table_coefs_betas,
  glance = table_stats)
class(table_out_betas_0) <- "modelsummary_list"

table_out_gammas_0 <- list(
  tidy = table_coefs_gammas,
  glance = table_stats)
class(table_out_gammas_0) <- "modelsummary_list"

# AKP TWO-PARTY VOTE SHARE
est_ols_het_two <- ols_het_AKP_share
est_ols_het_two_out <- tidy(est_ols_het_two)

est_ols_het_two_out_alphas <- est_ols_het_two_out %>%
  slice(c(1:2))

est_ols_het_two_out_betas <- est_ols_het_two_out %>%
  filter(!grepl("treat:",term)) %>%
  slice(-c(1:2))

est_ols_het_two_out_gammas <- est_ols_het_two_out %>%
  filter(grepl("treat:",term))
est_ols_het_two_out_gammas$term <- est_ols_het_two_out_betas$term


table_coefs_alphas <- est_ols_het_two_out_alphas
```

```
table_coefs_alphas$term <- c("Intercept", "$D^-$")
table_coefs_betas <- est_ols_het_two_out_betas
table_coefs_betas$term <- c("Age: 31-40","Age: 41-50", "Age: 51+", "Sex: Male", "Education: High school
table_coefs_gammas <- est_ols_het_two_out_gammas
table_coefs_gammas$term <- c("Age: 31-40","Age: 41-50", "Age: 51+", "Sex: Male", "Education: High schoo

table_stats <- glance(est_ols_het_two)[1,c(6,1)]

table_out_alphas_two <- list(
  tidy = table_coefs_alphas,
  glance = table_stats)
class(table_out_alphas_two) <- "modelsummary_list"

table_out_betas_two <- list(
  tidy = table_coefs_betas,
  glance = table_stats)
class(table_out_betas_two) <- "modelsummary_list"

table_out_gammas_two <- list(
  tidy = table_coefs_gammas,
  glance = table_stats)
class(table_out_gammas_two) <- "modelsummary_list"

# COMBINE
modelsummary(list(table_out_alphas_1, table_out_betas_1, table_out_gammas_1, table_out_alphas_2, table_
             stars =  c('*' = .1, '**' = .05,  '***' = .01),
             escape = FALSE)

# options("modelsummary_format_numeric_latex" = "plain")
# modelsummary(list(table_out_alphas_1, table_out_betas_1, table_out_gammas_1, table_out_alphas_2, tabl
#              stars =  c('*' = .1, '**' = .05,  '***' = .01),
#              escape = FALSE,
#              output = "paper, table 5.tex")
```

# Figure 7

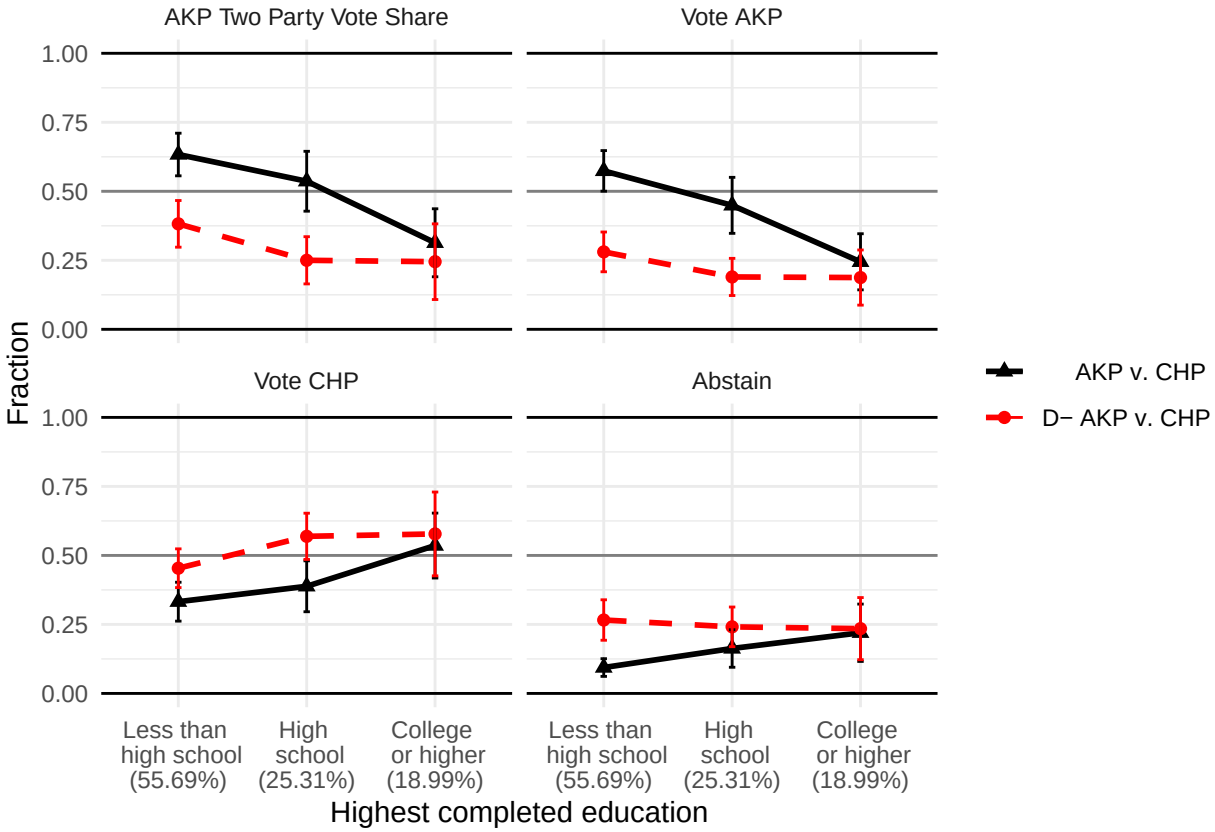
- The size of each educational subgroup

```
df_het %>%
  select(district_id, weight, edu_cat) %>%
  filter(!is.na(edu_cat)) %>%
  mutate(edu_temp =model.matrix( ~ edu_cat - 1, data=.)) %>%
  pivot_longer(cols = starts_with("edu_temp"), names_to = "edu_level", values_to = "yes") %>%
  do(lm_robust(yes ~ 1, data = ., clusters=district_id, weight=weight) %>% tidy) %>%
  select(outcome, estimate, conf.low, conf.high) %>%
  mutate(across(estimate:conf.high, ~ .x*100)) %>%
  mutate(across(estimate:conf.high, ~ round(.x, 2)))
```

```
##                         outcome estimate conf.low conf.high
## 1 edu_catLess than high school    55.69    52.10     59.29
## 2           edu_catHigh school    25.31    22.69     27.93
## 3     edu_catCollege or higher    18.99    16.60     21.38
```

**Plot**

```
df_plot <- df_het %>%
  select(rid, weight, district_id, treat, vote_1, vote_2, vote_0, vote_share=AKP_share, edu_cat) %>%
  pivot_longer(cols = starts_with("vote_"), names_to = "vote", values_to = "choice") %>%
  filter(!is.na(treat), !is.na(vote), !is.na(edu_cat)) %>%
  group_by(edu_cat, treat, vote) %>%
  do(lm_robust(choice ~ 1, data = ., clusters=district_id, weight=weight) %>% tidy) %>%
  select(edu_cat, treat, vote, estimate, conf.low, conf.high) %>%
  arrange(vote, treat, edu_cat)

plot_xaxis <- c("Highest completed education")
plot_labels <- c("Less than \n high school\n(55.69%)","High \n school\n(25.31%)","College \n or higher\n
df_plot %>%
  mutate(treat=as.factor(treat)) %>%
  mutate(vote=recode_factor(vote,
    `vote_0`= "Abstain",
    `vote_1`= "Vote AKP",
    `vote_2`= "Vote CHP",
    `vote_share`= "AKP Two Party Vote Share")) %>%
  mutate(vote=factor(vote, levels=c("AKP Two Party Vote Share", "Vote AKP", "Vote CHP", "Abstain"))) %>%
  ggplot(aes(x=edu_cat, y=estimate, col=treat, group = treat)) +
  coord_cartesian(ylim = c(0, 1)) +
  geom_hline(yintercept=0) +
  geom_hline(yintercept=0.5, col="grey50") +
  geom_hline(yintercept=1) +
  geom_line(aes(col=treat, group=treat, linetype = treat),  size=1) +
  geom_point(aes(col=treat, shape=treat), size=2) +
  geom_errorbar(aes(ymin=conf.low, ymax=conf.high, col=treat, group=treat), width=0.05) +
  scale_shape_manual(name  ="", values=c(17, 16), labels=c("     AKP v. CHP","D- AKP v. CHP")) +
  scale_linetype_manual(name  ="", values=c("solid", "dashed"), labels=c("     AKP v. CHP","D- AKP v. CH
  scale_color_manual(name  ="", values=c("black", "red"),  labels=c("     AKP v. CHP","D- AKP v. CHP"))
  scale_x_discrete(name =plot_xaxis, labels=plot_labels) +
  labs(y = "Fraction") +
  theme_minimal() +
  facet_wrap(~ vote)
```




```
# SAVE THE PLOT
ggsave("figures/figure_7.png", dpi = 1200, width = 10, height = 6, units = "in")
ggsave("figures/figure_7.eps", dpi = 1200, width = 10, height = 6, units = "in")
ggsave("figures/figure_7.pdf", dpi = 1200, width = 10, height = 6, units = "in")
```